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AI as an Accelerator of Interdisciplinary Science

Transforming the Scientific Process Across Six Regions

Global Higher Education Interdisciplinary Network (GHEIN)



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Cross-Regional Themes

Common Patterns and Divergences



From AI literacy to critical use. Universities in every region are investing in training. However, members consistently distinguished basic AI literacy from the deeper ability to judge outputs, choose suitable methods and use AI responsibly within a discipline. The aim is researchers who combine strong disciplinary expertise with a working understanding of AI, not universal AI specialists. For some, training remains inaccessible or is not relevant to their specific research practices.



AI as a connector, not an end in itself. Across regions, members described AI's value mainly as a way of connecting disciplines, data and expertise around shared problems. Approaches that start from a scientific or societal challenge were consistently favoured over AI-first approaches. AI is lowering the barriers to entering new fields, but members noted that this makes collaboration with domain experts more important, not less, because outputs presented with confidence can hide basic errors.



AI works best where data is plentiful. AI's usefulness varies considerably by discipline. It is strongest in data-rich fields and weaker where data is scarce, including the emerging fields where interdisciplinary research often begins. Combined with publication-driven incentives, this risks steering researchers towards topics where AI offers quick returns. Early-career researchers, whose progression still depends on disciplinary metrics, may see interdisciplinary AI projects as especially risky.



Governance is moving from principles to practice. There is broad agreement on human oversight, transparency, research integrity and data security. The challenge is turning these principles into practical, proportionate guidance that works across disciplines and can change as the technology does. Members raised concerns about AI in grant proposals and peer review in more than one region. Data provenance and audit remain underdeveloped almost everywhere. Responsible use must also consider AI's environmental costs, including its energy and water requirements.



Difficulty sustaining work beyond pilots and enthusiasts. Promising activity often depends on individual champions, early adopters, short-term funding or self-funded experimentation. Members agreed that lasting progress needs clear ownership, accessible specialist support and ways to carry successful pilots into sustained practice.



Availability of funding, or access to it, remains an issue. The issue manifests differently across each region. In Sub-Saharan Africa, funding at the institutional level is not yet available for departmental or individual researcher AI costs, leading faculty to either self-fund or rely on AI-assistance tools within existing research platforms. In Latin America, similar access issues to AI tools exist. Where institutions have greater access to financial resources, members discussed the challenges of even national infrastructure struggling to keep pace with rapidly changing technological advances and members in Europe noted that the costs of High Performance Computing are increasing at an unprecedented rate.

Where regions diverge:

- **Maturity and scale.** Regions range from institution-wide rollout of enterprise AI tools and secure environments, to connecting substantial existing assets, to settings where computing, specialist staff and paid tools remain binding constraints.
- **The role of AI.** In some discussions, AI is already changing what counts as a scientific contribution. In others, its most valued role is as a facilitator: finding expertise, creating a shared language between disciplines or supporting writing in a common language.
- **What drives governance.** In some regions, governance is shaped by national AI strategies. In others, national policy is still emerging and universities have room to lead. Elsewhere, governance is mainly institution-led, with growing attention to research security.

Opportunities for Cross-Regional Collaboration

The clearest shared opportunity is **capability mapping**: making expertise, datasets, infrastructure, institutional models and priority challenges visible across institutions and regions. Several regions asked for this directly, whether as a capability map, as capability matching instead of more general networking, as shared infrastructure, or as a hub of validated AI tools. A shared view of who holds what would help universities find partners whose data, expertise or settings complement their own. It would also make it clearer where collaboration adds real value. This may be developed even further into a collaboration intelligence dashboard integrating bibliometric evidence, research priorities and thematic expertise amongst other assets – as suggested by our MENA chapter.

Building on this, GHEIN could support:

- **Focused, challenge-led collaborations** in priorities shared across regions, such as health, climate, materials and agriculture;
- **Peer exchange** on institutional approaches to AI in research, including what has not worked.

Members stressed that collaboration should be reciprocal and grounded in regional priorities. Given differences in regulation and infrastructure, the aim is adaptable models, not uniform standards.

Executive Summary

AI is rapidly becoming part of how research is done, and universities in every region are working out how to harness it for interdisciplinary science. This brief draws on regional chapter discussions of the Global Higher Education Interdisciplinary Network (GHEIN) across six regions: North America, Europe, Asia-Pacific, Latin America, the Middle East and North Africa, and Sub-Saharan Africa. It sets out how institutions are using, supporting and governing AI in interdisciplinary research, and where collaboration could add most value.

Key findings



- **AI is valued most as a connector.** Members across regions see AI's main contribution as connecting disciplines, data and expertise around shared problems, not as a goal in itself. Approaches that start from a scientific or societal challenge were consistently favoured.
- **AI lowers barriers but does not replace expertise.** AI makes it easier to enter unfamiliar fields, but its confident outputs can hide basic errors. This strengthens the case for teams that pair technical and domain expertise.
- **AI's benefits are uneven.** AI performs best in data-rich fields and less well in emerging areas where data is scarce, which is often where interdisciplinary research begins. Publication-driven incentives risk steering researchers towards topics where AI offers quick returns.
- **Literacy is not enough.** Training is expanding everywhere. The harder task is building researchers' ability to evaluate AI critically and use it responsibly within their own discipline.
- **Governance is moving from principles to practice.** There is broad agreement on oversight, transparency, integrity and security. The challenge now is practical, proportionate guidance that can change as the technology does.
- **Sustaining progress is difficult.** Promising activity often depends on individual champions, early adopters or short-term funding, and does not always become lasting practice.
- **Starting points differ.** Regions range from institution-wide rollout of AI tools and secure environments to settings where computing, specialist staff and paid tools remain binding constraints. Governance is shaped by national AI strategies in some regions, while in others universities have room to lead.

Opportunities and recommendations

The clearest shared opportunity is **cross-regional capability mapping**: making expertise, datasets, infrastructure and priority challenges visible across institutions and regions. This would help universities find partners whose data, expertise or settings complement their own. It could also provide a basis for focused, challenge-led collaborations in shared priority areas such as health, climate, materials and agriculture.



- **Institutions** should organise AI support around research problems, build critical, discipline-specific AI capability, adopt proportionate guidance, and create lasting pathways from pilots to practice.
- **GHEIN and other networks** can develop capability mapping and use it to support focused collaborations that are reciprocal and grounded in regional priorities.
- **Funders and policymakers** should support access to computing, specialist staff and AI tools where these are constraints, and involve universities in shaping emerging national AI policy.

Introduction

Many of the most pressing challenges facing research and society cut across disciplinary boundaries, in health, climate, materials, agriculture and beyond. Interdisciplinary science is how universities tackle them, but it can be difficult to do this well. Researchers need a shared language, access to unfamiliar methods and data, and institutional structures that reward work across fields.

AI is changing that picture. It can lower the barriers to entering new fields, synthesise literature across disciplines, connect datasets and methods, and help researchers find complementary expertise. It also brings new risks: uneven performance across disciplines, dependence on data, and confident outputs that can hide basic errors. Whether AI accelerates interdisciplinary science, or simply speeds up work within existing silos, depends largely on how universities support, govern and organise its use.



The question of the use of AI in interdisciplinary research is now urgent. AI capabilities are advancing faster than institutions can adapt, and many universities are moving from early experimentation towards institution-wide adoption. Institutions in every region are writing or revising AI policies, building infrastructure and training researchers at the same time, often facing the same questions independently. That creates a timely opportunity to share what is working, what is not, and where collaboration across institutions and regions could add value.

This brief draws on discussions within the Global Higher Education Interdisciplinary Network (GHEIN), convened by Times Higher Education and Schmidt Science Fellows. It builds on the network's earlier report on institutional approaches to interdisciplinary research. It covers six regional chapters: North America, Europe, Asia-Pacific, Latin America, the Middle East and North Africa, and Sub-Saharan Africa.

The evidence comes mainly from GHEIN regional chapter discussions, in which senior research leaders shared their institutions' approaches to AI and interdisciplinary science. Institutions are named only where examples were shared as illustrations of practice. Challenges are generally described without attribution.

Each regional chapter follows a common framework covering how AI is transforming the scientific process, institutional readiness, ethics and governance, what has worked and what has not, and opportunities for collaboration. The depth of evidence varies by region, and not every chapter addresses every theme. The Sub-Saharan Africa chapter, for example, draws on a smaller number of members and is indicative, not comprehensive. Section 8 brings the regional findings together, identifying common patterns, points of divergence and recommendations for institutions, networks and policymakers.

1. North America

Bottom-up momentum in search of shared principles

North American members described AI as changing research faster than institutions can respond. Researchers are taking up AI tools quickly, mostly from the bottom up. Universities are working out how to support, guide and govern that uptake without committing to approaches that will soon be out of date.

Members were excited that AI lowers the barriers to entering new fields. They were also concerned that its uneven performance across disciplines, its dependence on data and the confidence of its outputs could narrow research rather than broaden it. A recurring conclusion was that these risks make the case for interdisciplinary teams stronger, not weaker. The region's emerging preferences are clear: guiding principles rather than detailed rules, and communities of practice rather than committees.

Transforming the Scientific Process: lower barriers, uneven ground

It has been suggested that AI models are now performing at a level approaching that of principal investigators, having progressed in a matter of weeks from the level of research assistants, to PhD students, to PIs. This raises basic questions about what it means to be a scientist. Members also observed that AI is changing what counts as an intellectual contribution and what it means to be knowledgeable in a discipline.

As a result, AI has made it much easier to enter interdisciplinary fields, whether by running a model or by working through a short, AI-prepared course on an unfamiliar topic. But because AI presents its outputs with such confidence, novice mistakes are also easier to make. Members saw this as a strong argument for collaboration: a data specialist working with a colleague from the relevant discipline is far less likely to make basic errors.

Members were clear that AI is not yet a universal bridge between disciplines. They found current models strong in physics and astronomy yet weak in chemistry and mixed in biology, and views on AI's usefulness differ accordingly. Data is a further constraint. New interdisciplinary fields have, almost by definition, little established data. That raises the risk that AI steers researchers towards data-rich areas, especially while publication remains the main career incentive.

Members also saw an opportunity in looking beyond the most widely used AI tools. Forms of AI built for one domain, or for problems with little data, may suit other disciplines better. For example, a model developed for music may be better suited to some other field than one built for language. Members expected AI-driven automated experimentation to change the shape and cost of core research facilities. Much AI-enabled interdisciplinary work is emerging bottom-up as "AI + X" initiatives. At Columbia University, external funding has been won to support interdisciplinary projects in AI and climate, neuroscience and biology.

Institutional Readiness: building on existing strengths with targeted support

Readiness across the region builds mainly on existing computing and data-science infrastructure. The University of Illinois has built supporting infrastructure around the National Center for Supercomputing Applications (NCSA). The University of Washington's eScience Institute has supported interdisciplinary communities across the university for years. It has now expanded into AI, with short courses on different types of AI open to all researchers. It also runs a programme in which domain researchers spend several weeks with the institute's team working out how to use AI in their

discipline, and which type of AI suits their problem. The university is adding networking events to match researchers with potential collaborators.

At MIT, faculty and graduate students can bring their own research practices and receive rigorous guidance on deploying AI. A university-wide knowledge exchange lets researchers share what is happening as practice changes. Columbia University's provost-level aiX Faculty Fellows programme gives modest support to faculty across fields, including law, business and the sciences, to integrate AI into their disciplines. Leadership also matters. Without leadership, responsibility for AI tends to fall entirely on the research office.

Readiness is still uneven. Several institutions have so far approached AI as a campus-wide issue rather than targeting interdisciplinary science specifically. Members also stressed that researchers without AI or big-data backgrounds need to be brought along, which is a matter of practical skills as well as new vocabulary. Members identified AI literacy and discipline-relevant use cases for non-AI experts, across science, engineering and the social sciences, as a major opportunity for universities.

Ethics and Governance

Members reported that institutional AI policy has so far focused more on teaching than on research. Some policies written when generative AI first appeared now need updating. There is strong demand for guidance on AI in research for graduate students, postdoctoral researchers and faculty, given the research integrity issues it can raise. Some institutions are now addressing this. The University of California, Santa Barbara's graduate division recently published an AI policy, and members pointed to Harvard University's AI in research website as a useful model.

Research security is a growing concern. Members raised discomfort with practices such as giving AI tools access to a researcher's entire computer to help draft proposals. They also stressed that, in team science, researchers need some level of scrutiny of collaborators' work, even outside their own expertise.

What Has Worked, What Hasn't, and How Institutions Are Tackling the Challenges

The approaches gaining most traction are light-touch and closely tied to researchers' own work: bottom-up "AI + X" initiatives, small seed-funding schemes, and short courses. Members contrasted these with the familiar university reflex of forming committees, which can multiply without clear implementation or impact. Structured training programmes also struggle to keep pace, because practice changes faster than formal training can be designed and delivered.

The main challenges members identified are:

- the speed of change;
- uneven AI performance across disciplines;
- scarce data in emerging fields;
- publication incentives that may push researchers towards data-rich, AI-friendly topics;
- bringing non-specialists into AI-enabled teams;
- managing research security.

Institutions are responding in several ways. To cope with the pace of change, members favoured guidelines, guardrails and guiding principles over rules tied to particular models or tools, which can become obsolete within days. Many are also turning to communities of practice to share and learn as practice changes. The University of California, Santa Barbara and the University of Washington have each built "committees of the willing" around enthusiastic early adopters, and MIT runs a university-wide knowledge exchange.

To bring non-specialists along, institutions are offering structured, hands-on routes into AI. These include the University of Washington's short courses, its programme pairing researchers with technical teams, and its matchmaking events; MIT's hands-on sessions in which faculty and graduate students bring their own research for structured guidance on using AI; and Columbia University's aiX Faculty Fellows programme.

To guard against confident but flawed AI outputs, members emphasised pairing technical and domain expertise in interdisciplinary teams. They also stressed exposing researchers to a wider range of AI approaches suited to their own problems. Some institutions are creating dedicated senior AI leadership, such as the University of Washington's Vice Provost for AI, so that responsibility does not rest solely with the research office. Members did not discuss specific responses to data scarcity or publication incentives, and these remain open challenges.

Opportunities for Support Through Regional or International Collaboration

Members identified several areas where collaboration across institutions, including through GHEIN, could add value:

- **Shared guidance on AI in research.** Many universities are writing or updating policy at the same time, and members asked directly for peers' guidelines and good practice.
- **Cross-institutional communities of practice.** These can keep pace with change better than formal training.
- **AI literacy for non-specialists.** Shared resources and discipline-relevant use cases for researchers outside AI and data science.
- **Broadening AI methods across disciplines.** Helping researchers find forms of AI suited to their problems, including low-data settings.
- **Partnerships with industry on trustworthy AI and AI safety.** Academic perspectives, including philosophy and the study of value systems, could help align models with human values. Differences in pace and IP issues remain obstacles, but industry does fund research and values the different perspective universities bring.

2. Europe

From fragmented excellence to connected institutional capability

Europe and the UK have substantial interdisciplinary AI capability, but the evidence points to a challenge of integration rather than invention. Expertise, infrastructure, data, governance and incentives often exist, yet remain distributed across faculties, centres and projects. Institutional analysis suggests that AI readiness is therefore not a collection of assets but an organisational system: technical infrastructure produces greater value when it is connected to disciplinary expertise, shared problem definition, secure data, career recognition and real-world evaluation.

The region's next step is to connect these assets into coherent pathways through which researchers can identify collaborators, access data and technical support, navigate approval, evaluate systems and move responsibly towards implementation. This integration is also the region's distinctive advantage. Universities can combine technical capability with specialist knowledge, trusted environments, societal purpose and public accountability in ways that computing alone cannot provide.

Transforming the Scientific Process through connected disciplines and evidence

Across the region, AI is beginning to reshape research most meaningfully where it changes how questions are framed, how evidence is assembled and which disciplines participate. The common pattern is not the creation of stand-alone AI projects, but the formation of problem-led teams around shared datasets, analytical environments and real-world challenges. Applications span health, inequality, materials, engineering and the social implications of algorithmic systems, often bringing technical specialists together with researchers who hold disciplinary, clinical or contextual knowledge. Strong examples include the use of natural-language processing to analyse global inequality discourse at the University of Konstanz, Durham University's combination of secure analysis of routine eye scans with wider interdisciplinary inquiry into algorithmic life, and Istanbul Technical University's use of AI as a shared layer connecting materials science, nuclear and civil engineering, computer science and data science.

These cases illustrate a broader opportunity: AI can provide a shared methodological layer through which disciplines formulate questions jointly and investigate problems that were previously difficult to address at scale. However, this remains uneven. Many activities are still concentrated in individual centres or projects, and the region has yet to establish consistent pathways for translating promising experiments into sustained interdisciplinary practice.

Institutional Readiness: connecting assets into an end-to-end pathway

Institutional readiness is increasingly understood as the ability to connect strategy, infrastructure, data, skills, governance and incentives, rather than simply provide access to computing or AI tools. Across the region, universities are investing in competence centres, shared facilities, interdisciplinary calls, postgraduate provision, seed funding and researcher training. The strongest approaches create clear entry points for non-specialists: researchers can bring a disciplinary problem, test whether AI is appropriate, access technical and data support, and develop a project without first becoming AI experts.

Koç University offers a useful example of this broader ecosystem approach, combining central facilities and an AI centre with cross-disciplinary doctoral support, thematic convening, seed funding

and teaching-development grants to widen participation beyond science and engineering. Near East University provides a complementary model in which interdisciplinary health teams, disciplinary leads, small symposia, feedback mechanisms and explicit recognition help connect clinicians and technical specialists around shared problems.

Yet capability remains fragmented within many institutions. Infrastructure may be disconnected from applied expertise; training may build basic literacy without enabling critical use; and support is often difficult to navigate. The opportunity is therefore to build an end-to-end pathway that links problem definition, collaboration, data access, technical assistance, approval, evaluation and implementation. Readiness should be judged by whether researchers can move through that pathway effectively, not by the presence of isolated assets.

Ethics and Governance: supporting experimentation while protecting trust

Members shared a strong commitment to privacy, transparency, human oversight and responsible use, particularly where research involves health data, clinical decisions or wider societal consequences. A recurring challenge is that governance must work across very different disciplinary and application contexts. Low-risk experimentation, literature discovery and coding do not require the same level of scrutiny as uses involving sensitive population data or consequential decision-making. The strongest emerging principle is therefore proportionality: governance should enable controlled experimentation while applying more robust reviews, security and continuing evaluation in higher-risk settings.

Large-scale health and population-data programmes illustrate both the scientific opportunity and the importance of trusted environments, clear access arrangements and public accountability. Durham University's Centre for Algorithmic Life provides a complementary example of governance through interdisciplinarity, incorporating law, philosophy, sociology, geography and digital humanities alongside technical expertise.

Across the region, however, evidence is less developed on shared approaches to data provenance, audit, transparency and disciplinary variation in standards. There is an opportunity to move beyond high-level principles towards practical guidance embedded throughout the research process, supported by accessible technical, ethical and legal expertise. Concerns about AI data centres' environmental impacts may also bring universities' AI use under scrutiny, particularly where adoption risks conflicting with time-bound net-zero commitments.

What Has Worked, What Hasn't, and How Institutions Are Tackling the Challenges: Learning from institutional friction

Approaches gaining traction share several features: they begin with a clear scientific or societal problem; create repeated opportunities for researchers to build trust and a shared language; provide practical support, protected time or seed funding; and recognise interdisciplinary contributions. Small-scale convening can be valuable when it leads to follow-up funding, technical support or sustained communities, rather than remaining a one-off networking exercise. The experience of challenge-led institutes and co-located early-career communities also suggests that dedicated structures can generate new relationships and research questions when expectations, ownership and career pathways are clear. Aberdeen illustrates how these models may need to evolve: five challenge-area centres were brought together within one interdisciplinary institute, while experience with dedicated fellows and PhD students prompted a shift towards clearer expectations and wider participation by existing colleagues.

However, members repeatedly identified friction between interdisciplinary ambition and disciplinary systems. Early-career researchers may face uncertainty over publication, progression and professional identity; funding and review processes may struggle to assess work spanning multiple fields; and centres can compete with schools over staff, income, credit and institutional identity. Technical assets also underdeliver when researchers cannot find or access the support required to use them.

The central lesson is that interdisciplinarity cannot be sustained through structure or enthusiasm alone. It requires alignment between centres and faculties, explicit expectations, credible incentives, navigable support and mechanisms that carry promising collaborations beyond their initial convening or pilot stage.

Opportunities for Support Through Regional Collaboration: networking and capability matching

The strongest opportunity is to connect capabilities around defined problems rather than create another general networking forum. Institutions across the region hold different combinations of computing, specialist datasets, secure research environments, methodological support, disciplinary expertise, ethical and legal knowledge, evaluation capability and implementation settings. Making these capabilities visible would help universities identify where partnership adds genuine value and where a gap can be addressed through peer support.

GHEIN could initially support a concise models and capabilities library, trusted exchanges on institutional friction as well as success, and comparable case studies showing how AI-enabled projects move from problem definition to implementation. A small number of focused collaborations could then test shared approaches in areas such as responsible health-data use, researcher development, competence-centre design or interdisciplinary evaluation.

The region’s strongest examples suggest that collaboration is most useful when it provides something researchers cannot readily assemble within one institution: access to distinctive data or infrastructure, complementary disciplinary expertise, a secure setting for applied work, or a tested institutional model. Progress should therefore be judged by practical connections made and capabilities accessed, rather than by the volume of networking activity.

3. Asia-Pacific

From experimentation to implementation, with aligned investment priorities

The insights shared by members of this Regional Chapter suggest that universities across APAC are moving from AI experimentation to institution-wide implementation, with growing investments in governance, infrastructure and researcher capability. While AI is viewed as a catalyst for interdisciplinary research, members identified persistent policy challenges and emphasised the need for greater regional collaboration to share governance frameworks, best practices and institutional models that can support responsible and effective AI-enabled research.

Transforming the Scientific Process

Across the member institutions represented in the region, AI is increasingly being framed not simply as a specialised research tool but as a foundational layer that is reshaping how scientific inquiry is conducted. Members reported using AI to accelerate activities such as hypothesis generation, literature synthesis, virtual experimentation, predictive modelling and translational research, with applications spanning health sciences, materials science, engineering, environmental monitoring and social challenges. A notable trend is the emergence of AI-enabled interdisciplinary ecosystems, where researchers from different disciplines collaborate through shared platforms, institutes and research hubs rather than operating within traditional faculty silos.

Examples include Manipal's transdisciplinary AI research centres, Hong Kong's national AI research models and collaborative academies that bring together expertise from across domains to address complex societal problems. AI is also enabling new forms of scientific discovery by helping researchers identify hidden connections between disciplines, rapidly screen large datasets and test ideas at a scale previously unattainable through conventional methods.

However, participants acknowledged that the transformative potential of AI remains largely aspirational in many areas. While institutions are investing heavily in AI tools and platforms, there is still limited evidence of mature models that systematically integrate AI into interdisciplinary research workflows. Many universities are therefore experimenting with different structures, partnerships and approaches to determine how AI can best facilitate collaboration across disciplines while preserving scientific rigour and domain expertise. The discussion suggested that AI's most significant long-term impact may lie not in replacing existing research practices but in enabling entirely new ways for researchers, institutions and sectors to work together.

Institutional Readiness

Institutional readiness for AI-enabled research is advancing rapidly across the region, characterised by growing investments in infrastructure, training, governance and organisational support. Member universities have adopted a variety of approaches, including providing institution-wide access to platforms such as Gemini, Claude, OpenAI and DeepSeek, as well as developing secure internal environments that allow researchers to experiment with AI while protecting sensitive data. Many institutions have established dedicated AI centres, computing facilities, research academies and leadership positions to coordinate AI strategy and implementation. Examples include the Hong Kong Institute of AI for Science by CityU Hong Kong, PolyU's Academy for Artificial Intelligence – which is championed by Prof. Yang Qiang, Chief Artificial Intelligence Officer and RMIT Advanced Computing Ecosystem (RACE), Australia's first commercial cloud supercomputing facility collaboration between industry and university.

Alongside technological infrastructure, considerable effort is being devoted to building human capability. Researchers, academic staff and students are increasingly supported through training workshops, professional development programmes, AI literacy initiatives and ethics education.

Despite this significant investment, readiness challenges persist. Participants highlighted disparities in AI capability between institutions, disciplines and career stages, as well as uncertainty around what level of AI competence future researchers should possess. A recurring concern was the gap between basic AI literacy and the deeper skills needed to critically evaluate AI-generated outputs and integrate AI effectively into research processes. The discussion also underscored the importance of developing "T-shaped" researchers, who combine strong disciplinary expertise with a working understanding of AI concepts and tools. Overall, institutional readiness is increasingly viewed not as a question of technology access alone, but as the development of an integrated ecosystem encompassing infrastructure, governance, incentives, skills and organisational culture.

Ethics and Governance

A key area of concern across all member institutions centred on the ethics and governance of AI, reflecting a shared recognition that AI adoption must be accompanied by robust safeguards and clear accountability mechanisms. Universities are developing a wide range of frameworks covering responsible AI use, research integrity, data security, transparency and human oversight. These efforts are often shaped by national AI strategies and regulatory environments, resulting in different institutional approaches ranging from more enabling models to comparatively conservative governance structures. A common principle across institutions is that AI should augment rather than replace human judgement, particularly in research contexts where methodological expertise, critical thinking and professional responsibility remain essential. Members emphasised the need to preserve disciplinary knowledge while avoiding excessive dependence on AI-generated outputs.

Particular concerns were raised around data provenance, confidentiality and intellectual property, especially in relation to grant proposals, peer review activities and unpublished research. At Deakin University, an internal secure environment has been developed to allow staff and students to use generative AI in a secure environment. Other members such as CityU Hong Kong, RMIT University and NTU Singapore reported doing the same, in varying degrees to mitigate similar risks.

In parallel, governance challenges continue to evolve as AI capabilities advance. Members highlighted uncertainty regarding appropriate standards for AI-assisted proposal writing, grant assessment, ethics review and research evaluation. There was also recognition that disciplinary contexts differ significantly, making it difficult to establish universal governance standards across all research domains. The discussion ultimately suggested that effective governance will require an ongoing balance between facilitating innovation and ensuring that research remains transparent, trustworthy and accountable, with policies evolving in parallel with technological developments.

What Has Worked, What Hasn't, and How Institutions Are Tackling the Challenges

The discussion revealed a mixture of encouraging progress and persistent challenges in the adoption of AI for interdisciplinary research. Members generally reported positive experiences with providing researchers and students access to enterprise AI tools, creating dedicated AI centres and establishing interdisciplinary platforms that facilitate collaboration across faculties. Secure institutional environments and targeted training programmes appear to have gained traction, helping researchers adopt AI tools with greater confidence while reducing concerns around data security. Purpose-built funding schemes and organisational structures that encourage collaboration across disciplines have also shown promise.

However, many challenges remain unresolved. One of the most significant barriers is the difficulty of incentivising interdisciplinary research. Participants noted that interdisciplinary projects are often more complex, take longer to generate outputs and may be perceived as risky, particularly by early-career researchers whose progression remains tied to conventional disciplinary metrics. Another challenge concerns the development of researcher capability. While AI literacy among students and staff is increasing rapidly, many institutions remain uncertain about how to cultivate the critical thinking and evaluative skills necessary to use AI responsibly. Additionally, members noted the pace of AI adoption varies considerably across institutions and individuals, creating uneven levels of readiness. In response, universities are increasingly focusing on researcher training, interdisciplinary incentives, secure infrastructure and new governance arrangements.

Opportunities for Support Through Regional Collaboration: Developing shared approaches

Members consistently identified collaboration as one of the most important mechanisms for accelerating progress in AI-enabled interdisciplinary research. Given the rapid pace of technological change and the complexity of associated governance challenges, most member institutions expressed strong interest in learning from peers rather than developing solutions independently. One of the most immediate opportunities lies in the sharing of policies, governance frameworks, ethical guidelines and operational practices. Universities are grappling with similar questions regarding responsible AI use, research integrity, data security and capability building, and there was broad agreement that exchanging practical examples could reduce duplication of effort and accelerate institutional learning.

Participants also highlighted the value of creating communities of practice focused on issues such as research administration, ethics reviews, grant management and AI governance. Beyond knowledge exchange, there was considerable interest in establishing joint research clusters and collaborative networks that bring together complementary expertise from different institutions and countries. Access to distinctive, geographically specific datasets emerged as a particularly important rationale for collaboration. PolyU noted that, while AI makes commonly available information easier to access, partnerships remain valuable for obtaining unique, national-level data that are not readily available online. Regional collaboration could therefore help researchers connect these data resources with multilingual capabilities and context-specific knowledge. The discussion also pointed to opportunities for shared infrastructure, including AI platforms, computing resources and regional language models that could support a wider research community. NTU highlighted the potential to leverage regional-language AI capabilities across universities, while RMIT described how RACE makes computing infrastructure accessible to researchers, students and external industry collaborators.

At the same time, participants recognised that varying national regulations and institutional environments may limit complete standardisation, making reciprocity and mutual understanding essential components of effective collaboration. Networks such as GHEIN were therefore seen as valuable convening mechanisms that can facilitate the exchange of best practices, connect researchers across borders and help identify collective solutions to shared challenges in AI-enabled interdisciplinary science.

4. Latin America

Combining strengths to tackle grand societal challenges

Across Latin America, AI is emerging as a stand-alone field rather than as a practical means of connecting disciplines and capabilities around urgent societal and economic challenges. Its greatest value lies in helping universities combine distinctive regional strengths in health, agriculture, biodiversity, climate, water, energy, oceans and education. In this context, AI can act as a capacity multiplier by connecting literature, terminology, data, methods and technical workflows across fields, enabling more focused interdisciplinary problem-solving. The central challenge is to move from dispersed, sometimes informal capability, towards durable institutional platforms and partnerships. Progress will depend on concentrating resources around distinctive strengths, supporting them through sustainable institutional and postgraduate pathways, strengthening trustworthy governance, and making complementary capabilities visible across the region. The priority is therefore not AI investment for its own sake, but using AI to connect existing strengths and deliver clearer scientific, social and economic value.

Transforming the Scientific Process: AI as connective infrastructure for challenge-led research

AI can reduce practical barriers to interdisciplinary research by supporting evidence discovery, coding, analysis, cross-field interpretation and academic writing, including in English. This can widen participation among researchers with important disciplinary or contextual knowledge but limited computational expertise. The strongest examples organise AI around defined challenges. Tecnológico de Monterrey's Institute for Obesity and Diabetes connects health, biotechnology, nutrition, engineering, data science and public policy with government and industry. Universidade Federal de Viçosa applies AI to crop protection, field surveillance and citrus-greening decisions, while Universidad de Concepción connects AI activity with agronomy, agro-industry, fisheries, oceans and cybersecurity. Mission-led centres, institutes and postgraduate networks are emerging as platforms that connect research with innovation, engagement and implementation. These examples demonstrate promising practice, although not yet a consistent regional transformation.

Institutional Readiness: Realistic readiness under uneven capacity

Readiness varies significantly because access to computing, technical specialists, sustained funding and institutional support is uneven. General access to AI tools or introductory training cannot substitute for reliable infrastructure and continuing specialist support. Existing foundations include high-performance computing, AI and computer-science postgraduate provision, challenge-led institutes and established disciplinary strengths. Postgraduate programmes, scholarships and university networks are particularly important because they build expertise and continuity beyond individual projects. Institutions may gain greater value by concentrating scarce resources in a limited number of areas where they possess distinctive expertise, infrastructure, partnerships or research environments. Readiness should therefore be judged by whether universities can assemble and sustain the people, data, infrastructure, support and partners required around a defined challenge, and whether interdisciplinary contributions are recognised through funding, evaluation and careers.

Ethics and Governance: Trustworthy adoption in uneven institutional environments

Members recognise trustworthy governance, data quality, ethical practice and informed human use as essential, particularly when research crosses disciplinary, institutional and national boundaries. However, the evidence does not identify a shared regional framework for data provenance, transparency, audit or responsible research practice. Institutions remain at different stages of translating principles into operational practice. Data quality is especially important when AI is used to discover, translate or summarise multilingual and regional evidence. Governance must also be proportionate: literature discovery and coding present different risks from health or agricultural decision support. Responsible adoption should therefore form part of realistic readiness and remain workable across institutions with differing levels of infrastructure, specialist support and policy autonomy.

What Has Worked, What Has Not, and How Institutions Are Addressing the Challenges: Concentrating resources around missions

Interdisciplinary research gains traction when organised around clear societal or economic missions and supported by durable centres, institutes or postgraduate programmes. These structures provide ownership, continuity and visibility, while partnerships with government, industry, communities and international organisations connect research to implementation. Progress remains vulnerable when collaboration depends on individual champions, short-term funding or personal relationships. Infrastructure also underdelivers without specialists able to develop and maintain technical frameworks, while disciplinary funding and evaluation can inhibit shared ownership and career progression. Measuring wider social and economic effects remains difficult. The regional lesson is to concentrate capacity strategically, sustain it institutionally and connect it to partners, implementation and credible impact narratives.

Opportunities for Regional and International Collaboration: Making capability visible

The most immediate opportunity is to make regional expertise, datasets, infrastructure, institutional models and priority challenges more visible. A regional capability map could record use cases, barriers, postgraduate provision and collaboration interests, creating a basis for focused pilots. GHEIN could support three connected activities: capability mapping; challenge-based collaboration in areas such as health, agriculture, climate, water, energy, oceans and education; and peer learning on infrastructure access, specialist skills, governance, funding and impact evidence. International partnerships can help address capacity constraints, but should be reciprocal and grounded in regional priorities rather than importing externally defined agendas.

5. Middle East and North Africa

AI as a facilitator of interdisciplinary research, but not the sole objective

The insights shared by members of this Regional Chapter were dominated by the suggestion that the role of AI in interdisciplinary science is to be a facilitator – one that accelerates the processes that lead to interdisciplinary projects, rather than having a core role within them. AI should not be the objective. Instead, it should become a value-enhancing collaborator.

Transforming the Scientific Process

Members from the MENA region enthusiastically shared potential use cases for the integration of AI into the scientific process, relating to both current and emerging regional research priorities. Most of these use cases pointed towards AI as an enabler of high-quality interdisciplinary research, as opposed to a tool deployed within the scientific process itself.

A potential use to explore is how AI can help researchers from different disciplines to better communicate with one another. This may include the development of a shared language to facilitate cross-disciplinary exchange of ideas, or a research tool to enable students from across a university to identify one another and consider how their disciplines might interact. This was considered vital for two reasons: to integrate interdisciplinary research as a norm for the next generation of researchers, and to ensure this generation know how to safely and responsibly engage with the AI tools that will likely become commonplace in future knowledge development. The identification of expertise across a university was also considered a potential AI use case, especially for larger institutions where many departments exist in siloes. The process of selecting and building an interdisciplinary team remains uncertain for some, and may be supported by AI-assisted aids.

Researchers within the region are already considering how such aids might be deployed in practice. During discussions, members of this Regional Chapter were introduced to the “6Ps Framework”, proposed by Professor Elkhooly (Chair) as a model through which the integration of AI into interdisciplinary research could be approached. The model proposes six key touchpoints at which researchers must make decisions or access resources in using AI tools. The framework begins with a shared scientific or societal Problem, identifies complementary People and institutional expertise, establishes an integrated research Process, connects the necessary Platforms and infrastructure, ensures appropriate Policies for responsible collaboration, and defines measurable Proof of scientific integration and impact.

Core to this model is the philosophy that the research problem must arise first, after which AI could facilitate integration between disciplines. This is not an AI-first approach and should not endorse a reliance on AI in research. Instead, researchers should adopt a way of thinking that consider AI tools as a possible complement to their activities – especially if links to other disciplines exist, but remain unexplored. Again, this affirms the sentiments of the regional group – that AI should serve an intentional purpose in interdisciplinary working, and should not be used for its own sake.

Another important use case raised by members is the ability of AI tools to rapidly analyze large volumes of bibliometric data, from which interdisciplinary collaboration opportunities could be identified. Building on the 6Ps Framework described above, the group was able to undertake an exploratory AI-assisted analysis of SciVal research data from 15 universities across seven MENA countries. It examined 105 possible bilateral institutional relationships, identifying existing

publication connections in 80 of the 90 cross-border pairs. It also revealed common research interests across several interdisciplinary domains, particularly the Water–Climate–Food–Health Nexus, with opportunities for developing thematic research clusters. This exemplified the ability of AI to support practitioners in interpreting complex bibliometric datasets efficiently, providing highly valuable intelligence via a relatively short analytical process. In this context, the "6Ps Framework" has great potential to convert such intelligence into interdisciplinary collaboration.

With this imperative to avoid the use of AI for its own sake, the identification of a potential role for AI in interdisciplinary research became paramount. Many specific practical uses were identified, including: sourcing of large datasets and subsequent data sharing, public health and disease prevention (combining genetic, lifestyle and population trends to identify risk factors), or the connection of institutional research priorities with national priorities to name a few.

Institutional Readiness

Whilst all members involved in discussions to date have acknowledged the emerging role of AI in the scientific process, many expressed outstanding capacity gaps within their institutions that may hinder the adoption of AI tools. Building capacity in AI readiness is key. At Ibn Tofail University in Morocco, workshops and training sessions have been delivered on the effective use of AI in research – with the aim of inspiring confidence amongst those that may be reluctant to integrate it into their activities.

Other members identified a need to improve researchers' capacity to use AI responsibly and effectively, critically as an accelerator of research. Here, there is an implication that AI should not be used for the sake of engaging with the latest technological advances – instead, it should serve a critical purpose, be used with strategic intention, or accelerate activities that would otherwise remain neglected. The use of AI for its own sake could be damaging or contradict scientific integrity. Yet, many institutions currently lack the policies and ethical guidance that would support focused and intentional engagement with AI research tools.

Current Challenges

In discussing the ways in which AI tools could potentially support interdisciplinary working, a common problem was identified amongst the group – the tendency for some bibliographic or indexing databases to index a publication within one discipline only, even if authors from multiple disciplines have contributed. In some cases, this can lead to the disciplines of contributing or non-principal researchers to remain unrecognised. Whilst this is not a challenge directly relevant to the use of AI, nor is it within the internal control of universities in the region, it can explain why a reluctance to collaborate exists in some areas. Where AI could potentially address this challenge is in the automatic indexing of publications in multiple disciplines, once identified as having an interdisciplinary remit.

Opportunities for Support Through Regional or International Collaboration

For many member universities, opportunities to collaborate are now emerging. The first suggestion is derived from the need to develop a shared language, allowing researchers from multiple disciplines to effectively communicate with one another - proposed by the University of Tabuk. Here, the suggestion is to train a Large Language Model (LLM) within the university that brings the specific terminologies and lexicons of different disciplines together. The purpose is not to encourage researchers to engage with complex concepts outside of their own discipline, but to allow them to translate these concepts into clear interdisciplinary summaries. Therefore, removing the time and resource needed to engage with unfamiliar materials and dissolving the communication blocker.

Another suggestion from the university is to develop an 'AI Research Hub'. This would act as a central repository of AI tools already validated by researchers, alongside tools or other resources that support or enable the use of AI in interdisciplinary research. This may be an open access platform that researchers are able to contribute to and may provide the basis for the co-creation of tools amongst those with AI development capacity. Crucially, this could also be a key platform for the sharing and exchange of AI usage policies, guidance, or institutional strategies – inviting users into a community of practice and facilitating peer learning. All suggestions similarly deploy digital tools that remove geographical collaboration barriers and allow researchers from different universities to connect across campuses, countries and time zones. Each also encourages co-development, relying on input from researchers of different backgrounds to ensure tools are diverse enough to represent the varied landscape of resources, data and methods that characterise interdisciplinary work.

In summary, the insights of all members contributed to a key message: the use of AI should not be treated as the objective itself. Rather, it should serve as an accelerator of interdisciplinary science by connecting researchers and identifying complementary expertise, integrating literature and datasets for easy access, supporting data sharing, and facilitating collaboration across otherwise rigid disciplinary boundaries.

6. Sub-Saharan Africa

Laying the foundations through exploratory AI use

Insights from this Regional Chapter are derived from a smaller number of members and are therefore indicative of some current AI practices within Sub-Saharan Africa, but not at all comprehensive. The insights that have been captured are characterised by initial exploratory uses of AI tools in research, but a lack of institutional support and funding to develop this. There is a gap between this initial deployment of AI assistance and its use in interdisciplinary projects.

Digital Readiness and Access to AI Tools

The readiness of universities to embrace AI into the research process differs across the region and has been presented as a challenge for some. Many universities are offering the advanced digital infrastructure needed for students and researchers to use AI tools, often complemented by training and the provision of software. However, the integration of AI into the core research environment is still lagging. For one member, the university as an institution has generally not yet supported this integration and is not currently providing a budget for the purchase of AI tool subscriptions – which may otherwise provide the foundations. Whilst some researchers are actively exploring how such tools can be used in their research, they are currently self-funding this experimentation, which is not considered a sustainable practice.

Elsewhere, researchers are deploying AI assistance on external research platforms provided via their institution's libraries. These include the AI Research Assistant available via Web of Science and Scopus AI via Elsevier. However, similarly, tools of this kind are not currently being funded for personal use.

Considering broader digital readiness however, sector-leading practices already exist within the region. Obafemi Awolowo University Ile-Ife is home to the ICT-Driven Knowledge park, a centre of excellence for the advancement of technology. It is funded by both the government of Nigeria and the World Bank and is committed to research, as well as business incubation and entrepreneurship. Technology hubs such as these perhaps act as a catalyst for the integration of technologies into core university activities too. The limitations of access only to free tools does however appear to primarily impact AI, rather than wider digital infrastructure.

Policies and Frameworks

Countries across the region have started to develop AI usage policies in response to a need not only pertinent to institutions of education, but to nations and their citizens too. In discussing a need for comprehensive policies and frameworks to govern the use of AI, and perhaps to set the trajectory for its integration into the research environment, members began with discussions of national policy development. Rwanda was considered an early mover in being one of the first countries with a published AI usage policy within the region. Senegal has followed in creating some regulatory documentation and in South Africa, more comprehensive documentation is now in development.

However, recent reactions to the development of such policies may indicate the national sentiment when it comes to AI use. One member shared an anecdote relating to South Africa's publication of a draft AI strategy earlier in 2026. The draft was itself flagged for use of AI-generated content, in which false references and citations were used (DLA Piper, 2026). The draft was then withdrawn, but not before a negative public reaction as people exposed the issue. Whilst some universities may feel they are without a national example of AI usage policy to follow, this may also create an opportunity – for universities in the region to lead the conversation.

Principles for AI Use

As the use of AI continues to emerge across the global research landscape and some members have not yet adopted tools into their own practices, the principles for introducing AI into the interdisciplinary science process became an important area to explore. The self-governance of the researcher was one concept which emerged. For one member, it was important that the use of AI in interdisciplinary research should not be dismissed or vilified, as long as it can be used ethically. This depends on the university, its leaders and its faculty to demonstrate how AI can be used to support research whilst always maintaining the researcher as the principal validator. This was discussed as the 'self-governance' of the researcher, who must only deploy AI tools when they can remain in complete control of the content the tool produces and the data it may process. This reiterates the sentiment expressed across other regions, that AI should only ever support or accelerate the research process – but never replace human-led inquiry.

Principles should therefore include the acknowledgement of where and how AI tools have been used in the development of a research project and the constant enhancement of safeguarding behaviours within a rapidly changing landscape of AI development. As the characteristics of AI research tools shift, the principles governing their use must remain flexible enough to adapt with this.

Recommendations



For institutions

- Organise AI support around **research problems,** with clear entry points for non-specialists.
- Build critical, **discipline-specific AI capability,** and encourage teams that pair technical and domain expertise.
- Adopt proportionate, **principles-based guidance** on AI in research.
- Create lasting pathways from pilots to sustained practice, and **recognise interdisciplinary contributions** in evaluation and promotion so that disciplinary reward systems do not limit what AI can do for interdisciplinary work.



For GHEIN and other networks

- Develop a cross-regional capability map to connect complementary expertise, data and infrastructure.



For funders and policymakers

- Support access to computing, specialist staff and AI tools where these are binding constraints.
- Ensure funding and assessment can fairly evaluate AI-enabled work that spans several disciplines, including in data-scarce fields.