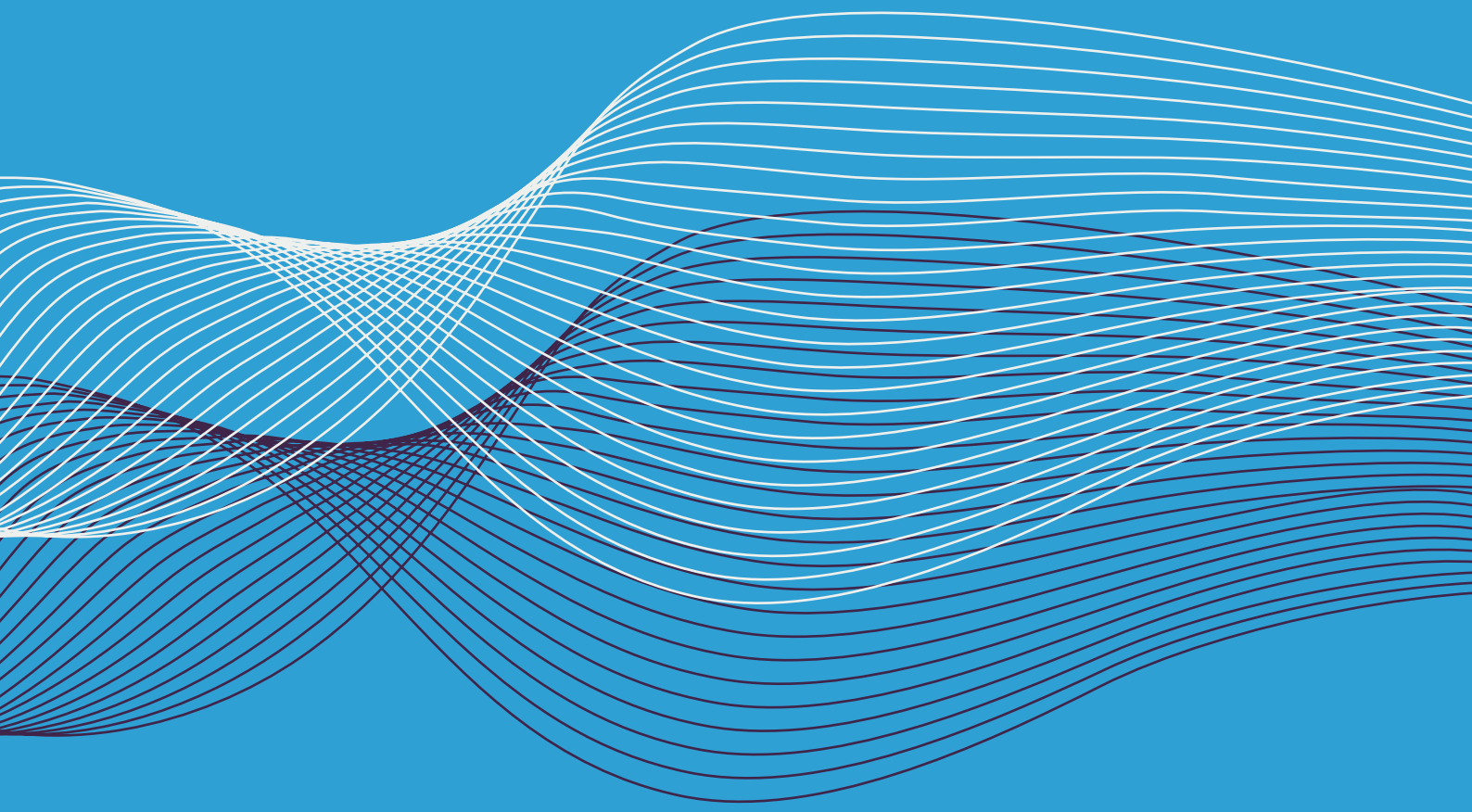
United Nations University
Institute in Macau

PRELIMINARY POLICY REPORT

A Cross-National Study of Governing AI in Higher Education

Human-AI Collaboration and Interoperability

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UNU Macau 2026 Policy Report - A Preliminary Report

A Cross-National Study of Governing AI in Higher Education: Human-AI Collaboration and Interoperability

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1. Introduction

This preliminary report provides the context for the 2026 UNU Policy Report, *A Cross-National Study of Governing AI in Higher Education: Human-AI Collaboration and Interoperability*. Each country team also presents a three-page summary of its findings. The full report, comprising a comprehensive synthesis report and four detailed country reports, will be published in December 2026 following stakeholder feedback, deliberations among team members at the UNU Macau AI Conference in November 2026, and the incorporation of peer-review comments.

Higher education institutions increasingly use AI systems across teaching, assessment, research, administration, and student services. For universities to collaborate in cross-border AI-supported educational activities, the relevant ethical, technical, semantic, legal, institutional and educational assurance arrangements are not readily compatible. This creates three problems. First, the same AI tool may trigger different compliance expectations depending on where students, staff or servers are located and where the software was procured. Second, Higher education staff and students may face unclear responsibilities when using AI in joint programmes, online courses and international research projects. Third, institutions may lack agreed mechanisms for recognising each other's assessments of AI systems, leading to duplicated review processes and inconsistent enforcement.

Existing national instruments are not designed primarily for cross-border higher education cooperation. They often focus on national regulation, platform governance, consumer protection, data protection or general AI safety. University-level policies are often institution-specific and may not provide a common risk classification, disclosure format or assurance mechanism that can be recognised across jurisdictions. International guidelines, including UNESCO (2023, 2025, 2026), provide useful principles and management structures, but they do not supply a complete cross-jurisdictional mechanism through which universities can map requirements, compare assurance evidence, recognise appropriate assessments, and share incident learning. Others draw on evidence from countries in particular groups, i.e. OECD or European universities (European Commission, 2025). Universities from other regions including East Asia with significant educational sectors and AI adoption are under research. International standards such as BS EN ISO/IEC 42001:2026 and the NIST AI Risk Management Framework provide useful governance structures, but they are not higher-education-specific and do not by themselves resolve differences between national regulatory expectations. Therefore, a gap remains between national AI governance requirements and the operational needs of universities that teach, assess, research, and procure AI systems across multiple jurisdictions.

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The UNU Macau 2026 policy report addresses this practical challenge of cross-border AI governance for higher education. Focusing on core functions of higher education including teaching, research, social services, and cultural inheritance & innovation, it analyses the deployment of AI in higher education from multi-dimensional perspectives across four jurisdictions of China, UK, Singapore and South Korea, and questions the potential impact, i.e. whether they undermine, enhance or transform, on those functions. In addition, it establishes a governance floor and mechanisms for mapping, collaboration, mutual recognition and shared learning, without requiring legal or institutional uniformity. The policy report distinctive contributions lay on four folds:

1. Synthesis and Country Reports: The policy report consists of one synthesis report and four country reports. Synthesis report can be read independently or in connection with country reports, it addresses the policy questions based on analysis and data of country reports and proposes policy recommendations on establishing an interoperable governance structure for the procurement, deployment, use and monitoring of artificial intelligence systems in higher education institutions participating in cross-border cooperation. The four country-level policy reports conduct a multi-level study of AI governance policies in higher education, each examining how AI is ruled on national, university and departmental levels.
2. Academic Level: Moving beyond the traditional single-jurisdiction policy analysis, the country report adopts "integrated governance" as a novel research perspective to establish a three-tiered framework spanning national, university, and departmental levels. This approach addresses the fragmentation in the current disciplinary research and enriches the theoretical framework for AI governance in higher education contexts.
3. Global Governance and Policy Value: This study systematically examines variations in governance models across diverse institutional contexts, identifies replicable best practices, and provides a reference framework for countries to refine their AI education governance policies; through interoperability mechanism design, it establishes actionable pathways for cross-border higher education AI governance collaboration, supporting the implementation of the United Nations' inclusive and interoperable AI governance.
4. Value of Public Knowledge: The report establishes an open and accessible multinational policy database to facilitate global knowledge exchange, capacity building, and experience sharing in AI governance, thereby addressing the public demand for digital transformation in higher education worldwide.

2. Objectives

The policy report seeks to achieve three interconnected objectives.

1. Establish an interoperable governance structure for the procurement, deployment, use and monitoring of artificial intelligence systems in higher education institutions participating in cross-border cooperation among China, the UK, Singapore and South Korea. These jurisdictions are selected because of their relatively advanced readiness for AI adoption in higher education and their diverse regulatory and institutional contexts. China, Singapore, and South Korea provide comparatively under-studied East Asian perspectives, while the United Kingdom offers a complementary case outside the European Union with a strong orientation toward international cooperation in educational technology.
2. Function as a pathfinder for the formulation of a Global Framework. This means that while the governance structures analysed are not offered as a finished instrument they may serve as a working model that brings light into how legislatures and institutions could operationalise cross-border interoperability within their educational contexts.
3. Propose semantic, ethical, legal, organization, institutional, technical and human interoperability to:
    a. Establish a minimum protective governance floor for cross-border uses of AI in higher education;
    b. Create shared or mappable terminology, risk categories and assurance evidence;
    c. Enable mutual recognition where legal and institutional conditions permit;
    d. Preserve legitimate fragmentation and local authority;
    e. Support reciprocal learning and teaching, incident reporting and capacity development;
    f. Protect human agency, critical teacher intelligence, educational judgement, academic integrity etc.

3. Policy Questions and Methodology

The report is guided by the following key questions:

- How do higher education policies, university arrangements and disciplinary rules on AI integration shape responsible human-AI collaboration in the core functions of universities in China, South Korea, Singapore and the UK?
- What shared safeguards, functionally equivalent arrangements, legitimate divergences and opportunities for interoperability emerge from the cross-country analysis?

The first question is a precondition to the second, providing data to be synthesized and compared by the second.

The four country-level policy reports conduct a multi-level study of AI governance policies in higher education, each examining how AI is ruled on national, university and departmental levels. The reports concentrate on how regulations and policies govern the integration of AI into university teaching, research, social services and culture inheritance and innovation rather than micro-level practical interactions. Given that humanities disciplines exhibit more pronounced characteristics of human-computer interaction, they are designated as the core and common research case study, while natural science cases serve as optional.

The country reports share a common analytical structure, i.e. three governance levels and four university functions, but they differ in sample size, coding frame, as summarised in Table 1.

Synthesis report addresses the policy questions based on country reports and proposes policy recommendations on establishing an interoperable governance structure.

Five categories of sources are used: national AI strategies and legislation; education and higher education policy documents; university-level AI policies; departmental and disciplinary evidence; and public guidance documents. All sources are publicly available online, and the institutional sample was selected purposively.

4. A Cross-National Interoperability Framework

Our reports adopt the definition of interoperability in governance as "the capacity of diverse regulatory philosophies, technical frameworks, value systems, and governance institutions to communicate and cooperate effectively across borders without necessitating complete legal harmonisation or institutional uniformity" (AI Governance for Humanity Lab, 2026, p. 19). Its normative foundation is a shared governance floor that establishes minimum conditions for responsible cooperation while allowing jurisdictions to adopt legitimate divergence in accordance with their local legal and institutional contexts. Our study uses functional equivalence to assess whether different governance arrangements perform comparable functions and provide sufficiently compatible protection, oversight and accountability to support cooperation in defined contexts (Chin et al., 2025, pp. 7–8; AI Governance for Humanity Lab, 2026, pp. 19–25).

Methodologically, our study adopts a qualitative cross-national comparative approach based on the four country reports and the policies, laws, institutional rules, and practices reviewed within them. The comparative analysis is organised around five interconnected layers:

Table 1

Country	Institutional sample	Coding frame
China	40 Double First-Class universities	EIF-derived
Korea	5 universities (SNU, KU, YU, KHU, SKKU), with KCUE survey context (140 institutions)	Protective/facilitative
Singapore	6 autonomous universities (NUS, NTU, SMU, SUTD, SIT, SUSS)	Governance mode × locus of accountability × enforcement mechanism
United Kingdom	30 universities (24 England, 4 Scotland, 1 Wales, 1 Northern Ireland)	Protective/facilitative

1. **Technical interoperability:** compatibility and exchange among systems, platforms, credentials, data formats, and assurance mechanisms.
2. **Semantic interoperability:** concerning the meaning and format of exchanged information and requiring common or mappable vocabularies, metadata, data models, taxonomies, terminology, and syntactic compatibility.
3. **Organisational interoperability:** coordination of responsibilities, procedures, and feedback among governments, universities, and academic units.
4. **Human interoperability:** the capabilities and authority required for students, educators, researchers, and professional staff to participate responsibly in AI-enabled environments.
5. **Governance interoperability:** compatibility among legal, regulatory, ethical, and institutional arrangements in providing comparable protection, accountability, and redress.

Each interoperability layer is examined through four analytical dimensions:

- **Convergence:** shared governance objectives, principles, and instruments;
- **Divergence:** differences in semantic, technical, ethical, regulatory and other arrangements;
- **Complementarity:** different instruments that reinforce each other to achieve complementary performance;
- **Bridging opportunities:** practical mechanisms for crosswalks, conditional recognition, capacity-building, cross-border cooperation etc.

Country-level findings indicate convergence around human responsibility, academic integrity, data protection, verification and AI literacy. Important differences remain in the binding force of policies, the distribution of authority between governments and universities, technical infrastructure, disclosure formats, and assurance procedures. A practical pathway towards interoperability can begin with cooperation, including joint courses, collaborative research, portable AI-literacy credentials, and shared AI assurance.

5. Preliminary Findings

Within its defined parameters, this report examines the practical and widely observed governance challenge of how universities can collaborate across borders when the AI systems they use, and those operating within their respective contexts, are governed by diverse national regulations, institutional policies, and disciplinary norms. The issue is not the absence of governance but rather its fragmentation across legal regimes, institutional levels, and internal normative frameworks. The report argues that the appropriate response is the establishment of a common governance floor, whereby interoperability mechanisms substitute for legal and institutional uniformity, allowing diversity and local sovereignty to remain central.

Across the four jurisdictions examined, a set of common protective safeguards emerges around disclosure, verification, academic integrity, data protection, and human accountability in the use of AI within higher education. At the same time, significant differences persist in the facilitative capacity, implementation, and enforcement of AI governance. Interoperability rests on functional equivalence rather than regulatory uniformity. In response to the central questions addressed in this report, the preliminary findings suggest that effective cross-border partnerships can be sustained where the use of AI tools is supported by shared evidence, shared safeguard, comparable procedures, and transparent review mechanisms. Under these conditions, institutions can cooperate across different regulatory environments without requiring complete legal or policy alignment.

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AI in Higher Education: Republic of Korea Country Summary

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1. Introduction and Country Overview

Korea's higher education system combines strong national policy direction with institutional autonomy in teaching, research and university management. As of 1 April 2025, it comprised 421 institutions, including 189 universities, 10 universities of education and 130 junior colleges (Korean Educational Development Institute, 2025). National policy increasingly positions higher education as a key contributor to AI talent development, technological innovation, regional development and national competitiveness (Ministry of Education, 2026; Ministry of Science and ICT, 2026). This summary examines AI governance across four core university functions: education and talent development, research and knowledge production, societal engagement and service, and cultural inheritance and innovation. National policies prioritise the first two functions, whereas AI governance of the latter two remains comparatively underdeveloped.

AI governance in Korean higher education operates through a hybrid arrangement of national legislation, sectoral guidance, university autonomy and instructor discretion. The AI Basic Act, in force since January 2026, establishes a general legal framework for AI development and trustworthy use (AI Basic Act, 2025). However, its classification of high-impact AI explicitly includes student assessment in early childhood, elementary and secondary education without separately identifying higher education. Universities nevertheless remain subject to other applicable legal obligations, particularly personal information protection (Personal Information Protection Act, 2025; Personal Information Protection Commission, 2025). On 24 August 2026, the Ministry of Education and the Korean Council for University Education (KCUE), the national association of four-year universities, announced non-binding guidelines that set common ethical principles and practical expectations for AI use in university teaching and learning, to be applied autonomously by each university (KCUE, 2026c). Research is addressed separately by guidance from the National Research Foundation of Korea (NRF) (NRF, 2026).

At the institutional level, universities translate national principles into their own guidelines and implementation mechanisms. Several universities had introduced AI guidelines as early as 2023, well before the national guidance appeared. Across the five universities examined, decisions concerning permitted AI use in individual courses are delegated to instructors. As a result, Korea's governance approach combines shared ethical safeguards with variation in institutional resources, implementation mechanisms and disciplinary requirements. This summary considers how these arrangements shape responsible collaboration between humans and AI and what they imply for international comparison and interoperability with China, the United Kingdom and Singapore.

2. Research Methods and Scope

The underlying country report is a qualitative, document-based mapping of publicly declared governance arrangements, not an evaluation of measured policy effects. It reviews legislation, national strategies, KCUE and NRF guidance, and university and department materials. Five large, relatively early-adopting capital-region universities, one national and four private, were compared: Seoul National (SNU), Korea (KU), Yonsei (YU), Kyung Hee (KHU) and Sungkyunkwan (SKKU). Selected disciplinary cases from these and other institutions, including KAIST and POSTECH, illustrate practice in the humanities, social sciences, education, theology, natural sciences, computing, social welfare, nursing and cultural heritage. Publicly available university documents were reviewed through September 2026 and department-level sources through 29 August 2026.

The analysis distinguishes legally binding norms from guidance, and protective governance, which manages risks (such as academic integrity, disclosure and privacy), from facilitative governance, which enables use (such as tools, instructor training and assessment redesign). It cannot establish actual compliance, causal effects or national

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representativeness, and the absence of a provision in public documents is not treated as proof that a practice is absent. For broader context, a survey conducted before the national guidance found that 56 of 140 responding universities had adopted a generative-AI policy, 56 were considering one and 28 had none (KCUE, 2026a).

3. Governing Human–AI Collaboration

Education and talent development. National guidance emphasises academic integrity, responsible AI use, human oversight and assessment reform. The KCUE guidelines recommend essay-type questions and supplementary oral interviews, and treat AI detection results as indicative rather than conclusive evidence (KCUE, 2026c). Across all five universities, instructors determine the permitted scope of AI use in course syllabi, although requirements for disclosure and assessment vary (KU, 2026; KHU, 2025; SNU, 2026; SKKU, 2026; YU, 2025). KU, KHU and SKKU provide more specific approaches to process-based assessment and verification. At the disciplinary level, the humanities prioritise interpretation and argumentation, social sciences critical judgement, education pedagogical and assessment authority, and technical fields verification and reproducibility. The common principle emerging from these cases is that AI should support rather than replace the human capabilities that educational activities are intended to develop or assess.

Research and knowledge production. NRF guidance emphasises research integrity, appropriate disclosure, verification and human accountability across research design, conduct and reporting (NRF, 2026). Among the five universities, SNU, YU and KHU directly address research use, whereas the principal AI documents of KU and SKKU focus on education. These policies require researchers to retain responsibility for research design, interpretation, data protection and final outputs. SNU emphasises human leadership and documentation for reproducibility, while YU provides more specific requirements: it rejects AI authorship, specifies how use is disclosed and prohibits AI generation of essential research outputs such as hypotheses, data and analytical results. KHU likewise rejects AI authorship. However, no dedicated AI ethics review board covering the entire AI lifecycle was identified in the documents reviewed for the five universities.

Societal engagement and service. National initiatives, including the Regional AX strategy, promote cooperation between Korea's four science and technology institutes and regional universities. Departmental examples include social welfare applications, digital public diplomacy and nursing education. Nevertheless, none of the five universities has a dedicated AI governance instrument for societal engagement. Although equity and public value appear in institutional principles, implementation mechanisms remain limited. SNU, KHU and SKKU provide institutional AI services to their members, but eligibility restrictions and time-limited contracts constrain access, and gaps between institutions lie beyond what individual university norms can address. In a KCUE survey, no university reported being able to fund its AI transformation entirely on its own, and 127 of 142 respondents (89.4%) reported needing substantial government support (KCUE, 2026b).

Cultural inheritance and innovation. AI is increasingly incorporated into digital humanities, cultural archives, language analysis, heritage preservation and interdisciplinary curricula. These applications require human responsibility for authenticity, provenance, interpretation and cultural representation. KHU is distinctive in grounding its AI governance principles in its founding ideal and institutional cultural identity. However, in national policy and in the cases reviewed, cultural inheritance remains largely subsumed within education and research, notably through the protection of the humanities, rather than governed as an independent university function, leaving dedicated governance mechanisms comparatively underdeveloped.

Cross-cutting policy and functional effects. Protective principles concerning transparency, academic integrity, verification, data protection and human responsibility are relatively consistent across governance levels. However, facilitative governance is uneven, with institutional differences in AI infrastructure, instructor training, assessment support and policy renewal. The division of responsibilities among the Ministry of Education, the Ministry of Science and ICT, the Personal Information Protection Commission, KCUE and NRF, together with the absence of systematic implementation indicators, also limits coordination and policy evaluation. Because outcome data are unavailable, effects are inferred from documented arrangements. In education, the effect is ambivalent: AI talent policy broadens the function, while the absence of standards for human capabilities beyond technological fluency risks weakening its educational depth (KCUE, 2026c; Specht & Saunders, 2026); assessment redesign nonetheless creates opportunities to transform teaching. In research, the national framework shows transformative potential (NRF, 2026), but institutional development remains partial. Societal engagement and service shows early potential for enhancement through Regional AX and departmental projects but lacks dedicated governance mechanisms within universities, and cultural

inheritance is not yet differentiated as a distinct function. The clearest cross-level effect is that responsibility is concentrated on instructors while institutional support remains uneven (KCUE, 2026b).

4. Principal Findings and an Illustrative Example

Five principal findings emerge from the Korean case. First, protective governance shows considerable consistency across national, university and disciplinary levels, whereas facilitative governance remains uneven in the provision of AI tools, instructor training and institutional support. Second, decisions concerning permitted AI use are delegated to instructors, a practice documented since 2023 that predates the national guidelines introduced in August 2026. Instructors thus become the point at which AI policy is applied in practice, yet university presidents reported a gap between the perceived extent of change (mean = 2.82) and the level of institutional response (mean = 1.89) in strengthening instructors' AI competencies, both measured on a three-point scale (KCUE, 2026b). Third, disciplines differ less in whether they permit AI than in which human capability they seek to protect; the key consideration is whether AI supports or replaces the capabilities that educational and research activities are intended to develop or assess. Fourth, governance arrangements are more developed in education and research, while AI integration in societal engagement and cultural inheritance often advances without corresponding dedicated governance mechanisms. Fifth, the reviewed universities do not publicly report systematic implementation indicators, such as the share of syllabi with AI clauses or the number of misconduct cases handled, and no regular mechanism was identified for incorporating institutional experience into national policy revision.

An illustrative example is SKKU, which adopted its AI Education Ethics Guidelines (SAFE) in August 2026. These guidelines require course syllabi to specify five elements: permitted and prohibited AI tools, the scope of permitted use, disclosure methods, treatment in grading, and procedures for handling violations. SAFE also introduces verifiable learning records, signalling a shift from detection-based enforcement towards assessment of the learning process, and establishes an annual policy renewal cycle covering guideline revision, instructor workshops, syllabus updates, incorporation of pilot results and year-end evaluation. Among the five universities examined, SKKU is the only institution whose public documents address all six policy renewal elements assessed in the report. While instructor discretion is common across the universities, SKKU represents a distinctive case of more systematically specified institutional governance. However, these documented arrangements do not in themselves demonstrate effectiveness (SKKU, 2026).

5. Implications and Discussion Questions

The Korean case suggests that international interoperability should be built on common minimum safeguards rather than uniform regulations. Shared principles of transparency, verification, academic integrity, data protection, contextual authorisation and final human responsibility can support functional equivalence while preserving institutional autonomy and disciplinary differences. For example, the national categories of prohibited, restricted and permitted use, and KHU's prohibited, restricted and integrated modes, differ in wording but perform the same function, so crosswalks between terms are more feasible than identical rules. Facilitative capacity, by contrast, is better strengthened through shared infrastructure, joint development and mutual learning than through common rules.

At the institutional level, priorities include strengthening instructor competencies, providing secure AI infrastructure, improving assessment guidance and establishing mechanisms for policy evaluation and revision. Korea's proposed Global AI Hub, whose planned functions include standards development, shared resources and training, offers a potential platform for international cooperation, although its specific role in higher education remains undefined.

These implications remain provisional because the reviewed universities are predominantly early adopters, implementation outcomes have not been systematically measured, and international comparison requires a consistent analytical framework across China, Korea, Singapore and the United Kingdom. Two questions are proposed for conference discussion:

(1) Which institutional procedures, such as course-level authorisation categories, disclosure formats and process-based assessment, could partner systems recognise as functionally equivalent safeguards, for example in credit transfer or joint degrees, without imposing uniform rules?

(2) What small set of comparable implementation indicators could participating countries report to distinguish the adoption of AI policies from their implementation and effects?

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AI in Higher Education: United Kingdom Country Summary

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1. Introduction and country overview

The United Kingdom (UK) has a differentiated higher education system. Regulation and funding are devolved, creating distinct oversight arrangements across England, Scotland, Wales, and Northern Ireland, while universities retain substantial autonomy over assessment, research, and institutional practice. UK-wide law, territorial arrangements, sector guidance, university policy and disciplinary rules therefore interact across multiple levels.

AI use has been examined across four university functions: education and talent development; research and knowledge production; societal engagement and service; and cultural inheritance and innovation. The central proposition is that governance should focus less on whether a named AI tool is used and more on AI's contribution to a task, the human capability that must remain visible, the evidence required to justify reliance, and the allocation of responsibility. This task-and-capability approach recognises that the same AI system may support learning in one context but may replace the capability being assessed in another.

Recent student evidence underscores the urgency of addressing this governance issue. A survey of 1,054 full-time UK undergraduates found that 95% reported using AI in at least one way, and 94% reported using generative AI to support assessed work. Only 36% felt encouraged by their institution to use AI, and 38% reported having access to institution-provided tools. These self-reported figures indicate high adoption and uneven perceived enablement, but do not demonstrate educational benefit, misconduct or institutional effectiveness (Stephenson & Armstrong, 2026). Evidence from educators shows a similar pattern. A Jisc survey of 1,765 teaching staff across 22 UK educational institutions found that 37% reported using AI tools in teaching activities, while only 23% reported being offered training in their appropriate use (Jisc, 2025).

2. Scope and approach

The approach has been to distinguish, as far as the available evidence permits, between published policy, practical implementation and demonstrated outcomes. It should be noted that the public availability of a policy is not necessarily to be taken as evidence of its effectiveness.

3. Governing human-AI collaboration

Education and talent development. UK universities generally combine institutional policy with disciplinary and assessment-specific guidance. Published approaches address permitted AI assistance, disclosure rules, verification, academic integrity, and the specific human capability being assessed. Terminology and supporting provisions vary across institutions, making it challenging to compare how AI might be used in practice for talent development. This also supports the earlier claim that the UK higher education institutions exercise substantial autonomy over their governance and institutional policies.

Research and knowledge production. AI use in UK universities is governed principally through existing arrangements for research integrity, ethics, data protection and information security. Published guidance indicates that students and staff retain responsibility for methodological choices, accuracy, confidentiality, source verification, and disclosure of material AI contributions.

Societal engagement and service. Universities report using AI in public communication, professional education, knowledge exchange and partnerships. However, the available evidence documents institutional activities and stated intentions more clearly than implementation or demonstrated outcomes, reflecting a general lack of confidence and a need for greater societal engagement.

Cultural inheritance and innovation. Documented uses include the development of AI language technology,

10 University of Manchester, UK

11 United Nations University Paris Office, Paris, France

translation, archives and creative practice. These applications raise questions of provenance, attribution, authenticity and cultural authority, alongside their potential to widen access.

Cross-cutting policy and regulation. The UK has no single higher education AI framework. Universities operate within existing legal frameworks concerning data protection, equality, intellectual property, consumer protection, quality assurance, research integrity and security requirements. These apply differently to student or researcher use, institutionally approved tools, and AI used to support decisions about individuals. Governance is distributed across UK-wide law, devolved arrangements, sector guidance, university policy and disciplinary rules.

4. Principal findings and illustrative example

- UK higher education AI governance is distributed across law, territorial arrangements, sector guidance, university policy and disciplinary rules. This supports contextual adaptation but produces variation in terminology, responsibilities and implementation.
- In the information universities have made available, guidance commonly emphasises academic and research integrity, disclosure, verification, information protection and human responsibility. They support AI use, including by providing approved AI tools; however, AI literacy and course redesign in response to AI availability are documented less consistently.
- The available evidence is stronger on published policies and institutional intentions regarding AI than on implementation and demonstrated outcomes.
- In the available information, AI governance is documented most extensively in education and research. Evidence concerning societal engagement and service, and cultural inheritance and innovation, is more limited and tentative.
- Across these areas, human responsibility in AI use provides a recurring point of continuity, although its practical operation varies by institution, discipline and task.

Illustrative example: Cambridge Classics. This case illustrates layered governance within a UK university: an institution-wide integrity framework is supplemented by disciplinary guidance reflecting the purposes of particular tasks. The Faculty of Classics in the University of Cambridge permits limited language, technical and translation assistance but prohibits AI-generated assessed argument or interpretation. Students remain responsible for disclosure, verification and their own intellectual contribution (University of Cambridge, n.d.).

5. Implications and discussion questions

The evidence available supports the following proposals for strengthening coherence while preserving legitimate institutional and disciplinary variation. A common, more standardised functional governance basis would make material AI contributions visible, preserve educational and research purposes, protect sensitive information, support equitable participation, enable competent human review and allow consequential outcomes to be challenged.

This proposed approach treats interoperability arrangements as comparable safeguards rather than uniform policy or terminology.

Suggested Common safeguards enabling legitimate local variation

VISIBLE USE	**HUMAN REVIEW**	**PURPOSE**
Material AI contributions are disclosed	Review is competent, meaningful, and authorised	Learning and research purposes are preserved
PROTECTION	**PARTICIPATION**	**REDRESS**
Sensitive information is safeguarded	Access is inclusive and equitable	Consequential outcomes of AI use can be challenged

Legitimate variation may remain in policy language, approval routes and task-specific permissions.

Proposed priority actions

- Define a UK and four-nation crosswalk for disclosure, verification, integrity, information protection, accessibility, records, human responsibility and challenge.
- Connect protective rules to approved tools, AI literacy, disciplinary examples and assessment and research redesign support.
- Collect implementation and outcome evidence, including user understanding, accessibility, incidents, appeals, staff workload and successful challenge.
- Apply proportionate assurance to consequential and agentic uses, with named owners, limited permissions, action records and human decision authority.
- Maintain a living evidence register and periodically review whether governance arrangements are working as intended.

Questions for international discussion

Which minimum safeguards should be mutually intelligible across jurisdictions without erasing legitimate institutional, disciplinary and cultural differences?

What shared evidence would demonstrate that published AI governance improves learning, fairness, accessibility and research reliability rather than merely increasing policy volume?

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AI in Higher Education: China Country Summary

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1. Introduction and country overview

China's higher education system combines strong state steering with legally bounded university autonomy. The State Council provides national leadership, the Ministry of Education supervises the sector, and provincial governments coordinate regional provision. Universities exercise discretion over teaching, research and internal organization within national regulations; public universities operate under presidential responsibility and the leadership of institutional Communist Party committees. The system includes academic, vocational and continuing education, with public institutions alongside a substantial privately run sector.

National AI policy gives universities a central role in talent development, research, societal service, cultural inheritance, and innovation. The policy agenda has broadened from specialist AI capacity-building to AI-supported teaching, interdisciplinary learning, research, and institutional governance (Ministry of Education [MOE], 2018; MOE et al., 2026). This summary examines how selected public research universities implement these priorities through human–AI collaboration. The main finding is that workflows and responsibilities are documented more clearly than sustained improvements in learning, research quality, or equitable participation.

2. Research methods and scope

This study employs qualitative document analysis and institutional case analysis at national, university, and faculty or departmental levels. Materials collected between August and September 2026 include policies, institutional rules, university accounts, and scholarly case studies. The screening process encompassed 40 universities in China's Double First-Class initiative. From a register of 766 records, we identified 41 core records; 38 received substantive interoperability codes, while three remained unresolved or mismatched to their sources. The institutional case analysis focuses on four settings: writing instruction, a chemical thermodynamics course, earth-science research infrastructure, and civil-engineering education. These figures describe sampling and coding stages rather than prevalence, and they frame the evidence used in the findings below. Public documentation and self-reported accounts predominate; therefore, the findings do not represent the entire sector nor establish causal effects.

3. Governing human–AI collaboration

China's AI policies place education and research at the center of universities' contribution to national development, while also recognizing societal service, cultural inheritance, and innovation (MOE, 2018). The remit has broadened from specialist AI capacity-building to AI-supported teaching, interdisciplinary learning, and research (MOE et al., 2026). These priorities shape institutional arrangements and disciplinary decisions about acceptable assistance and human responsibility.

Education and talent development. Universities are expected to prepare AI specialists and develop AI capabilities across disciplines. Governance addresses three related concerns: assessment integrity, human competence and literacy, and alignment between institutional rules and human oversight. National policy calls for academic-integrity safeguards, student and teacher AI literacy, and human oversight of AI-supported teaching and assessment (MOE et al., 2026; Expert Advisory Committee on Teacher Workforce Development, 2025). Course-specific requirements define permitted assistance and disclosure, while revision annotations, code explanations and critiques of generated answers make students' reasoning available for assessment. Faculty development connects technical proficiency with pedagogical and ethical judgement, although broader student competencies are less consistently specified. Institutional guidance preserves instructor discretion within common safeguards, and the course rules and faculty guidance reviewed provide the evidence for these practices. AI therefore changes both what students learn and how teachers organize learning and assessment.

Research and knowledge production. Universities both advance AI and use it to reshape disciplinary inquiry. Governance concerns research integrity and authorship, human agency throughout the AI lifecycle, and regulatory compliance, risk classification and infrastructure. National

policy addresses research integrity and human responsibility, establishing ethics-review duties for AI activities within their scope (Ministry of Science and Technology, 2023; MIIT et al., 2026; MOE et al., 2026). Guidance requires disclosure, verification and identifiable scholarly responsibility. Institutional cases extend researchers' involvement to selecting corpora, preparing data and evaluating models, alongside framing questions and interpreting results. Shared computing and library services introduce further responsibilities for permissions, maintenance and support. Evidence from these cases documents these arrangements more clearly than project-specific ethics review or ongoing oversight, showing where practice is explicit and where it remains less visible.

Societal engagement and service. Universities translate AI expertise into wider educational provision and practical applications. Governance encompasses equity and accessibility, public value and adaptation to users' circumstances, and cross-sector collaboration. National policy promotes wider access to AI learning and skills training, connects university expertise with societal needs, and encourages technology transfer and cross-sector cooperation (MOE, 2018; MOE et al., 2026). Community services and teacher training extend learning beyond campus; needs assessment and cooperation with local teachers help adapt provision to local conditions (Li et al., 2025). Partnerships combine academic expertise with government networks and industry resources. The community service and partnership cases reviewed show how this expands universities' service role while distributing responsibility across organizations.

Cultural inheritance and innovation. This recognized policy function receives less detailed institutional treatment. The evidence concerns cultural access and knowledge services, creative production and human judgement, and boundaries of cultural agency and governance. National policy supports AI-enabled language and cultural resources (MOE et al., 2025), while the reviewed cases provide limited evidence of institutional governance of provenance, interpretation and cultural diversity. Library assistance and publishing retain opportunities for source verification and editorial review; architectural education uses AI for exploration and representation while preserving students' responsibility for evaluating proposals (Tu et al., 2025). These practices renew the importance of provenance, copyright, and interpretive authority. They show shifts in knowledge mediation and creative work, but the cases provide limited evidence of dedicated governance for language preservation, heritage interpretation, or cultural diversity.

The findings concern four connected dimensions. National instruments vary in authority and scope, addressing integrity, oversight, data protection, and provider duties, while universities adapt safeguards through institutional rules and support (MOE et al., 2026; Cyberspace Administration of China et al., 2023). National expectations translate into university safeguards and discipline-specific rules, allowing local judgement within integrity, privacy, and safety requirements. Human oversight and accountability center on disclosure, verification, and review, with guidance cautioning against misconduct decisions based solely on AI-detection scores. Data governance and provider responsibility extend beyond platform deployment to permissions, traceability, and continuing oversight. Institutional capacity and adaptive governance bring staff development together with risk reassessment and operational feedback.

The most evident finding is a reorganization of university work. Assessment increasingly emphasizes students' reasoning, while teaching and research require stronger stewardship of knowledge and verification. Shared infrastructure redistributes support responsibilities, external partnerships expand service provision and coordination requirements, and cultural activities place greater emphasis on editorial and interpretive judgement. Evidence for these organizational changes is stronger than for sustained improvements in learning, research quality, or equitable participation.

4. Principal findings and illustrative example

Three findings have particular educational significance. First, governance takes shape through decisions at national, university, and disciplinary levels. National instruments establish objectives and safeguards; universities organize rules, infrastructure, and support; disciplinary teams determine acceptable assistance and appropriate verification. The institutional capacity and disciplinary judgement shown in the reviewed cases shape how these expectations operate in practice, producing different arrangements within a shared national framework.

Second, AI integration alters how universities fulfil their functions. Some teaching projects require students to explain revisions, evaluate generated answers, or defend code, thereby incorporating their reasoning into assessment. Teachers and researchers assume additional responsibilities for selecting sources, preparing disciplinary resources, and reviewing outputs. The teaching projects and research examples highlight a central tension between AI's potential

to enhance intellectual work and its capacity to substitute for the contributions expected of learners and scholars.

Third, responsibility for AI-supported decisions is less clearly defined than the arrangements for providing AI services. The reviewed sources describe shared resources, technical support, and model-development checks in detail, but provide limited information on who is responsible for reviewing consequential outputs and correcting errors. In the CivilGPT case, automated marking is reported, but the sources do not explain how instructors check the results, whether these marks count towards final grades, or how students can appeal them. If AI-generated marks are used in assessment, it should be clear who reviews them and who is responsible for correcting errors. Responsibility must therefore be clearly specified wherever AI outputs influence assessment decisions.

Illustrative example — Tsinghua's Writing and Communication course. This university-wide course situates writing within broader training in reasoning, argument, and critical judgement. Students review peers' writing, examine AI-suggested revisions, and annotate their responses to explain their decisions. Instructors provide two rounds of individual written feedback and require students to reflect on the revision process (Wu, 2026). AI suggestions serve as material for comparison and discussion; students must assess whether a proposed change improves their writing and justify their choices. Peer review and instructor feedback offer additional opportunities to reconsider these decisions. This course-level practice concretely distinguishes between AI assistance and the intellectual work expected of learners. The annotations and reflections also provide instructors with a record of students' reasoning as their writing develops.

5. Implications and discussion questions

The Chinese case supports combining common safeguards with disciplinary discretion. Disclosure, source verification, data protection, and clear human responsibility are common requirements, but how they are put into practice depends on the discipline and the task. Universities need to support these practices through staff training, clear responsibility for reviewing consequential outputs and accessible procedures for correcting errors. Evaluation should be proportionate to the activity and its risks, examining students' learning and the quality of human judgement alongside evidence of AI adoption.

For international comparison, the Chinese case supports examining whether different governance arrangements preserve comparable safeguards. Shared commitments to disclosure and human oversight need to be assessed through the responsibilities, review procedures and opportunities for correction attached to particular tasks. Interoperability requires universities to connect technical exchange with agreed meanings, coordinated responsibilities and participants' capacity to exercise judgement. Shared courses, for example, require agreement on acceptable uses of AI, assessment practices, and credit recognition, while research services need clear rules on data access and responsibilities for verifying results. International partnerships should establish these arrangements within applicable legal requirements, allowing disciplinary and institutional differences while evaluating how effectively safeguards operate across boundaries.

Discussion questions: Which governance practices used by research-intensive universities are feasible for institutions with fewer resources? What kinds of shared services and support would allow these institutions to participate more fully without making them dependent on better-resourced universities or technology providers?

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AI in Higher Education: Singapore Country Summary

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1. Introduction and Country Overview

The education system in Singapore is state-led, overseen by the Ministry of Education and is divided into three stages i.e. primary, secondary and post-secondary, with the Character and Citizenship Education (CCE) at the heart of the education system. Presently, there are six autonomous universities (i.e. National University of Singapore (NUS), Nanyang Technological University (NTU), Singapore Management University (SMU), Singapore University of Technology and Design (SUTD), Singapore Institute of Technology (SIT), and Singapore University of Social Sciences (SUSS)), one government-supported private university (i.e. University of the Arts Singapore) and private education institution(s).

Singapore's approach to education aligns with its 21st Century Competencies framework based on ethics, multilingualism, resilience, innovation, conscience and responsible citizenry, among others. With an estimated population of 6.21 million in 2026, the country has around 0.1 million students enrolled in post-secondary institutions and universities in 2024, according to estimates by the Ministry of Education.

As Singapore relies heavily on a future-ready workforce, its commitment is reflected in spending per student, research and development ratio and consistent upgradation in the curriculum. The country's education system is shaped with the integration of education with technology, with the launch of Singapore's Masterplan for IT in Education in 1997 and subsequent initiatives such as Smart Nation, EdTech Masterplan 2030, AI in Education (AIEd) Framework, among others.

Further, the rapid diffusion of generative and agentic artificial intelligence into university teaching, research and administration since late 2022 has confronted higher education systems worldwide with a governance problem that is simultaneously technical, pedagogical, ethical and institutional. Singapore offers an unusually tractable setting in which to study this problem in depth. It combines a small number of research-intensive, government-funded universities; a mature and internationally referenced national AI governance architecture; and an explicit national ambition - articulated in the National AI Strategy 2.0 (NAIS 2.0) and its 2026 update - to position AI as, in the government's own words, a means for Singapore's people and businesses to thrive in an AI-enabled future (Smart Nation and Digital Government Office).

2. Research Methods and Scope

This report is a qualitative, document-based policy analysis. It draws on primary sources published by Singapore's national AI governance bodies (the Smart Nation and Digital Government Office, the Infocomm Media Development Authority [IMDA], the AI Verify Foundation, and the Ministry of Education [MOE]); primary institutional policy instruments published by NUS, NTU, SMU, SUTD, SIT, SUSS and UAS; peer-reviewed and preprint comparative scholarship on university generative AI governance, and normative instruments issued by UNESCO and other United Nations entities.

The analysis is organised around a three-by-four matrix: three governance levels (national, university, departmental) intersected with four core university functions (education and talent development, research and knowledge production, societal engagement and service, and cultural inheritance and innovation).

Within each function, the paper further distinguishes governance mode (whether a rule is mandatory, principles-based/voluntary, or advisory), locus of accountability (instructor, department, university, or state), and enforcement mechanism (disclosure statements, technical detection tools, human review panels, or a combination). This architecture allows like-for-like comparison across institutions that differ considerably in size, mission and risk appetite, and supports the identification of shared safeguards versus legitimate divergence.

3. Governing Human–AI Collaboration

Contemporary higher-education policy scholarship, particularly in East Asian systems, typically identifies four interlocking functions of the modern university: education and talent development, research and knowledge production, societal engagement and service and cultural inheritance and innovation.

This taxonomy, while not universally adopted in Anglo-American higher-education theory, maps closely onto the mission statements of Singapore's autonomous universities and provides a useful organising frame for AI governance analysis because each function carries distinct risk profiles and therefore distinct governance requirements.

Education and talent development: AI's most visible effect on this function concerns assessment integrity, pedagogical redesign, and the changing definition of core competencies that a degree is meant to certify. SMU's president has publicly described the institutional shift from an initial assumption that generative AI was primarily a cheating risk toward a staged, four-year curriculum that progressively teaches students to use AI, learn with AI, and critically evaluate its output. This shift - from prohibition to structured incorporation - recurs across NUS, NTU, SUTD and SIT, distinguishing Singapore's overall posture from jurisdictions that have adopted more restrictive default postures.

Research and knowledge production: NTU's 2023 policy on the use of generative AI in research requires that use be responsible, accountable and transparent, with mandatory acknowledgement of the tool's name, version, purpose and extent of use in research proposals, manuscripts, theses and dissertations; undisclosed use is explicitly characterised as a potential form of research misconduct amounting to plagiarism. This positions research integrity, rather than efficiency gain, as the organising concern of research-facing AI policy - a pattern echoed in comparative literature on university GenAI governance across the United States, Japan and China.

Societal engagement and service: The university's "third mission" - service to industry, government and the public - is visible in Singapore in the direct integration of universities into national AI infrastructure: SUTD's adjunct faculty double as advisors to national and international AI governance bodies; SMU's capstone projects place students with industry and government partners on live AI-related problems, with students required to demonstrate their own contribution beyond AI-generated output; and SIT's applied, industry-integrated model has produced bespoke assessment tools, such as the AI-Orate chatbot used to examine food-technology undergraduates, that are simultaneously pedagogical instruments and applied research outputs.

Cultural inheritance and innovation: This function is least directly implicated by current AI governance instruments in Singapore's technical and business-oriented university sector, but is not absent: SUTD's Humanities, Arts and Social Sciences cluster and its integration of AI into design pedagogy under the "Design·AI" strategy illustrates an explicit institutional claim that AI, positioned as a creative and cultural partner rather than a purely technical tool, can be reconciled with - rather than substituted for - disciplinary and cultural modes of inquiry. The function is more prominent in comparative systems (for example, Chinese and other East Asian universities that formally list cultural inheritance and innovation as a fourth core mission) and is included here chiefly to preserve comparability with those systems.

Singapore's AI-in-education governance operates through three nested and formally linked levels. Each lower level explicitly builds on, rather than substitutes for, the level above it, producing a layered but not strictly hierarchical structure.

4. Principal Findings and an Illustrative Example

The differences across academic units suggest that AI governance in Singapore universities differs between disciplines.

- Law faculties tend to emphasise attribution and professional standards.
- Medical schools are focusing on clinical judgement and responsible use in professional education.
- Business schools are experimenting with structured human-AI collaboration and reflection.
- Arts institutions are placing particular attention on authorship, creative process, and human agency.
- Computing and design programmes are incorporating AI into disciplinary practice and examining how students should learn alongside these systems.

Students can encounter different expectations depending on their faculty, programme, course, and assessment. Academic units are also using AI guidance as part of broader decisions about what competencies students should demonstrate and how those competencies should be assessed.

5. Implications and Discussion Questions

Three overall conclusions emerge from this analysis.

First, Singapore's model demonstrates that national-level, voluntary, principles-based AI governance frameworks can produce meaningful convergence on baseline safeguards - disclosure, human accountability, and non-substitution of core competencies - across autonomous universities without requiring binding, uniform legislation; the shared normative

vocabulary supplied by instruments such as the Model AI Governance Framework and the MOE AIEd Framework appears to function as an effective, low-cost coordination mechanism even where each university retains discretion over implementation.

Second, this same discretion produces legitimate but consequential divergence in enforcement, most visibly in the split between universities that continue to use automated AI-detection tools and AI-assisted grading (NUS, NTU, SUTD, SIT for grading; note NUS, SUTD, SIT decline detectors specifically) and those that have rejected automated detection on reliability grounds while retaining AI-assisted grading selectively (SMU) or rejecting both (SUSS). This divergence is not, on the evidence reviewed, a governance failure; rather, it reflects differentiated institutional risk tolerance and mission (SUSS's adult and part-time learner population, for example, differs materially in assessment context from SUTD's cohort-based, project-driven design pedagogy). However, it does mean that a single national framework does not, by itself, produce a single, predictable student or researcher experience across the sector.

Third, the 2025 NTU disciplinary case demonstrates that the most acute governance risk in the current environment lies not in the absence of policy — Singapore's universities are, by international comparison, well provided with published AI policy instruments — but in the interpretive gap between disclosed intent, verifiable accuracy, and institutional consequence at the point of disciplinary adjudication. This interpretive gap is not unique to Singapore and is likely to recur in any higher-education system that combines a disclosure-based governance model with generative AI tools capable of producing plausible but inaccurate or fabricated content, a combination increasingly common as agentic AI tools proliferate. Two questions are proposed for conference discussion:

1. How can Singapore harmonise AI disclosure standards across its six autonomous universities while preserving institutional autonomy?
2. How can universities ensure cross-border interoperability in AI governance while addressing emerging challenges posed by generative and agentic AI?

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