2024 UNESCO Forum on Higher Education in Africa: A driver for sustainable development

10 and 11 December 2024, Nairobi, Kenya

Background document

Introduction

This document is a key resource for participants in the 2024 UNESCO Forum on Higher Education: A driver for Sustainable Development. It provides an updated overview of the state of higher education in Africa, presenting critical data and insights into ongoing challenges and opportunities. By examining the alignment of higher education systems with national development plans and the broader Sustainable Development Goals (SDGs), the document highlights promising practices and reforms implemented by various countries. These examples aim to inspire dialogue and inform actionable strategies, setting the stage for more in-depth discussions during the Forum.

Higher Education in Africa

Africa, home to the world's youngest population, holds immense potential for economic transformation, and faces both opportunities and challenges as it seeks to harness the talents of its 363 million youth and 10 million annual graduates entering the labour market. With approximately 70% of its population under 30, the continent has a unique opportunity to drive socio-economic growth, provided its youth receive quality education and relevant skills.[1] Yet, access to higher education remains a critical challenge, with an enrolment rate of only 9%, significantly lower than the global average of 42%[2] (Figure 1). Additionally, less than 15% of students are enrolled in Technical and Vocational Education and Training (TVET) at the upper secondary level, which is considerably below the global average of 22%.[3] This low enrolment restricts pathways to meaningful employment and economic inclusion, particularly in economies where TVET plays a major role in equipping youth with job-ready skills.[4]

Figure 1. Gross Enrolment Ratio, tertiary %
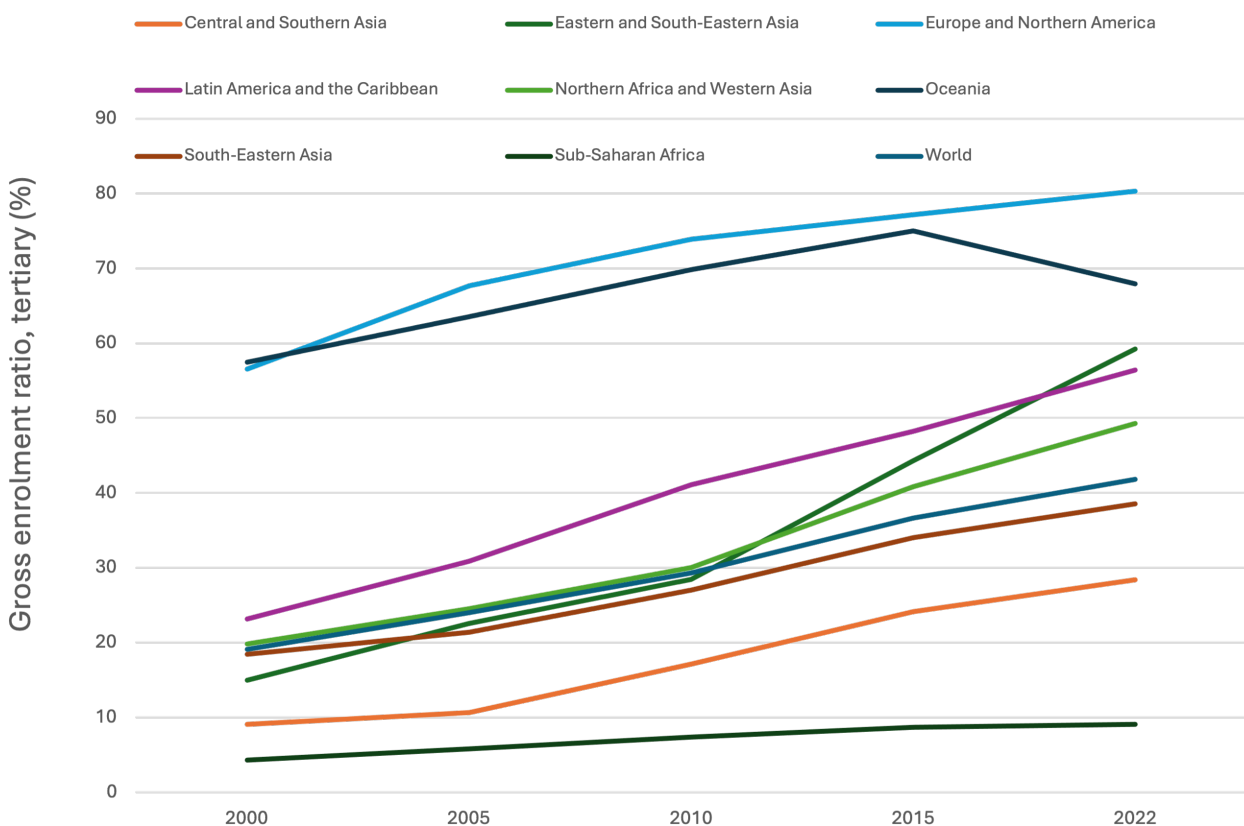
Source: UIS database.

This education gap hinders Africa's ability to tackle unemployment and economic inequality, especially given that 85% of its workforce remains in the informal economy.[5] Transforming higher education systems to respond to these challenges is essential for unlocking the potential of Africa's young population. Higher education must focus on supporting the formalization of sectors within the informal economy, addressing its

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[1] UNESCO Reinforcing Higher Education in Africa
[2] UNESCO Institute for Statistics
[3] UIS Data Browser
[4] https://dakar.iiep.unesco.org/en/news/eight-key-issues-tvet-africa-between-now-and-2030
[5] United Nations Study

specific challenges, and aligning educational outcome with the demands of emerging fields such as the digital economy, renewable energy, and environmental sustainability.

Universities across Africa are playing a crucial role in this transformation. By adapting curricula to address the needs of both informal economy and high-skill sectors, institutions are increasingly incorporating programmes in digital literacy, Artificial Intelligence (AI), and green technologies to prepare students for new and evolving industries. Initiatives such as incubation hubs, entrepreneurial training programmes and mentorship schemes in countries like Kenya and South Africa, empower students to translate academic knowledge into viable business ventures. For example, Uganda and Nigeria have successfully implemented programmes that help graduates turn their education into economic opportunities, thereby fostering job creation and advancing sustainable development.

In regions dominated by subsistence agriculture, higher education institutions (HEIs) are tailoring their programmes to focus on sustainable farming and rural development. By equipping students with relevant skills, these institutions are helping to transform local economies and build resilience in sectors critical to both regional and global economic needs. Entrepreneurial training and financial support initiatives further enable graduates not only to seek employment but to create jobs, driving economic transformation across the continent.

This document, an updated overview of higher education in Africa, serves as a foundation for participants of the 2024 UNESCO Forum on Higher Education: A driver for Sustainable Development. It presents an analysis of the current landscape, challenges, and opportunities within African higher education, while also showcasing promising practices and innovative approaches. By setting the stage for informed discussions on advancing access, quality, and innovation in education, it aims to support efforts to harness Africa's vast potential and build a future of inclusive growth and development.

High-level summary of main challenges and initiatives brought into the region

Access, equity, and inclusion

Despite progress over the past two decades, higher education enrolment rates in Africa remain significantly below global averages, highlighting the need for expanding access, particularly in underserved areas. Financial barriers are a major obstacle, with many students unable to afford tuition fees, and student loan programmes often falling short due to low repayment rates. Private universities, typically more expensive than public ones, further limit access for low-income students, deepening inequalities.

Equity and inclusion also present significant challenges, particularly for women, people with disabilities, and students from rural communities. Gender disparities are especially pronounced in science, technology, engineering, and mathematics (STEM) fields, where female enrolment and participation remain low due to cultural norms, financial constraints, and limited infrastructure access in rural areas. In many regions, women represent only a third of the student population in STEM programmes, a gap that limits their contributions to vital sectors for economic growth.

Furthermore, women are under-represented in academia and leadership roles across African HEIs. For example, in **Ethiopia**, only 2 out of 46 universities have a female president, and women make up just 15% of associate professors and 10% of assistant professors.[6] In the **United Republic of Tanzania**, only 2 out of 60 universities have a female vice-chancellor, and **Uganda** had only three as of 2017.

Research in West and Central Africa further highlights the impact of gender diversity in leadership; schools led by women in **Benin, Cameroon, Madagascar, Senegal, and Togo** have shown reduced teacher

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[6] The examples from this paragraph come from the GEM Report 2024

absenteeism and improved attendance tracking, indicating that female leaders can enhance institutional effectiveness and student support.

To address these challenges, several African countries have implemented targeted initiatives to promote gender equity in higher education. **Uganda** and **Rwanda**, for example, have introduced scholarships and mentorship programmes aimed at increasing female participation in STEM fields. In Uganda, Makerere University's mentorship programme for female STEM students and affirmative action policies have boosted female enrolment in STEM,[7] while Rwanda's government has promoted STEM education for girls through initiatives such as smart classrooms and scholarships.[8] **South Africa** has also implemented affirmative action policies to increase access for Black and low-income students, though gaps remain, especially in STEM fields.[9] **Rwanda**'s commitment to equity extends to rural access, with scholarships and quotas helping to increase enrolment from rural communities.[10] Similarly, **Morocco** has partnered with organizations like the **World Bank** to increase access to higher education for marginalized groups, aligning with the African Union's (AU) goals on inclusive education.[11]

While these interventions show progress, further targeted efforts are needed to achieve full gender parity and ensure equitable access in higher education for all. By addressing barriers at every level, from student to senior leadership, African higher education can become a driver of inclusive growth and sustainable development.

Labour market mismatch

A key challenge in African higher education is the persistent misalignment between academic programmes and labour market needs, particularly in fields such as STEM. While industries increasingly demand job-ready skills and hands-on expertise, graduates often leave universities with primarily theoretical knowledge, unprepared to meet the practical demands of the workforce. Rapid technological advancements have further widened this gap, particularly in engineering and information and communication technologies (ICTs), as universities struggle to keep pace with the evolving needs of local industries.

Compounding this issue is the structure of Africa's economies where a significant portion of the workforce operates in the informal sector. Activities such as street vending and small-scale farming dominate this landscape, requiring adaptability, resourcefulness and entrepreneurial skills, which are competencies that HEIs have historically overlooked. The informal economy plays an important role in livelihoods and contributes significantly to GDP in many African countries, yet its needs are often neglected in educational planning. This oversight leaves many graduates facing difficulties to secure opportunities in the formal job market while also lacking the practical and entrepreneurial training necessary to succeed in the informal sector, which is often their default employment option.

The case of Glencore, a multinational mining company, illustrates the complexities of Africa's informal economies and their intersection with global economic structures. In regions like the **Democratic Republic of Congo** (DRC), where Glencore operates, artisanal miners often extract cobalt and other minerals vital for global technology supply chains under informal and exploitative conditions.[12] These miners, including children, work without adequate training, safety standards, or economic security, perpetuating cycles of poverty and inequality. This highlights the need for higher education to prepare graduates not only for

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[7] VC launches mentorship program for female students in stem
[8] Rwanda leading way in girls in STEM
[9] https://unesdoc.unesco.org/ark:/48223/pf0000386117
[10] Rwanda Country report
[11] The World Bank
[12] https://www.100million.org/_files/ugd/20424a_441cc00f1a264a92ba72419b901b1127.pdf

formal sector roles but also to engage with, and improve conditions within, informal economies by fostering ethical practices, sustainable resource management, and community development.

To address these challenges, initiatives such as the **African Higher Education Centres of Excellence (ACE)[13]** and **Campus Africa** are making a difference. These programmes focus on aligning educational outcomes with labour market demands by emphasizing practical skills, entrepreneurship, and industry collaboration. Additionally, the integration of entrepreneurship into curricula equips graduates with the tools to navigate and contribute meaningfully to both the formal economy and the realities of Africa's economic landscape. By bridging this gap, such initiatives aim to empower graduates to drive innovation and economic development across the continent.

Campus Africa: A UNESCO Flagship Programme for Priority Africa

Campus Africa is a UNESCO initiative designed to transform Africa's higher education landscape by equipping youth with the skills needed to meet the continent's socio-economic demands. With Africa hosting the world's youngest population, the programme focuses on bridging gaps in education access, skill development, and employability to foster inclusive growth and prepare youth for the future of work, entrepreneurship, and lifelong learning.

Launched under UNESCO's Operational Strategy for Priority Africa 2022–2029, Campus Africa aligns with regional development strategies and focuses on three pillars:
- Research and innovation: Strengthening research capacities in critical sectors such as renewable energy, agriculture, and digital technologies.
- Doctoral studies: Providing scholarships and facilitating faculty and student exchanges to enhance institutional capacities and foster collaboration.
- Higher technical education: Revitalizing curricula to align with emerging sector needs and support employability.

In addition, the programme enhances quality assurance and facilitates the recognition of qualifications, enabling student mobility and harmonizing accreditation standards continent-wide. Collaborating with partners such as OBREAL and CAMES, Campus Africa supports the development of an integrated and mutually enhancing higher education system across Africa.

Learn more about Campus Africa [here](#).

Skills development

A significant challenge in African higher education is the labour market mismatch, where graduates struggle to find jobs due to a disconnect between academic programmes and industry demands. While countries like **South Africa** and **Zambia** have updated their curricula to include more STEM and ICT-focused courses, many institutions face barriers such as outdated curricula, lack of qualified faculty, and limited infrastructure for practical learning.[14]

Some universities are addressing these challenges by aligning their programmes with local and global market needs through partnerships with the private sector. For instance, in **Rwanda,** universities collaborate with industries to offer internships and apprenticeships, providing students with hands-on experience in

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[13] https://ace.aau.org/about-ace-impact/
[14] https://www.bristol.ac.uk/media-library/sites/education/documents/Binder1.pdf

technology, health, and agriculture.[15] Similarly, Makerere University in **Uganda** is driving agricultural innovation equipping students with skills to meet local economic needs.[16] In **Chad**, a partnership with the **African Development Bank** focuses on enhancing agricultural education and research, preparing students with skills tailored to the country's primary economic activities.[17] The **UNESCO-CFIT III project** also plays an important role in addressing these gaps by strengthening higher technical education in Africa. Focused on aligning curricula with labour market demands, CFIT III supports skills development in key sectors like engineering, ICT, and renewable energy, while fostering partnerships between universities and industries to provide students with hands-on training and work-based learning opportunities.

The UNESCO-China Funds-in-Trust Phase III (CFIT III) Project in Africa: Higher technical education in Africa for a technical and innovative workforce

The CFIT III project, a partnership between UNESCO and the People's Republic of China, focuses on strengthening higher technical education in Africa to equip youth with skills aligned with labour market needs. By enhancing the capacity of HEIs, CFIT III aims to address youth unemployment, foster gender equality, and build a skilled workforce to drive Africa's socio-economic development.

The project targets four key areas:
- Labour Market Alignment: Supporting HEIs to integrate labour market analyses and graduate tracer studies into curriculum and programme design.
- Curriculum reform: Developing inclusive, relevant curricula that reflect industry demands and promote competency-based education.
- Improved assessment: Promoting modern assessment methods to enhance technical and vocational education.
- Industry collaboration: Strengthening partnerships between HEIs and industries to create work-based learning opportunities and inform curriculum updates.

Implemented in Côte d'Ivoire, Ethiopia, Gabon, Senegal, Tanzania, and Uganda, CFIT III collaborates with 12 partner HEIs to ensure sustainable reforms in technical education. The project exemplifies South-South cooperation by fostering collaboration between African institutions and China, with a focus on inclusiveness and innovation.

Learn more about CFIT III and its impact here.

These initiatives aim to modernize curricula and equip students with relevant and practical skills, ultimately reducing the labour market mismatch and preparing graduates for diverse employment opportunities. By fostering regional and international collaboration, African higher education systems are gradually adapting to meet the demands of an evolving workforce, positioning the continent for socio-economic transformation and sustainable development.

Quality assurance, evaluation, and accreditation

Quality assurance, evaluation, and accreditation are vital to unlocking the potential of higher education in Africa, ensuring it contributes effectively to sustainable development and socio-economic growth. As higher education systems across the continent expand rapidly and diversify to meet growing demand, these

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[15] https://www.worldbank.org/en/country/rwanda/publication/rwanda-economic-update-september-2024
[16] https://www.mak.ac.ug/study-mak/colleges-departments
[17] https://www.afdb.org/en/documents/chad-project-support-agricultural-sector-and-response-food-crisis-chad-pasarca-project-appraisal-report

mechanisms play a critical role in standardizing academic programmes, maintaining educational standards, and aligning institutions with labour market needs.

However, the pace of expansion, especially in private higher education, often surpasses the capacity of quality assurance systems to regulate and monitor institutions effectively. Many countries face significant funding constraints, which limit the ability of oversight bodies to operate comprehensively, particularly in low-income contexts. Additionally, inconsistencies in accreditation practices across countries create barriers to academic mobility and hinder the mutual recognition of qualifications, complicating regional integration.

To address these challenges, African countries and regional bodies have introduced several innovative frameworks and initiatives. For example, National Qualifications Frameworks (NQFs) have been developed across Africa. **South Africa** leads in NQF advancements, facilitating domestic and international recognition of qualifications.[18] At the continental level, the **AU** is working on a Continental Qualifications Framework to ensure cross-border recognition of qualifications, enhancing mobility for students and professionals.[19]

National accreditation bodies also play a critical role in maintaining quality standards. **Nigeria**'s National Universities Commission[20] and **Kenya**'s Commission for University Education,[21] help maintain academic standards. **Tunisia** has implemented the National Authority for Assessment, Quality Assurance, and Accreditation to ensure that its higher education system aligns with AU standards for quality and mobility.[22] Complementing these efforts is the **African Quality Rating Mechanism (AQRM)**,[23] a regional tool that allows institutions to evaluate their performance against benchmarks, promoting self-assessment and improvement.

At the continental level, collaborative initiatives such as the **Harmonisation of African Higher Education Quality Assurance and Accreditation (HAQAA3)[24]** are instrumental in addressing fragmentation in quality assurance systems. HAQAA3 is working to harmonize accreditation practices and establish a cohesive quality assurance framework across Africa. These efforts enable the mutual recognition of qualifications, support student and faculty mobility, and foster greater collaboration within the African higher education landscape.

Quality assurance systems are not just about academic rigour. They are also key to ensuring that higher education aligns with Africa's broader development priorities. By maintaining high standards and promoting relevance in academic programmes, these systems ensure graduates are equipped with the skills needed to drive innovation, economic growth, and social progress. Strengthening these frameworks is therefore essential to building a resilient and competitive higher education system that can respond to Africa's challenges while contributing to its SDGs.

Funding mechanisms

Funding for higher education in Africa remains complex, characterized by underfunding, unequal access, and an increasing reliance on private sector contributions. Government funding is the primary model, especially for public universities, but it is often insufficient to meet growing demand. For instance, **South Africa** allocates around 1.35% of its GDP to higher education, while many other countries spend even less, leaving universities under-resourced and struggling to expand access or improve quality.[25] Private universities in countries like **Kenya** and **Ghana** help fill the gap but rely heavily on tuition fees. This reliance makes private

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[18] NQF levels in South Africa
[19] https://acqf.africa/about/overview
[20] https://www.nuc.edu.ng
[21] https://www.cue.or.ke
[22] https://www.inqaahe.org
[23] https://aqrm.aau.org/
[24] https://haqaa.aau.org
[25] UNESCO Institute of Statistics Data Browser

institutions inaccessible to many low-income students, raising concerns about equity and affordability. Student loan schemes, such as **Kenya**'s Higher Education Loans Board[26] and **Ghana**'s Student Loan Trust Fund,[27] provide some financial support but face issues such as low repayment rates. As a result, many students remain unable to cover the full costs of their education.

International funding and donor support play a key role in strengthening HEIs in Africa. Initiatives such as the World Bank's ACE project have contributed to funding universities, particularly in STEM fields, health, and agriculture. These programmes enhance research capabilities, improve infrastructure and build institutional capacity in select institutions across the continent. Public-private partnerships are also on the rise, particularly in **South Africa**, where universities collaborate with companies to address resource constraints. For example, partnerships with corporations such as **IBM** have led to the establishment of technology centres, providing students with access to cutting-edge resources and skills development opportunities.[28] Although these partnerships bring much needed resources, they can sometimes create conflicts between academic and commercial interests.

To meet the rising demand for skilled graduates and research output, African higher education systems will need sustainable, innovative funding solutions. Expanding income-contingent student loan schemes, promoting regional collaborations, and fostering alumni contributions are promising strategies. Strengthening public-private partnerships, while maintaining academic priorities, can also help address resource gaps. These efforts are vital for improving access, equity, and innovation, ensuring higher education contributes to Africa's socio-economic transformation.

Structures and systems in higher education

Africa's higher education landscape is undergoing a significant transformation, driven by the need to accommodate a rapidly growing youth population and an increasingly knowledge-driven global economy. While these changes present numerous opportunities, they also pose structural challenges that demand innovative solutions.

One of the primary challenges is the rapid expansion of higher education, particularly in the private sector. Private institutions now account for a substantial share of enrolments in countries such as Kenya and Ghana, playing a crucial role in meeting growing demand. However, their reliance on tuition fees limits accessibility for low-income students, exacerbating inequities and raising concerns about the sustainability of this model. Additionally, traditional academic programmes often struggle to align with the demands of emerging industries, such as ICT, renewable energy, and sustainable agriculture.

While technical and vocational education programmes are growing, they frequently face challenges related to infrastructure, funding, and faculty development. Agriculture remains a cornerstone of Africa's economies, employing 70% of the workforce and contributing 35% to GDP. However, the sector faces challenges such as low productivity, land degradation, and limited access to advanced technologies. HEIs have a critical role to play in addressing these issues by developing programmes tailored to sustainable agri-food systems. Integrating courses on precision agriculture, land restoration, and climate-smart farming can equip students with practical skills to address food security challenges while fostering innovation in agri-business. Furthermore, partnerships with agricultural extension services and digital agriculture platforms can bridge the gap between academic research and field applications, empowering youth to leverage emerging technologies like AI and the Internet of Things in farming. By aligning agricultural education with market demands, institutions can create pathways to meaningful employment and promote sustainable development across the continent.

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[26] https://journals.uclpress.co.uk/lre/article/2936/galley/17662/view/
[27] https://www.sltf.gov.gh
[28] Africa for AI and other emerging technologies

Despite these challenges, African higher education systems are adapting to meet the evolving needs of students and economies. Frameworks like the Continental Education Strategy for Africa (CESA) emphasize the importance of creating flexible and inclusive education systems. Countries are implementing innovative solutions to diversify their offerings and align with labour market demands.

In **Ethiopia**, the government has expanded TVET programmes to create pathways for students in industries such as manufacturing, agribusiness, and health care. These efforts, aligned with Ethiopia's Growth and Transformation Plan (GTP), aim to equip students with practical skills that directly address labour market needs.[29] In **Tanzania,**[30] The Commission for Universities (TCU) oversees a fast-growing higher education sector that includes public, private, and specialized institutions. The TCU emphasizes flexible learning pathways, supporting working students and professionals seeking opportunities for reskilling and lifelong learning. Across the continent, non-traditional learning approaches, such as micro-credentials, online platforms, and blended learning models, are gaining traction. These innovations expand access to higher education and enable institutions to respond more dynamically to labour market demands.

Adapting higher education structures and systems to Africa's unique context is essential for fostering equity, innovation, and economic development. By diversifying offerings, strengthening partnerships, and creating flexible pathways, African higher education can better serve its students and contribute to the continent's broader socio-economic goals. Continued investment and collaboration, guided by frameworks like CESA, will be critical to ensuring that these systems evolve sustainably and inclusively.

Role of universities in upskilling and reskilling plans

Lifelong learning and continuous professional development are becoming essential in Africa's higher education landscape as universities adapt to the demands of a rapidly evolving job market. Increasingly, institutions are offering short courses, micro-credentials, and online platforms to meet the need for flexible and accessible workforce development. These efforts are particularly crucial for Africa's large youth population and for addressing gaps in workforce readiness across diverse sectors.

However, affordability and access remain challenges, particularly for women and marginalized communities, due to limited digital infrastructure, especially in rural areas. While countries such as Kenya and Ghana have advanced digital learning, the digital divide still limits widespread adoption.

Beyond tackling digital access, universities are finding innovative ways to promote lifelong learning through community engagement and practical approaches. For instance, Ndejje University in **Uganda** has embedded lifelong learning into its core operations by focusing on community engagement and applied learning, benefiting non-traditional students and broader societal impact.[31] This highlights the potential of universities to address workforce gaps not only through technology but also through local, tailored solutions.

A crucial aspect of expanding lifelong learning is ensuring that teaching staff and educational leaders are equipped to support these pathways. The **African Continental Framework of Standards and Competencies for the Teaching Profession** highlights the need for professional development in areas such as leadership, resource generation, and school improvement. In **Sierra Leone**, for example, half of school leaders reported that pre-service teacher training did not adequately prepare them with essential professional knowledge for school leadership.[32] In **Ethiopia**, 53% of school leaders lack prior management experience before being

[29] Ethiopia GTP
[30] https://www.tcu.go.tz
[31] https://unesdoc.unesco.org/ark:/48223/pf0000385434/PDF/385434eng.pdf.multi
[32] GEM Report 2024

appointed, and many do not complete the required postgraduate degree in school leadership before their tenure begins. These examples underscore the importance of continuous professional development, not only for university faculty but also for school leaders, to strengthen the foundation for lifelong learning across the continent.

An additional challenge is the underdevelopment of Recognition of Prior Learning (RPL) systems which limits opportunities for individuals with informal skills to formalize their qualifications. Gender disparities make the situation worse, particularly for women in rural areas, who face cultural and financial barriers to upskilling. Targeted initiatives are needed to ensure equitable access to lifelong learning opportunities, addressing these systemic barriers and promoting inclusivity.

By integrating lifelong learning into their core mission, improving support for educators, and advancing RPL systems, African universities can play a pivotal role in building a skilled and adaptable workforce. These efforts are essential for bridging existing gaps, empowering marginalized communities, and positioning Africa to meet the demands of a dynamic global economy.

Research and innovation

Promoting research and innovation within African higher education is essential for achieving sustainable development and enhancing global competitiveness, particularly in critical fields like health, agriculture, and technology. Despite this fact, Africa invests only 0.78% of its GDP in research and development, compared to the global average of 1.93%.[33] Limited domestic investment often leaves institutions dependent on external donors, highlighting the urgent need for solid fund mechanisms and capacity-building initiatives.

Several African countries are taking steps to address the research funding gap and foster innovation. **Tunisia** has developed innovation hubs such as Technoparks and specialized research centres focused on ICT and biotechnology, fostering job-relevant skills and enhancing research capacity.[34] In **Cameroon**, the University of Yaoundé actively participates in regional research collaborations on health and agriculture, addressing critical issues like infectious diseases and food security.[35] **The DRC** has recently invested in infrastructure improvements for its public universities to better support research and STEM education, which is vital for advancing local research capabilities.[36] **Algeria** has also made progress through the **Algerian Ministry of Higher Education and Scientific Research** which has prioritized science, technology, and innovation with a focus on renewable energy, agriculture, and health.[37] These initiatives align with **AU's CESA** and **Agenda 2063** goals of building a knowledge-based economy.

Efforts to strengthen African higher education are further supported by global programmes like **UNESCO's Chairs** and **UNITWIN Networks**, which provide critical frameworks for research collaboration, capacity-building, and innovation.[38] During the recent **UNESCO Chairs and Partners International Forum** held in Addis Ababa, a key focus was on leveraging higher education and research ecosystems to address Africa's pressing challenges. Discussions emphasized the need to strengthen the local impact of HEIs through context-specific research, interdisciplinary collaboration, and public engagement. Notably, participants highlighted the role of UNESCO Chairs in advancing digital skills and fostering open science to bridge research gaps and promote inclusivity. These initiatives empower institutions to address local and global challenges, aligning with the needs of sustainable development.

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[33] UNESCO Institute of Statistics Data Browser
[34] http://www.ist-africa.org/home/default.asp?page=doc-by-id&docid=7014
[35] GEM Report 2024
[36] Travaux de construction et réhabilitation des universités publiques
[37] https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/europe-world/international-cooperation/bilateral-cooperation-science-and-technology-agreements-non-eu-countries/algeria_en
[38] https://www.unesco.org/en/unitwin

> **UNESCO Chairs and UNITWIN Networks: Advancing research and innovation**
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> The UNESCO Chairs and UNITWIN (University Twinning and Networking) Programme serve as vital platforms for fostering collaboration and advancing research and innovation worldwide. Launched in 1992, the programme connects HEIs, research centres, and academics across regions to address pressing global challenges. These networks promote knowledge-sharing, capacity-building, and interdisciplinary research in areas aligned with UNESCO's priorities, such as education, sustainable development, cultural diversity, and digital transformation.
>
> UNESCO Chairs act as hubs for innovation, where leading scholars and institutions develop and implement research projects, build institutional capacities, and create new teaching materials. The programme's focus on South-South and North-South cooperation ensures equitable knowledge exchange, empowering institutions in developing countries to become key players in global research and innovation ecosystems. Through initiatives such as community-based research and partnerships with industry, UNESCO Chairs generate solutions with tangible local and global impacts.
>
> The UNITWIN Networks complement the work of UNESCO Chairs by creating interdisciplinary and inter-institutional frameworks for addressing shared challenges. These networks provide a platform for universities to collaborate on large-scale projects, leveraging collective expertise to address issues such as climate change, digital education, and social inclusion. By fostering cross-border academic cooperation, the UNESCO Chairs and UNITWIN Programme significantly enhances the capacity of universities and research institutions to contribute to sustainable development and drive innovation worldwide.

Developing an enabling environment for research involves increasing funding, establishing policies that support innovation, and encouraging university-industry partnerships. **South Africa** moved forward by raising its research and development investment to 0.83% of GDP in 2018, but most African nations still face funding constraints.[39] **Gabon**'s Université Omar Bongo has expanded its research partnerships with global universities in fields like tropical medicine and biodiversity, promoting regional knowledge-sharing and innovation.[40] Additionally, female participation in research is limited, with only one in three researchers being women.[41] Programmes like **African Women in Agricultural Research and Development (AWARD)** aim to support women scientists, helping build a more inclusive and diverse research ecosystem crucial for advancing STEM fields across Africa.[42]

Efforts to enhance research and innovation align closely with Africa's broader development goals, such as **Agenda 2063**. By increasing funding, promoting gender equity, and strengthening partnerships with industry and international collaborators, African HEIs can become catalysts for sustainable development. These combined initiatives show a promising commitment to building a knowledge-based economy that drives innovation and improves livelihoods across the continent.

Sustainability

One of the key challenges facing higher education in Africa from a greening and sustainability perspective is the limited integration of environmental science and sustainability principles into STEM curricula. While graduates skilled in renewable energy, environmental management, and sustainable agriculture are urgently needed, many universities struggle with funding constraints, limited infrastructure, and a lack of qualified

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[39] https://uis.unesco.org/apps/visualisations/research-and-development-spending/
[40] https://blog.aau.org/member-university-in-focus-universite-omar-bongo/
[41] UNESCO Science Report: towards 2030
[42] https://awardfellowships.org/

faculty to update and implement green-focused programmes. For example, while **Kenya** has made progress in offering specialized programmes in environmental science, other regions face resource shortages that limit the broader adoption of sustainability education. Without targeted investment, African countries risk falling behind in building the skills necessary to address environmental challenges and transition to a green economy.

To address these challenges, some African universities and institutions are pioneering initiatives that integrate sustainability into education and training. For instance, **Morocco's Institute for Research in Solar Energy and New Energies (IRESEN)** plays a vital role in training and research for renewable energy, positioning Morocco as a regional leader in green energy education and supporting the AU's emphasis on sustainable development.[43] Similarly, **Gabon** is investing in TVET programmes that prepare students for careers in sustainable forestry and environmental conservation, directly contributing to the green economy by equipping students with skills aligned with the AU's goals for ecological preservation and sustainability.[44]

Moreover, African universities are increasingly fostering collaborations with local industries to provide students with practical skills and experience in sustainability-focused fields. The **University of Nairobi** has launched an interdisciplinary programme focused on renewable energy and sustainable engineering, which includes partnerships with local industries to provide students with hands-on experience.[45] Similarly, **Ghana**'s Kwame Nkrumah University of Science and Technology is incorporating sustainable agriculture into its programmes, offering courses on soil conservation, water management, and eco-friendly farming practices.[46]

These programmes are supported by international partnerships and funding from organizations like the **World Bank** and **UNEP**, which help to supply resources and technical expertise, enabling universities to enhance their green-focused curricula and infrastructure.

African universities play a critical role in equipping students with the skills to tackle pressing environmental issues and drive innovation in sustainability. By expanding green-focused STEM education, strengthening partnerships with industry, and leveraging international support, HEIs can contribute significantly to Africa's green transition. These efforts not only address local environmental challenges but also position the continent as an active player in global sustainability initiatives.

Mobility and internationalization

Student and faculty mobility in African higher education is growing but faces challenges. Between 2000 and 2021, the Least Developed Countries were the only group to experience significantly faster growth in the number of international students compared to the global average (Figure 2). However, intra-African mobility remains limited due to barriers such as visa restrictions, funding constraints, and difficulties in recognizing qualifications.
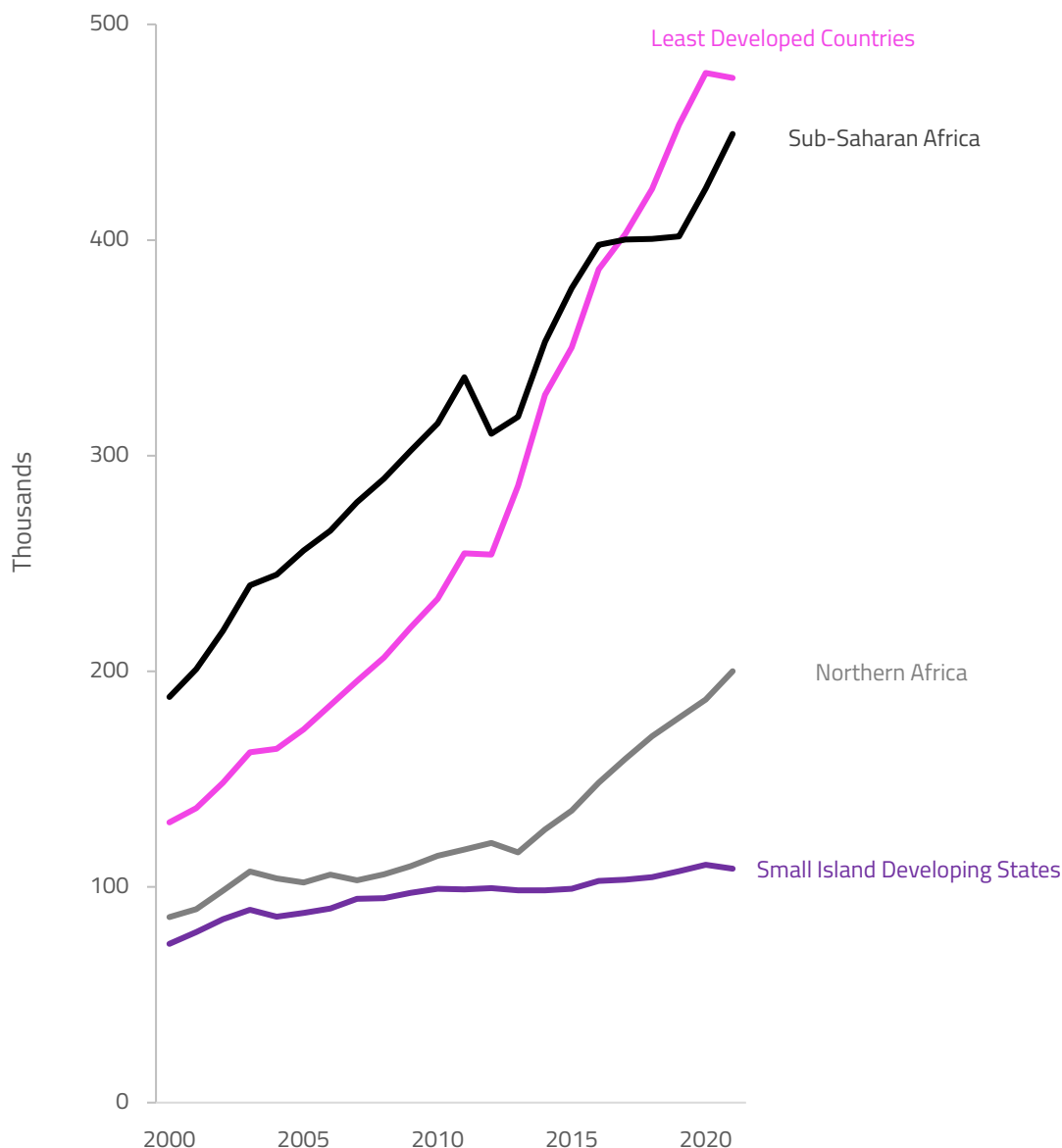
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[43] https://iresen.org
[44] https://www.undp.org/fr/gabon/actualites/gabon-leads-africa-preservation-and-conservation-forests
[45] https://engineering.uonbi.ac.ke/MScEnergymanagement
[46] https://www.knust.edu.gh

Figure 2. The number of international students has been steadily rising since 2000: Number of outbound international students, by region, 2000–21
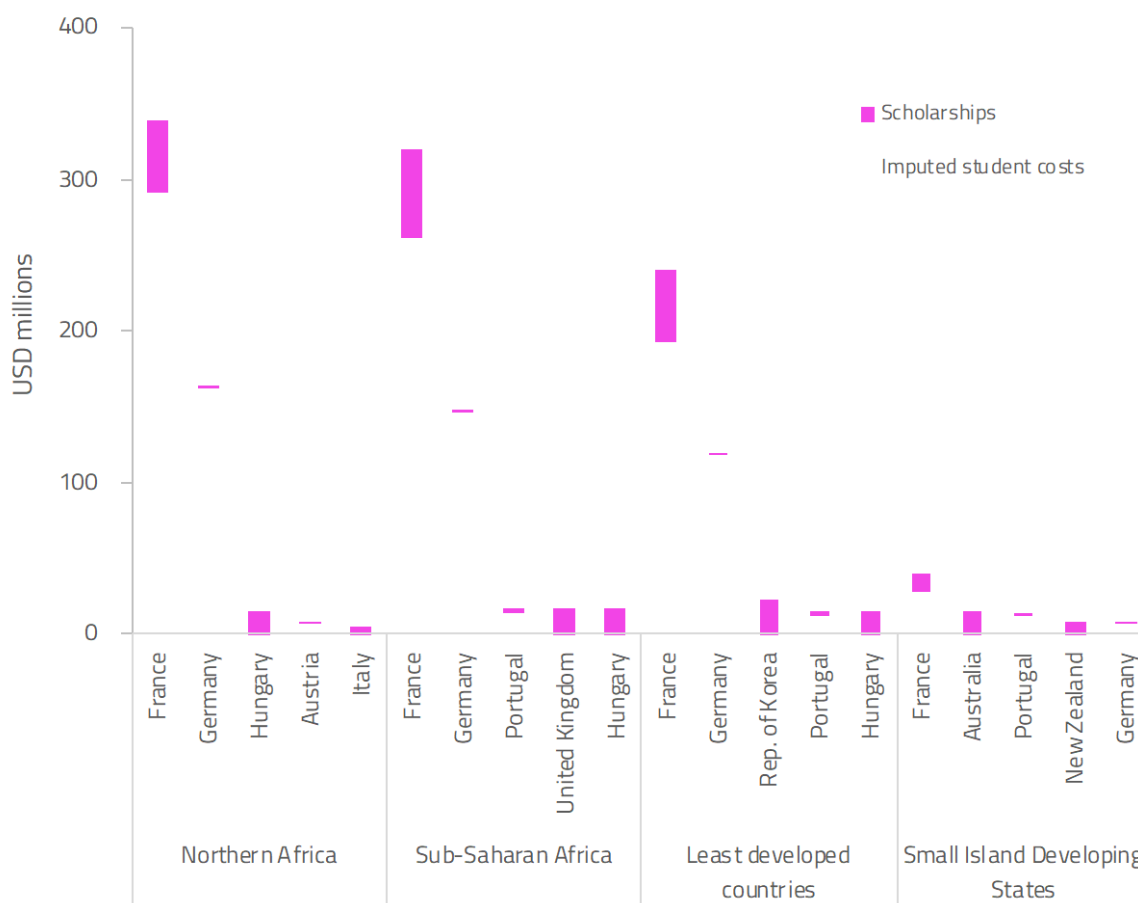

GEM StatLink: https://bit.ly/GEM2024_fig16_4
Source: UIS database.

France and **Germany** play significant roles as main donors supporting African student mobility through scholarship and imputed cost spending as **Official Development Assistance** (ODA). In Northern and sub-Saharan Africa, France accounts for nearly two-thirds of this ODA spending on scholarships and student support, with Germany contributing almost a third of the remainder. These flows are primarily imputed costs, as both countries maintain low tuition fees for national and international students. Other countries, such as **Australia, Hungary, New Zealand and the Republic of Korea** also contribute to ODA for scholarships, with Hungary alone spending US$31 million for African students (Figure 3).[47]

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[47] GEM Report 2024

Figure 3. France and Germany stand out among the country donors: Top five scholarship donors by region and type, 2022

GEM StatLink: https://bit.ly/GEM2024_fig16_2
Source: OECD Creditor Reporting System database.

Initiatives like **Erasmus+** and **CODESRIA** support faculty exchanges and research collaboration, but important barriers limit intra-African mobility. To help address these issues, the **HAQAA3** initiative has been launched under the support of the **AU** and the **European Union** to support both intra-African and international mobility by ensuring that degrees and qualifications are comparable and widely recognized, thus facilitating both intra-African and international mobility.

Another important framework is the **Addis Convention**, which provides a shared basis for recognizing academic qualifications across Africa. International partnerships also play a crucial role, with programmes such as the **World Bank-funded ACE** project creating research hubs and Carnegie Mellon University in **Rwanda** offering world-class programmes locally.[48] These collaborations, along with efforts under the Addis Convention, align with **Agenda 2063** and **CESA 16-25**, promoting regional integration and enhancing Africa's competitiveness in the global higher education space.

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[48] https://www.actuia.com/actualite/la-carnegie-mellon-university-et-la-fondation-mastercard-sassocient-au-gouvernement-rwandais-pour-developper-des-programmes-dingenierie-et-de-technologie/

> **The Addis Convention: Strengthening higher education across Africa**
>
> The Addis Convention, adopted in 2014 and entering into force in 2019, establishes a shared framework for the recognition of academic qualifications across Africa. The Convention aims to promote academic mobility, strengthen quality assurance, and harmonize qualification recognition practices, aligning with Africa's Agenda 2063 and the Continental Education Strategy for Africa (CESA 16-25).
>
> The Convention addresses barriers caused by diverse higher education systems, enabling students and professionals to move freely across borders for study or work. By fostering regional cooperation and improving mutual trust in academic qualifications, it helps build a cohesive and competitive African higher education space. A key focus is on supporting the recognition of qualifications for refugees and displaced persons, ensuring they can continue their education and careers without unnecessary barriers.
>
> UNESCO, in collaboration with the AU and regional partners, provides technical support to countries for implementing the Convention. Efforts include capacity-building workshops, policy guidance, and advocacy to encourage wider ratification and adoption. At present, 14 countries have ratified the Convention, and more are planning to. With an increasing number of nations onboard, the Addis Convention is driving progress toward an integrated and resilient African higher education system.
>
> Learn more about the Addis Convention here.

To fully harness the potential of mobility and internationalization, African higher education must address systemic barriers, including limited funding, restrictive visa policies, and underdeveloped recognition frameworks. Strengthening initiatives like HAQAA3 and expanding adoption of the Addis Convention are critical steps. By fostering collaboration, harmonizing qualifications, and building capacity, Africa can create a resilient, inclusive higher education system that supports sustainable development and regional integration.

Digital transformation

Digital infrastructure is essential for advancing higher education in Africa, yet many institutions face challenges due to limited internet access. Only 33% of the population in sub-Saharan Africa is connected to the internet, compared to the global average of 63%.[49] This digital divide limits the ability of universities to implement online learning, research, and collaboration, especially in rural areas with poor infrastructure and intermittent power.

Despite these challenges, some countries have made significant progress in leveraging digital technology to enhance higher education. **Rwanda** has become a leader in ICT-driven education through partnerships and reforms, integrating digital literacy and AI skills into curricula, and establishing e-learning platforms.[50] **Egypt**'s National Strategy for Higher Education 2030 similarly prioritizes STEM education, digital infrastructure, and online learning, positioning Egypt as a Northern African leader in digital education. Institutions such as Cairo University offer e-learning platforms, supporting the AU's goals for accessible, digital education across the continent.[51] **Cameroon** has also integrated digital skills into its higher education curriculum, particularly in polytechnic and technical universities, with partnerships from companies that give students hands-on experience in ICT, an initiative that aligns well with the AU's digital literacy objectives.[52]

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[49] https://www.itu.int/itu-d/reports/statistics/2022/05/29/gcr-chapter-1/
[50] ICT Integration in Educational curriculum in Rwanda
[51] National strategy for higher education and scientific research 2030
[52] https://ictuniversity.org/2023/03/15/ict-university-inks-strategic-partnership-with-the-university-of-buea/

AI is increasingly recognized as a transformative force in higher education across Africa, offering innovative solutions to enhance learning, research, and administrative efficiency. AI-powered tools are being used to personalize learning experiences, automate administrative tasks, and improve student engagement. For instance, **Ghana** has developed 'Kwame for Science,' an AI teaching assistant that provides instant answers to students' science questions, improving accessibility and enhancing educational outcomes.[53] Similarly, in **Ethiopia**, the AI-powered tutoring programme 'SkillBridge' offers personalized learning in local languages, helping students prepare for university entrance exams and addressing educational quality challenges.[54]

AI also holds promise for enhancing research capabilities. By leveraging AI for big data analysis, African universities can contribute to global innovation in fields such as agriculture, health, and climate science. However, the adoption of AI technologies remains uneven, with many institutions facing barriers such as insufficient infrastructure, limited access to AI training for faculty, and high costs.

However, technological integration including AI, remains uneven across the continent, with many institutions still struggling with outdated equipment and limited digital pedagogy training. Partnerships with organizations like the **World Bank** and **UNESCO,** and collaborations with global tech firms, are gradually helping African universities align with global digital trends. These initiatives provide funding, training, and technical expertise to enhance digital infrastructure and AI integration.

Addressing the digital divide and incorporating AI-driven solutions are crucial for fostering innovation, supporting distance learning, and increasing Africa's global competitiveness in higher education. By prioritizing digital transformation and AI adoption, African higher education can unlock its full potential, equipping students and faculty with the tools needed to thrive in an increasingly interconnected and technology-driven world.

Conclusion

Higher education in Africa is undergoing rapid transformation, marked by significant growth in the number of institutions including private provision and increasing diversification of academic and technical higher education programmes. While this evolution highlights the sector's dynamism, it also underscores persistent challenges, such as access, quality, funding and relevance to the continent's development needs. The potential of higher education to drive Africa's sustainable development remains vast but largely untapped. Emerging promising practices across the continent demonstrate how universities can act as engines of innovation, equity, and growth. From integrating digital transformation and sustainability into curricula to fostering regional mobility and strengthening research ecosystems, HEIs are laying the groundwork for Africa's future knowledge-based economy.

These efforts are supported by initiatives like UNESCO's support for quality assurance, digital literacy, and research collaboration, as well as partnerships with international organizations and the private sector. Such collaborations are helping to build resilient and inclusive higher education systems capable of addressing both local and global challenges.

The 2024 UNESCO Forum on Higher Education: A driver for Sustainable Development will provide an important platform to deepen these discussions. By bringing together stakeholders from across Africa and beyond, the Forum will explore actionable strategies to unlock the potential of higher education, ensuring it serves as a catalyst for inclusive growth, innovation, and sustainability.

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[53] https://arxiv.org/abs/2206.13703
[54] https://skillbridge.academy/about