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Developing an Artificial Intelligence Competency Framework for Higher Education Quality Assurance Personnel in Vietnam

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ABSTRACT: The development of artificial intelligence (AI), particularly generative AI, creates opportunities to support the collection, processing, and validation of evidence in higher education quality assurance (QA). However, the AI competency requirements associated with the professional tasks, responsibilities, and risk levels of QA personnel have not yet been sufficiently systematised. This study aims to develop a role-sensitive AI competency framework based on an integrative review of ten reference documents and conceptual framework analysis. The findings propose six competency domains: (D1) AI foundations and QA task framing; (D2) data governance and digital evidence; (D3) tool application and human–AI workflow design; (D4) output validation, measurement, and auditing; (D5) ethics, legal compliance, risk, and accountability; and (D6) communication, leadership, and professional learning. The framework comprises four developmental levels, ranging from awareness to leadership, with expectations differentiated according to role and task risk. The study contributes by connecting individual competencies with organisational accountability and evidence-based assessment. The framework is conceptual in nature and requires further expert appraisal and field testing before it can be used as a measurement instrument.

KEYWORDS: Artificial intelligence competency, quality assurance, higher education, competency framework, risk governance.

1. INTRODUCTION

Artificial intelligence (AI), particularly generative AI, is attracting increasing attention in higher education governance. In quality assurance (QA), AI can support evidence classification, feedback synthesis, the detection of data anomalies, and the preparation of draft self-assessment reports. However, the value of these applications depends on data provenance and quality, the verifiability of outputs, and mechanisms for assigning responsibility. Information used for QA may concern students, academic staff, and institutional governance. Consequently, inaccurate outputs or inappropriate data use may undermine the reliability of evaluation. Miao and Holmes [1] emphasise data protection, tool validation, and a human-centred approach, while Tabassi [2] proposes AI risk management through the functions of govern, map, measure, and manage.

In Vietnam, the National Strategy on Artificial Intelligence to 2030 identifies human-resource development and the AI ecosystem as important priorities [3]. The Law on Artificial Intelligence No. 134/2025/QH15, which took effect on 1 March 2026, provides an additional legal basis for the safe and responsible development and use of AI [4]. Meanwhile, the ASEAN University Network [5] approaches internal quality assurance (IQA) as an interconnected system involving leadership, information governance, and continuous improvement. These documents provide essential principles but do not directly establish a competency framework specifically for personnel undertaking QA roles in Vietnamese higher education institutions. The resulting research gap concerns the translation of AI and QA principles into competency requirements that are observable, verifiable, and differentiated by task. Accordingly, this study seeks to develop a conceptual AI competency framework for QA personnel, clarify its competency domains and developmental levels, and outline its application to self-assessment, professional development, and risk governance. The study does not aim to measure the current competency levels of this workforce.

2. RESEARCH CONTENT

2.1. Theoretical background

2.1.1. From AI literacy to professional AI competence

AI literacy is generally understood as the ability to recognise, use, and critically evaluate AI. Long and Magerko [6] identify competencies related to understanding, evaluating, communicating, and collaborating with AI. Ng et al. [7] summarise the dimensions of knowing and understanding, using and applying, evaluating and creating, alongside the ethical dimension. These approaches provide an important foundation but are not equivalent to professional competence in QA. Professional competence also requires the ability to define the right problem, ensure the lawful and appropriate use of data, verify outputs, account for decisions, and retain evidence of the work process. Therefore, prompt-writing skills and software operation constitute only one component of AI competence.

Miao and Cukurova [8] propose an AI competency framework for teachers comprising five dimensions: a human-centred mindset, AI ethics, AI foundations and applications, AI pedagogy, and AI for professional development. This framework offers insights into connecting

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knowledge, skills, and values across a developmental continuum. However, the dimensions designed for teachers cannot be transferred unchanged to QA personnel, because QA places particular emphasis on evidence governance, traceability, result validation, auditing, and organisational accountability. Accordingly, this article defines professional AI competence in QA as the ability to mobilise knowledge, skills, and responsible judgement to select, implement, monitor, and evaluate AI in quality assurance and improvement tasks, with performance demonstrated through observable behaviour and work records.

2.1.2. Characteristics of the work of quality assurance personnel

The term 'QA personnel' is used broadly in this study to include leaders responsible for quality, specialist QA officers, programme managers, academic staff participating in self-assessment, data and technology specialists, and members of internal review teams. Their work ranges from policy development and indicator design to evidence collection and verification, analysis of findings, reporting, and improvement monitoring. The ASEAN University Network [5] affirms that IQA is not a one-off responsibility of a dedicated unit; rather, it must be embedded in the institution's strategy, processes, and culture. The competency framework therefore needs a common core while allowing for different levels of specialisation according to role.

A defining characteristic of QA is that judgements and decisions must be based on data with identifiable provenance, context, reliability, and verifiability. AI can generate fluent content but does not inherently guarantee its accuracy; it can identify statistical associations but does not automatically establish causality; nor can it replace individual or organisational accountability. Accordingly, the focus of AI competence in QA should not be the maximisation of automation. Instead, it should be the ability to identify tasks for which AI support is appropriate, establish human control points, cross-check outputs against their sources, and maintain process traceability. This distinguishes the proposed framework from generic lists of AI tool-use skills.

2.1.3. Responsible AI governance and risk management

There is considerable convergence among international principles. The Organisation for Economic Co-operation and Development [9] emphasises inclusive growth, respect for human rights, transparency, explainability, safety, robustness, and accountability. Tabassi [2] operationalises risk management through four functions-Govern, Map, Measure, and Manage-with governance serving as an overarching function. The International Organization for Standardization [10], through ISO/IEC 42001:2023, approaches AI as an organisational management system that requires policies, objectives, responsibilities, risk assessment, and continual improvement. These documents make it possible to translate general principles into observable competencies: QA personnel must identify impacts, select control measures, measure output quality, maintain audit trails, and respond to incidents.

From an educational perspective, Miao and Holmes [1] add requirements concerning human agency, data protection, fairness, and the validation of educational relevance. In QA, this means that AI should not become the final decision-maker for conclusions with significant implications for students, academic staff, or programmes. AI-generated outputs should be treated as inputs to professional judgement, not as evidence in their own right. AI competence therefore also includes the ability to discontinue the use of a tool when the data are unsuitable, reliability falls below an acceptable threshold, or clear accountability cannot be established.

Table 1. Reference foundations and their implications for competency framework design

Reference source	Main focus	Implications for competency design
Long and Magerko [6]; Ng et al. [7]	Understanding, using, and evaluating AI; recognising ethical issues.	Integrate knowledge, practical skills, critical thinking, and professional values.
Miao and Cukurova [8]	Human-centred mindset; ethics; AI foundations and applications; professional learning.	Design by competency domains and developmental progression rather than limiting the framework to tool skills.
Miao and Holmes [1]	Data protection, tool validation, and human agency.	Make human oversight and the rights of stakeholders cross-cutting principles.
Tabassi [2]; OECD [9]	Governance, impact mapping, measurement, risk management, transparency, and accountability.	Include competencies in impact assessment, reliability measurement, traceability, and incident response.
ISO [10]	AI management systems and continual improvement.	Connect individual competencies with organisational policies, processes, roles, and auditing.
AUN [5]	Leadership, data, quality culture, and internal improvement.	Link AI competence to the QA cycle and improvement evidence rather than isolated applications.
National Assembly of Vietnam [4]; Prime Minister of Vietnam [3]	Responsible and safe AI use; human-resource development.	Ensure alignment with the Vietnamese legal context and national competency-development needs.

Source: Compiled by the author from the cited studies and documents.

2.2. Research methodology

This study employs an integrative review combined with conceptual framework analysis. The purpose is to synthesise approaches to AI literacy, AI competence, risk governance, and internal QA, and then translate them into a competency structure suited to professional tasks. The final reference set comprises ten sources listed in the references, including scholarly publications, guidance documents from international organisations,

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management standards, and Vietnamese legal documents. The sources were considered against four criteria: (i) institutional authority or scholarly foundation; (ii) relevance to AI, risk governance, or QA; (iii) traceability; and (iv) potential to be translated into professional competency requirements. This is a purposive integrative review, not a systematic review covering the entirety of the published literature; therefore, the ten sources are not claimed to be representative of the entire field.

The framework development process comprised four logically connected steps. Step 1-Extraction: identifying content units relating to AI knowledge, operational skills, verification behaviours, ethical principles, and governance requirements in the reference documents. Step 2-Task mapping: mapping these elements onto the QA task sequence, including problem definition, data preparation, tool selection and use, output verification, risk response, and improvement. Step 3-Framework synthesis: grouping requirements with similar functions into six competency domains and then describing four developmental levels according to autonomy, task complexity, verification capability, and scope of responsibility. Step 4-Internal review: examining the distinctiveness of the domains, coverage of the task sequence, observability through evidence, and suitability for different QA roles. Table 1 shows the relationship between the reference foundations and design implications, while Tables 2 and 3 present the resulting structure.

This methodology supports the development of a theoretically grounded proposal with preliminary applicability, but it is insufficient to establish reliability, construct validity, or implementation effectiveness. The study did not collect survey data, conduct a Delphi study, or perform statistical testing. Accordingly, the competency domains and application thresholds are presented as design propositions that require further expert review, institutional piloting, and assessment of the consistency, reliability, and practical validity of the indicators in subsequent research.

2.3. Proposed competency framework

2.3.1. Design principles

The framework is based on five principles. First, competence must serve educational quality and human interests; the degree of automation is not the measure of success. Second, competency requirements must be proportionate to risk: low-risk administrative tasks and tasks affecting student assessment cannot be subject to the same threshold. Third, competence must be demonstrated through outputs and behaviour, not self-assessment alone. Fourth, the framework comprises core competencies for all members and specialised competencies according to role. Fifth, competency development must be linked to organisational policies, data, processes, and support mechanisms; responsibility must not be placed entirely on individuals.

2.3.2. AI competency domains for QA personnel

By mapping theoretical content groups against the QA task sequence, the study proposes six related but functionally distinct competency domains. D1 establishes AI understanding and informs decisions about task selection; D2 ensures data suitability, usage rights, and traceability; D3 translates work requirements into human-AI collaborative workflows; D4 verifies the correctness and reliability of outputs; D5 governs ethical, legal, risk, and accountability requirements; and D6 supports communication, learning, and organisational improvement. Thus, D1-D3 primarily concern task definition and implementation, D4-D5 provide control mechanisms, and D6 helps sustain learning and improvement. The domains do not form a rigid linear sequence: data governance affects output validation, while legal competence and accountability shape the entire process.

Table 2. Structure of the six AI competency domains for QA personnel

Competency domain	Component competencies	Observable performance	Suggested evidence
D1. AI foundations and QA task framing	Understand AI concepts, capabilities, and limitations; define the problem accurately; decide when AI should or should not be used.	Distinguish automation, data analytics, and generative AI; identify users, purpose, consequences, and task risk.	Task description; risk-classification form; documented decision to select or reject a tool.
D2. Data governance and digital evidence	Assess data quality, provenance, usage rights, security, and representativeness.	Remove unnecessary data; anonymise data; establish access permissions; maintain metadata and evidence provenance and version histories.	Data inventory; verification records; access-control matrix; provenance and version records.
D3. Tool application and human–AI workflow design	Select tools; design prompts and workflows; integrate human control points.	Compare tools by purpose and risk; create workflows with confirmation steps; specify which tasks are performed by AI and which by humans.	Use-case scenario; prompt template; workflow diagram; operation and approval logs.
D4. Output validation, measurement, and auditing	Check accuracy, consistency, bias, and reproducibility; evaluate post-implementation effectiveness.	Cross-check against original sources; conduct sample checks; define error indicators; analyse exceptions; maintain audit logs.	Verification criteria; testing report; error statistics; audit records and corrective actions.
D5. Ethics, legal compliance, risk, and accountability	Identify privacy, intellectual property, fairness, safety, and accountability issues; handle incidents.	Explain the legal basis; assign risk owners; disclose AI use; activate stop, complaint, and correction mechanisms.	Impact assessment; approval minutes; transparency notices; incident records; handling decisions.
D6. Communication, leadership, and professional learning	Communicate AI limitations; collaborate across disciplines; guide colleagues; translate evaluation findings into improvement.	Explain results to non-specialists; organise consultation; develop training plans; update processes in response to lessons learned.	Guidance materials; training plan; consultation minutes; improvement reports; good-practice repository.

Source: Proposed by the author based on Miao and Holmes [1], Miao and Cukurova [8], Tabassi [2], OECD [9], ISO [10], and AUN [5].

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The framework is modelled as a radial structure to represent the simultaneous and interdependent nature of the six competency domains. The central core is educational quality and human responsibility, which defines the ultimate purpose of applying AI in QA. The arrows pointing towards the centre indicate that each domain contributes to this shared purpose; they do not imply empirically validated causal relationships. The band representing the four developmental levels illustrates that competency depth may vary according to role and the risk level of each task (Figure 1).

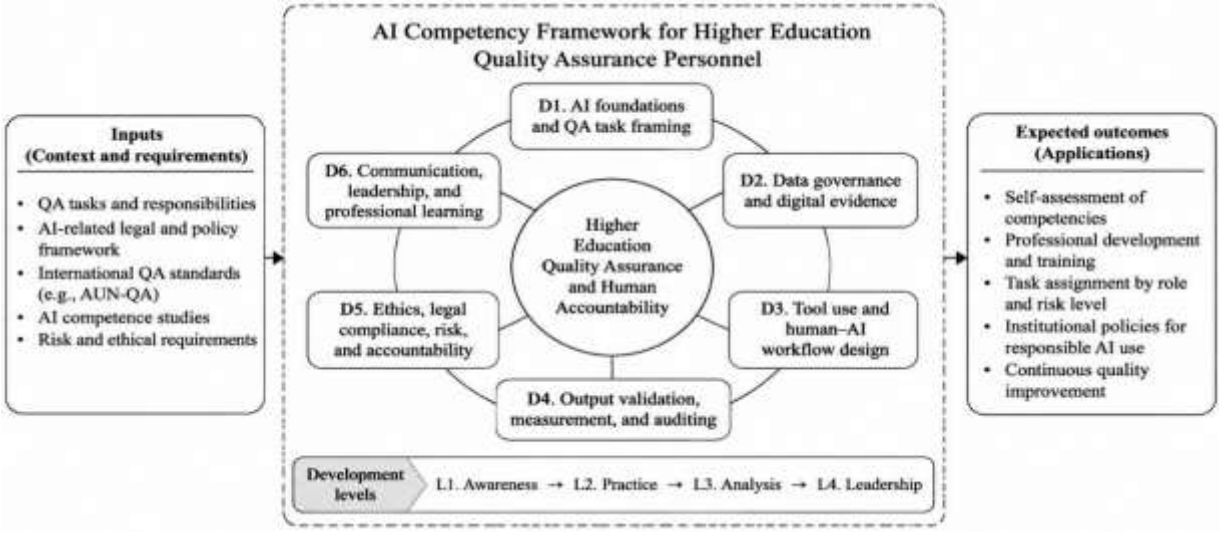

Figure 1. Structure of the AI competency framework for QA personnel
Source: Proposed by the author.

Figure 1 illustrates a proposed structure rather than a statistical model or an empirical validation result. Its central point is that AI supports information processing, while humans remain responsible for approving, explaining, and correcting errors in QA decisions. This structure provides a basis for organising self-assessment and designing task-based professional development programmes, while remaining open to adjustment in light of practical validation.

2.3.3. Competency development levels

The four levels are structured according to an increasing degree of autonomy, task complexity, verification, and scope of impact. L1-Awareness: understands basic AI terminology and limitations, recognises obvious risks, and performs tasks under guidance. L2-Practice: independently handles low-risk tasks in accordance with established procedures, protects data, cross-checks outputs, and maintains logs. L3-Analysis: designs or evaluates workflows, selects verification criteria, handles exceptions, and supports colleagues. L4-Leadership: develops regulations, allocates responsibilities, monitors risks, and organises improvement at unit or institutional level. These descriptions are proposed developmental standards, not a standardised measurement scale.

The levels are cumulative in developmental terms; however, assessment should be conducted for each domain and task rather than by calculating an overall average score. For example, an individual who reaches L3 in D3 but only L1 in D2 should not independently perform tasks involving sensitive data. For high-impact tasks, D2, D4, and D5 should be assessed as critical control conditions; the specific minimum thresholds must be established by each higher education institution based on risk classification and applicable regulations. The 'gating condition' mechanism is a proposed risk-governance design principle, not a rule whose effectiveness has already been tested.

Table 3. Matrix describing the competency development levels

Criterion	L1. Awareness	L2. Practice	L3. Analysis	L4. Leadership
Level of autonomy	Works under guidance; knows when to seek assistance.	Works independently on low-risk tasks.	Designs, critiques, and handles complex tasks.	Makes policy decisions and allocates responsibilities.
Complexity	Familiar situations involving non-sensitive data.	Standardised workflows with control tools.	Multiple data sources requiring comparison and interpretation.	Cross-unit, strategic, or high-risk impact.
Verification	Checks against an existing checklist.	Checks sources and conducts sampling.	Develops criteria and indicators and conducts testing.	Establishes audit mechanisms, thresholds, and accountability.
Evidence of competence	Completion of learning activities and scenario-based exercises.	Records demonstrating tasks completed in accordance with procedures.	Evaluation reports, designs, and guidance for colleagues.	Policies, monitoring systems, and improvement outcomes.
Suitable roles	New QA participants.	QA team members, academic staff, and support specialists.	QA specialists, data analysts, and programme managers.	Quality leaders, heads of units, and lead experts.

Source: Proposed by the author.

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2.3.4. Using the framework for self-assessment and professional development

To apply the framework, an institution should first compile an inventory of tasks involving AI, including tools used by individuals in their work. At a minimum, each task record should specify its purpose, data type, responsible unit or individual, tool, level of impact, and human confirmation point. On this basis, the unit identifies the participating roles and the expected competency level for each domain. By way of illustration, personnel synthesising anonymised feedback may be expected to reach L2 in the relevant domains; those designing an early-warning system for learning risks may require L3 in data governance, validation, and risk management; and leaders approving workflows may require L4 in areas related to accountability and coordination. These illustrative levels are not mandatory standards for all higher education institutions.

Assessment should be based on evidence of work performance rather than self-perception questionnaires alone. Evidence may include scenario-based tasks, task outputs, process documentation, data cross-checking logs, error-handling records, peer feedback, and explanatory interviews. The level for each domain should be determined by the highest level for which sufficient reliable evidence is available; cases involving insufficient or conflicting evidence should be reviewed. Assessment results should inform professional development needs and task allocation and should not be used in isolation to rank personnel. Priority should first be given to weaker competency domains with significant risk implications, before expanding to the optimisation of tool operation.

Implementation may proceed in three phases. Preparation phase: standardise terminology, data policies, the task inventory, roles, and core competency requirements. Pilot phase: select low-risk tasks and establish baseline data and indicators for processing time, error rates, verification effort, and user acceptance. Integration phase: consider expansion once pilot results meet the thresholds set by the unit and mechanisms are in place for feedback, traceability, and clear allocation of responsibility. Reassessment should take place whenever the tool, data type, purpose of use, or risk level changes. This is a proposed implementation roadmap for testing, not a report of observed implementation outcomes.

2.4. Discussion of the framework's contributions and limitations

Compared with general AI literacy approaches, the proposed framework incorporates evidence traceability, output validation, and organisational accountability as components directly associated with QA tasks. Compared with AI competency frameworks for teachers, it shifts the focus from pedagogical practice to information governance, auditing, and quality improvement. Combining six domains with four developmental levels makes it possible to describe competence not only in terms of technical proficiency but also in terms of autonomy, risk assessment, and the scope of responsibility. Nevertheless, the boundaries between domains, the appropriateness of the level descriptors, and the application thresholds for different role groups still need to be examined through expert consultation and empirical data. The contribution of this article therefore lies in structuring the field and proposing directions for application, rather than demonstrating causal relationships or validating a standardised assessment instrument.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1. Conclusions

This study develops an AI competency framework for higher education QA personnel in Vietnam through an integrative review and conceptual framework analysis. The resulting framework comprises six competency domains, ranging from task framing, data governance, and tool application to validation, risk governance, and leadership in professional learning, together with four developmental levels from awareness to leadership. Its main contribution is to connect AI competency requirements with the QA task sequence, evidence of work performance, and human responsibility in proportion to risk. The framework can provide a basis for self-assessment, professional development, and the design of internal policies. However, the study remains at the conceptual proposal stage; no conclusions can yet be drawn regarding the framework's reliability, measurement validity, or effectiveness in practice.

3.2. Recommendations

For regulatory authorities and QA networks, consideration could be given to developing common terminology, a repository of case studies, and guidance materials for classifying AI tasks by risk. Professional development should combine AI foundations with legal issues, data governance, output validation, and accountability, while also supporting the sharing of practices and the development of lead experts across institutions.

For higher education institutions, it is advisable to inventory tasks involving AI, identify approval authority, assign risk owners, and integrate competency requirements into workforce development plans. Piloting should begin with tasks whose risks can be controlled and for which baseline data and pre- and post-implementation indicators are available. Decisions to scale up should not rely solely on perceived time savings; they should also consider errors, verification costs, data risks, and user feedback.

For QA units, the framework may be used as a tool to guide diagnosis and professional development rather than as a ranking instrument. Each self-assessment result should be linked to a learning plan, supervised practice, and reassessment. Further research should undertake content validation through an expert panel, clarify behavioural indicators, pilot the framework in public and private higher education institutions, and subsequently examine its reliability, construct validity, and practical utility.

REFERENCES

1) Miao, F., & Holmes, W. (2023). Guidance for generative AI in education and research. UNESCO. https://doi.org/10.54675/EWZM9535
2) Tabassi, E. (2023). Artificial intelligence risk management framework (AI RMF 1.0) (NIST AI 100-1). National Institute of Standards and Technology. https://doi.org/10.6028/NIST.AI.100-1
3) Prime Minister of Vietnam. (2021). Decision No. 127/QD-TTg dated 26 January 2021 promulgating the National Strategy for Research, Development and Application of Artificial Intelligence to 2030. Government of Vietnam. https://chinhphu.vn/?docid=202565&pageid=27160&tagid=6&type=1
4) National Assembly of Vietnam. (2025). Law on Artificial Intelligence No. 134/2025/QH15, dated 10 December 2025. Government of Vietnam Legal Document Portal. https://vanban.chinhphu.vn/?classid=1&docid=216334&pageid=27160&typegroupid=3
5) ASEAN University Network. (2025). AUN-QA IQA management toolkit (Version 1.3).

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https://www.aunsec.org/application/files/6917/7943/0058/AUN-QA_IQA_Management_Toolkit_Version_1.3.pdf

6) Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (pp. 1–16). Association for Computing Machinery. https://doi.org/10.1145/3313831.3376727
7) Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. Computers and Education: Artificial Intelligence, 2, Article 100041. https://doi.org/10.1016/j.caeai.2021.100041
8) Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. UNESCO. https://doi.org/10.54675/ZJTE2084
9) Organisation for Economic Co-operation and Development. (2024). Recommendation of the Council on artificial intelligence (OECD/LEGAL/0449). https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449
10) International Organization for Standardization. (2023). Information technology-Artificial intelligence-Management system (ISO/IEC Standard No. 42001:2023). https://www.iso.org/standard/42001

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