

ARUA 2025

Biennial International Conference

Theme: Research, Innovation & Artificial Intelligence
for Africa's Transformation



📍 Makerere University 📅 29 - 31 October 2025

1 Background

Africa possesses immense human and natural resources. Yet, the continent faces some of the most severe social and economic challenges worldwide. High rates of poverty, illiteracy, malnutrition, and insufficient healthcare continue to pose significant challenges in many African countries. The lingering impacts of colonialism, the slave trade, and ongoing geopolitical conflicts have left a lasting impact on the continent's economic structures and its response to various forms of shocks. Infectious diseases disproportionately affect Africa compared to other regions, and labour productivity is only about 20% of the global average, hindering economic growth. This low productivity is further aggravated by inadequate use of technology, a mismatch of skilled labour and an uncompetitive business environment for private sector development. Also, corruption and poor governance have been associated with resource mismanagement and inadequate investment in infrastructure and public services.

Despite the myriad of interventions from various actors both from within and outside the continent, to address many of these challenges, including those of higher education institutions, recent findings suggest that progress has been limited. Africa performs quite poorly on several indicators of the Sustainable Development Goals (SDGs) including those on poverty, food insecurity as well as access to health care, clean water and energy, with little or no sign of transformation in the coming decades. Africa's performance in attaining the targets set out in Agenda 2063 has been mixed, with notable progress in some areas alongside significant challenges in others. There is therefore an urgent need to adopt more holistic and new approaches to reverse these worsening trends, improve the quality of life and positively affect the path of transformation. Key to Africa's transformation is research and innovation, and higher education institutions have a critical part to play in the process.

Many advanced economies have demonstrated how research, innovation and artificial intelligence (AI) can be harnessed to address social and economic challenges and propel further growth and transformation. Research and innovation have been critical in advancing knowledge, driving progress as well as fostering critical thinking and the development of problem-solving skills for various economic and social challenges. Questions relating to production, productivity and the future of work are becoming easier to address with the

growing role of artificial intelligence. AI technologies are opening up possibilities to significantly boost scientific productivity. From automating routine tasks to analysing large datasets, AI is creating more room for researchers to focus on more complex problems. This increased efficiency is yielding complementarities that are allowing higher education institutions in advanced economies to accelerate research and innovation and tackle global challenges. Artificial intelligence is thus serving as an important catalyst for the many scientific breakthroughs in advanced economies and propelling transformation in many different ways.

However, the extent to which African universities are leveraging these techniques to improve teaching and learning, address philosophical questions and, more generally, identify key solutions to facilitate the type of transformation that the continent needs remain unclear. The role of African research universities in generating the needed knowledge for social and economic transformation, and to a very large extent, becoming the catalyst for transformation, while well appreciated, remains yet to be fully achieved. Africa accounts for only 0.3% of global R&D and 0.5% of patent applications¹. Africa accounts for less than 3% of global scientific publications after several decades of its researchers contributing less than 1%. A huge potential for Africa's higher education institutions, therefore, exists. African universities can be critical in mobilising learners towards entrepreneurship and innovation.

But there are broader issues. Africa's economy is mostly characterised by slow-paced industrialization and the predominance of a low-skill services sector, with the associated deindustrialisation. The non-diversification of exports, weak human capital, political instability, conflicts as well as unfavourable external conditions add to the complexity of issues for national governments and constrain them from providing the needed investment in African higher education for it to reach its potential. There is, therefore, significant room for the use of artificial intelligence in boosting the research and innovation ecosystem in Africa with the higher education institutions leading the charge for the needed transformation.

African universities cannot do this alone. Collaboration between higher education and industry is needed. Many African universities struggle to align their research with the local needs of industry and the private sector mainly due to outdated (unsupportive) public policies and insufficient institutional capacity. Local market structures and limited resources hinder the ability of universities to engage meaningfully with industry. For the continent to comprehensively address its challenges, HEIs must work closely with industry to harness the potential of artificial intelligence in improving the research and innovation ecosystem.

An innovative approach to transformation without fostering collaborations with national governments is likely to be constrained by several challenges. African higher education institutions must establish strong partnerships between governments and civil society to coordinate efforts towards inclusive and sustainable transformation. They ought to champion the development of national strategies and policies that integrate SDGs and the African Union's Agenda 2063 to guide economic and social transition. Advocacy for the mobilisation of more innovative financing to facilitate transformation is needed. All these elements can be critical in boosting research, innovation and artificial intelligence capacity for the benefit of the continent.

The 2025 conference will seek to create a platform for policymakers and stakeholders to engage with researchers to find solutions to important issues related to harnessing AI for research and innovation. The Conference will also be a platform for the higher education sector to engage

¹ <https://www.bcg.com/publications/2021/innovation-in-africa>

each other, learn from each other and propagate best practices. The Conference will be a three-day event with the last day dedicated to workshops for the ARUA Centres of Excellence.

2 The Focus of the ARUA 2025 Conference

The ARUA 2025 Biennial International Conference will seek to bring together experts from different fields, including universities, research institutions, government, industry, civil society, international organizations, etc., to discuss *how Africa's Transformation can best be facilitated by Research, Innovation and Artificial Intelligence*. In considering the key lessons learned from various institutions, including those from both the Global North and other regions of the Global South, the conference will concentrate on substantially enhancing the knowledge space of Africa's higher education institutions, particularly what will make them better placed to effectively use research, innovation and artificial intelligence capacity.

The conference will further seek to embolden relevant stakeholders, mainly leaders of African Higher Education Institutions, to pursue the needed reforms in their universities while highlighting lessons for medium to long-term reforms that need to be undertaken by national governments and their strategic regulators. This will warrant changes in national development aspirations and regional development goals and targets, including Agenda 2063.

The ARUA 2025 Biennial International Conference is, therefore, open to papers that will address issues related to the following (*as well as any related*) themes:

(a) Promoting Collaborative Research and Innovation Networks in AI in Africa

- What successful collaborative research initiatives currently exist in Africa, and what can we learn from them?
- What strategies can be implemented to build effective collaborative and equitable research networks leveraging AI across African institutions?
- What are the common barriers to effective collaboration in research and innovation networks in Artificial Intelligence, and how can they be overcome?
- What roles do public-private partnerships play in fostering collaborative research and innovation networks in artificial intelligence?

(b) Building AI Capacity and Talents in African Higher Education Institutions

- How can African HEIs meet the massive demand of higher education from a rapidly growing population?
- How can AI be responsibly applied to critical sectors like healthcare, agriculture, and education (more generally, the SDGs) to accelerate Africa's transformation?
- How can AI be leveraged to facilitate the attainment of the Sustainable Development Goals and ensure inclusive growth across Africa?
- How can universities foster multidisciplinary collaboration between different disciplines to develop holistic AI education programs? Are there any good examples or guides as to how this can or has been achieved?
- What interventions can African universities implement to attract and retain more women and girls in AI-related fields of study?

(c) Advancing Responsible AI Ecosystems in African HEIs

- How can African universities leverage research, innovation and artificial intelligence to drive transformation and address the continent's unique challenges?
- What constitutes the most effective way of using AI in African HEIs? What are the implications for social and economic transformation?
- What are the key barriers hindering the adoption of research, innovation and artificial intelligence in Africa, and how can they be overcome?
- How can African traditions, cultural values and principles be incorporated into the ethical frameworks for AI development?
- What strategies should African Higher Education Institutions (HEIs) adopt to guarantee the inclusion of different stakeholder perspectives, particularly from marginalized areas, in artificial intelligence (AI) governance procedures?

(d) Strengthening Industry and University Collaborations in Artificial Intelligence in Africa

- In what ways can HEIs in Africa and industry work together to effectively document and share both explicit and tacit knowledge?
- What role can university-based AI incubators and accelerators play in nurturing startups and entrepreneurs in Africa? Are there any best examples on the continent?
- How can African governments and institutions invest in building AI capacity and skills to create a sustainable pipeline of talents that meets the needs of industry?
- What role can public-private partnerships play in promoting research, innovation, and AI entrepreneurship for Africa's development?
- How can universities and research institutions collaborate with industry to enhance training and education in STEM fields?

(e) Investments in Artificial Intelligence for African Universities

- What ethical considerations and governance frameworks are needed to guide the development and deployment of AI in African Universities?
- What lessons can be learned from successful AI initiatives in African Universities, and how can they be scaled and replicated across the continent?
- How can African universities and research institutions build a pipeline of digitally savvy researchers and innovators in AI? What are the potential benefits of Artificial Intelligence for research productivity and collaboration in Africa?
- What are the key challenges African researchers face in accessing AI tools and resources for their work?
- What emerging trends in AI technology are likely to influence knowledge transfer between HEIs and industry in the next decade?
- What emerging AI technologies/innovative approaches hold the most promise for strengthening STI capacity in various sectors?

(f) Improving Infrastructure for Science and Technology in AI

- What are the most critical infrastructures necessary for advancing science and technology in Artificial Intelligence in Africa?
- What strategies can be employed to overcome infrastructure deficits in rural and underserved areas to promote scientific research?
- How can emerging technologies (e.g., AI, IoT, big data) be integrated into existing infrastructure to enhance scientific research capabilities?

- What role does public-private partnership play in creating sustainable and resilient infrastructure for science and technology?
- How can African higher education institutions leverage AI to build their Science, Technology, and Innovation (STI) Capacity?

(g) Promoting Doctoral Education in Artificial Intelligence on the African Continent

- What is the current state of doctoral education in artificial intelligence (AI) across various African countries?
- What are some critical examples of investments in AI for African Universities?
- How can African universities collaborate with international institutions to enhance doctoral education in AI?
- What strategies can be employed to improve funding and resource availability for doctoral students in AI?
- How can partnerships between academia and industry be fostered to enhance the doctoral education experience in AI?
- What networking and mentorship opportunities should be created to support doctoral students and early-career researchers in AI? Are there any best examples?
- What measures can be taken to retain top talent in AI within Africa after they complete their doctoral studies?

(h) Redefining Pan-African and Global Collaborations in Artificial Intelligence

- What types of knowledge-sharing and joint research platforms should African Universities prioritise in redefining Pan-African and Global Collaboration in Artificial Intelligence that can benefit African Universities?
- How can African Universities build linkages between African research, innovation and AI hubs and the global ecosystem?
- How can African Higher Education Institutions influence international research, innovation and AI policy and governance frameworks? What is the way forward?

(i) The role of governance at University and State levels in fostering AI in Africa

- What type of governance architecture would universities in Africa need to drive research, innovation and AI for Africa's transformation?
- What type of governance and policy architecture would states in Africa need to drive research, innovation and AI for Africa's transformation?
- What is the role of the African Union and Regional Economic Communities in Africa?

(j) Application of AI in Research and Innovation in African Universities

- What are some practical examples of the use of AI in promoting research and Innovation in African Universities?
- How is Artificial Intelligence being used to promote research about the SDGs?
- How is Artificial Intelligence being used to promote research that has a societal impact and can address global challenges?
- What examples exist for AI transformation in teaching, learning and assessments?

These questions may also be organized across other sub-themes including **Research** (healthcare research and development, renewable energy and sustainability, agricultural productivity and food security, education and skills development, social sciences and humanities for African development, smart city and inclusive urban transformation), **Innovation** (entrepreneurship and startup ecosystems, digital transformation and ICT,

industrialization and manufacturing, sustainable urban planning and development, creative industries and cultural heritage) and **Artificial Intelligence** (AI for healthcare and wellness, AI for education and learning, AI for agriculture and food security, AI for climate change and sustainability, AI for governance and public services, AI and as a tool for inclusivity in urban Africa).

The cross-cutting themes to be considered include Gender and Inclusivity in Research and Innovation; Ethics and Responsible AI Development; Public-Private Partnerships for Development; Capacity Building and Skills Development; Policy and Regulatory Frameworks for Innovation; Addressing Regional Challenges; Leveraging Regional Integration; Harnessing Innovation Hubs; Fostering Economic Growth and Building Resilience and Stability.

3 Conference Structure

The conference will be held over three days and will admit about 250 participants from all over the world with about half of the participants from ARUA universities.

The first two days of the conference will feature three plenary sessions per day, each addressing the broad theme of the Conference. These will be used to present the ‘lay of the land’ papers and map out the possibilities for how African universities can best respond to artificial intelligence. They will be delivered by known international experts from Africa and elsewhere.

Additionally, each of the first two days will include 10 parallel sessions, exploring the various sub-thematic areas of interest related to the main conference theme. Each parallel session will run for two hours and will feature up to three presentations, followed by comments from discussants.

On day three of the Conference, workshops will be hosted by the ARUA Centres of Excellence (CoEs). The workshops will provide an avenue for Early Career Researchers (ECRs) to reflect and develop a strategy towards properly understanding the role of *research, innovation and artificial intelligence (AI)* in addressing various social and economic challenges.

4 Outputs

The conference is expected to produce policy- and practice-oriented papers addressing its key themes. These outputs will provoke further discussions around reforms, best practices, and strategies for Africa’s Transformation through *Research, Innovation and Artificial Intelligence*. Also, based on the interests of ARUA CoEs, various edited volumes related to the conference’s main theme may be produced.

5 Abstract Submission Guidelines

Abstracts may be submitted in English and should have a clear title, institutional affiliation, phone number and email address of the corresponding author. An abstract of not more than **400 words** may be submitted at <https://arua.org/conferences/conference2025/> no later than **28 February 2025**.

6 Proposals for Special Sessions

Individuals and institutions are invited to submit proposals for special sessions during the conference. Requests for special sessions must be accompanied by the name of the principal

organiser, institutional affiliation, and a session abstract of no more than 400 words that summarises the session. The proposals can be sent to conference2025@arua.org no later than **28 February 2025**.

Higher Education Institutions are strongly encouraged to submit proposals for special sessions aligned with the conference themes, with a particular focus on engaging early-career academics, including young women.

7 Travel Support

Limited funding will be available to support international travel for a select number of participants from **relatively less-resourced institutions**. The award of such travel support will be made strictly based on the timeliness of the full paper submission and the quality of the submission.

8 Summary of Key Dates

- **28 February 2025** - Deadline for abstract and special session submissions.
- **31 March 2025** - Feedback on submissions.
- **30 September 2025** - Deadline for the submission of full papers.
- **29 - 31 October 2025** - Conference takes place.