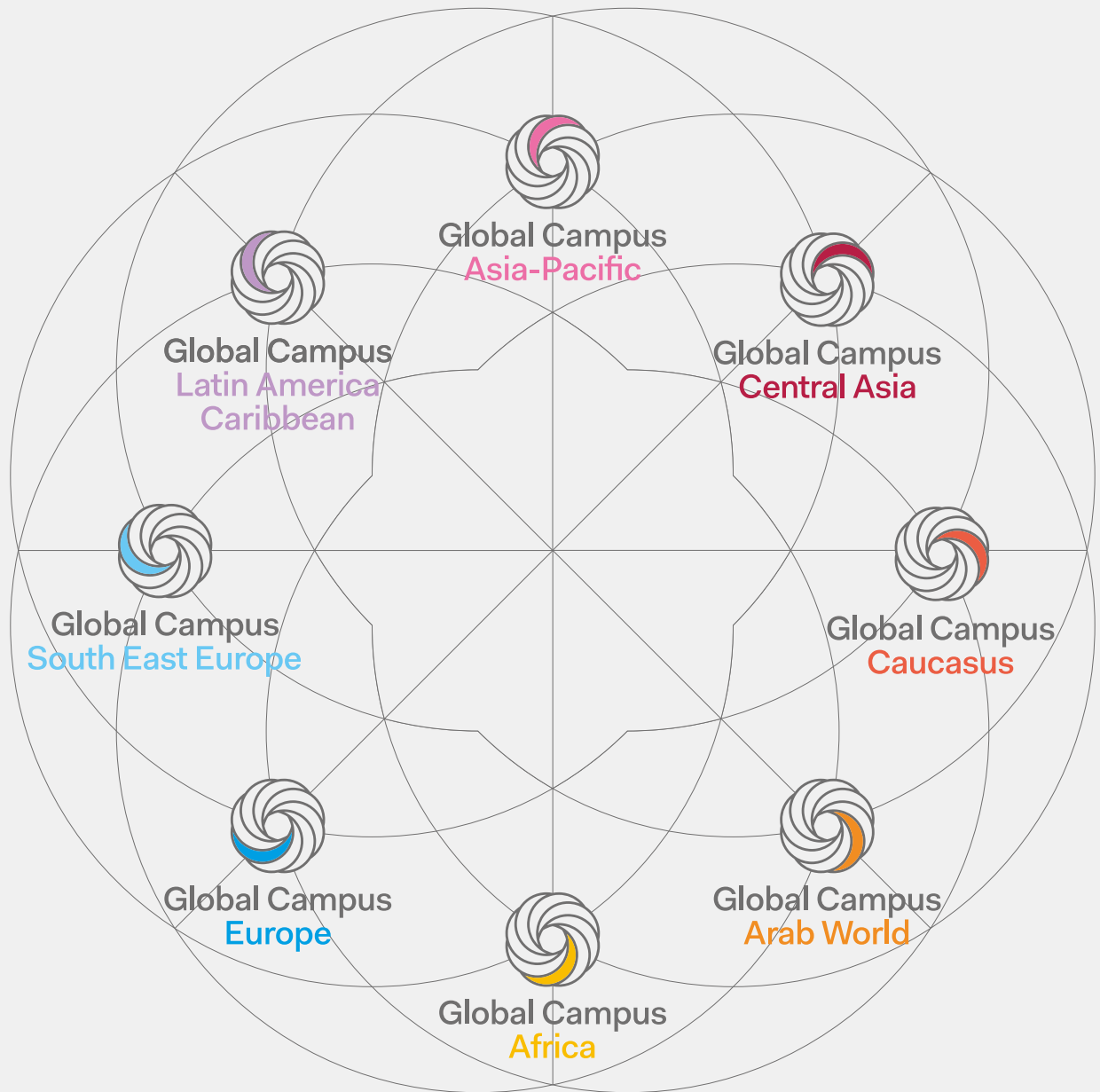

Aida Traidi

AI Integration in Education in the MENA Region: Will it Be a Driver of Social Inequality?







Global Campus of Human Rights

This policy brief is part of the **6th edition of the Global Campus Policy Observatory**, which revolves around the research project on **'The digitalisation of education systems and its impact on human rights, with particular attention to the right to education'**, which was conceptualized and is led by GC Research Manager Dr. Chiara Altafin and which involves a team of seven policy analysts selected among alumni of GC regional programmes, namely Reda Benkhadra (GC Africa), Olga Lucía Camacho Gutierrez (GC Latin America and the Caribbean), Dr. Desara Dushi (GC Europe), Dr. Jean Linis-Dinco (GC Asia-Pacific), Goharik Tigranyan (GC Caucasus), Aida Traidi (GC Arab World), and Dr. Gergana Tzvetkova (GC South East Europe). Research outputs include workshop presentations, policy briefs, advocacy plans, and digital tools (infographics, webinars) developed in cooperation with the GC E-Learning Department.

This policy brief is written by **Aida Traidi**, who holds a Master's degree in Project Management (UNIR) (2022), a Arab Master's degree in Democracy and Human Rights (ARMA) (2021) from Saint Joseph University, Lebanon, and a Bachelor's in Sociology (2020). She currently is management officer of the H2020 Project CONNEKT at European Institute of the Mediterranean (IEMed), which analyses the drivers of violent extremist among youth in MENA and Balkans. She previously worked at the International Institute for Nonviolent Action (NOVACT), collaborating on the "Salam" project for the prevention of violent extremism in Tunisia. Contact: atraidit@iemed.org

This policy brief is produced with the financial assistance of the European Union and as part of the Global Campus of Human Rights. The contents of this document are the sole responsibility of the authors and can under no circumstances be regarded as reflecting the position of the European Union or of the Global Campus of Human Rights.

This policy brief is realized with the support of the Unit for Analysis, Policy Planning, Statistics and Historical Documentation - Directorate General for Public and Cultural Diplomacy of the Italian Ministry of Foreign Affairs and International Cooperation, in accordance with Article 23 – bis of the Decree of the President of the Italian Republic 18/1967. The views expressed in this policy brief are solely those of the authors and do not necessarily reflect the views of the Ministry of Foreign Affairs and International Cooperation.

Table of Contents

05	Executive summary
----	--------------------------

06	Introduction
06	AI landscape in the MENA region
07	AI integration into education

07	Problem description
07	Readiness of educational institutions
08	Data governance and protection
08	Language barriers, AI biases and AI talent

08	Rationale for action
08	Existing AI integration efforts
09	Negative impacts on human rights: widening inequalities
10	Positive impacts on human rights: Fostering accessibility and inclusiveness

11	Policy options
11	Challenges and opportunities of AI development and digital transformation in Tunisia
12	Lebanon's multi-crisis and its impact on digital transformation

13	Policy recommendations
----	-------------------------------

14	Conclusion
----	-------------------

15	References
----	-------------------



AI integration in education in the MENA region: Will it be a driver of social inequality?

Aida Traidi ¹

Executive summary

This policy brief aims to open a regional discussion on the adoption of artificial intelligence (AI) in Middle East and North Africa (MENA) countries, focusing on AI integration in education and related implications. The introductory section provides a comprehensive overview of the AI landscape in the region, exploring the state of AI education and the main AI government policies or strategies. The second section highlights existing challenges to the integration of AI in education in the region. Far from polarising positions, the next section reflects on the ways in which AI is causing disruption in education, arguing that this disruption can have both positive and negative impacts on various human rights, depending on the existence and enforcement of appropriate governance and regulatory frameworks. It then presents two different policy scenarios. Finally, concrete policy recommendations are provided for different actors to address and mitigate the identified risks to the right to education.

¹ The author thanks Dr. Chiara Altafin, Research Manager at the Global Campus of Human Rights in Venice, Manuel Langendorf, Researcher and Consultant on digital transformation in the MENA region, and Jihad Nammour, Academic Coordinator of the ARMA Programme at Saint Joseph University, Beirut, for their valuable and constructive feedback as received in the context of the GC Policy Observatory workshop 'The digitalisation of education systems and its impact on human rights, with particular attention to the right to education', held in Venice on 26 March 2024.

Introduction

Most MENA countries, particularly those in the Gulf Cooperation Council (GCC), are increasingly embracing AI technologies as part of their economic diversification efforts (PwC 2018; Oxford Business Group 2023). As a result, discussions about AI have focused on the economic outlook, overlooking social, ethical and political implications. Concerns about AI's impact on human rights in MENA countries have focused on digital authoritarianism, defined as 'the use of digital technologies as a tool to reinforce control over citizens' (Polyakova & Meserole 2019). Reports highlight the region's weak rule of law and inadequate human rights safeguards, which could facilitate authoritarian abuses (Kausch et al. 2022; Jones 2022), but so far the impact of AI on the right to education (Article 26 UDHR 1948; Article 13 ICESCR 1966; Articles 28 and 29 UNCRC 1989; Article 41 ACHR 2004) has not been fully addressed.

AI landscape in the MENA region

With AI seen as a pathway to a new economic future for some countries, governments in the region have taken an active role in promoting its development (Pasquarelli 2022). However, the adoption of AI therein is still in its early stages, with significant differences in development influenced by countries' technological capabilities.

The 2023 Government AI Readiness Index has highlighted the significant differences in the region, with a clear distinction between MENA countries, with average scores of 51.11 and 38.89 respectively (Hankins et al. 2023). GCC countries, particularly the United Arab Emirates (UAE) and the Kingdom of Saudi Arabia (KSA), are leading in AI integration, boasting competitive global rankings and robust government strategies (Tortoise Intelligence 2023). As part of its efforts to become a global player in AI, in 2024 the UAE announced the launch of MGX, an AI-focused investment company. This move is expected to widen the AI development gap between the GCC and the rest of the MENA region (AI Monitor 2024). In addition, both KSA and UAE dominate the landscape of education technology (EdTech) startup investments, further solidifying their positions as AI leaders in the region.

Since 2017, MENA countries have introduced AI regulations, but their adoption remains low overall, especially outside GCC countries. The latter, as well as other countries such as Egypt, Jordan or Morocco, have released national AI strategies, but none have yet drafted AI-specific legislation (The Economist Group 2022; Kausch et al. 2022).

BOX 1: Divergence in AI development and regulation across countries

Three groups of countries can be distinguished in terms of AI development and regulatory adoption:

- High-income GCC countries (**Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE**), which are technologically advanced, have a favourable ecosystem for AI and have adopted AI strategies or regulations.
- Middle-income countries (**Algeria, Egypt, Morocco, Iraq, Tunisia and Jordan**), which are less technologically advanced but are actively developing AI capabilities and in the process of developing AI strategies.
- Lower-income or conflict-affected countries (**Lebanon, Mauritania, Palestine, Sudan, Syria and Yemen**), which face significant challenges due to civil war and political instability and have not yet developed an AI strategy, or no data is available.

Sources: Kausch et al. (2022); PwC (2022).

Due to significant differences in AI readiness and development, there are **different policy priorities and regional cooperation is lacking**.

Notably, the region lacks comprehensive policies or strategies to ensure an ethical and responsible use of AI. Unlike the European risk-based approach to AI, MENA AI strategies focus on opportunities rather than assessing risks (Kausch et al. 2022). Only a few countries have introduced references to soft law norms (such as the Organisation for Economic Co-operation and Development (OECD) Principles on AI) or established non-binding ethical guidelines.

However, this trend may be changing, as evidenced by the AI 2023 Index report highlighting significant progress in AI governance and ethical principles (Hankins et al. 2023). In 2023, Egypt launched the Egyptian Charter for Responsible AI, inspired by the OECD and European Union (EU) guidelines, and KSA unveiled its AI Ethics Principles.

BOX 2: The world's first AI rules: The EU AI Act

- On 9 December 2023, the EU proposed the first rules on AI, focusing on a 'risk-based' approach to ensure that AI systems on the EU market are **safe** and respect **fundamental rights**.
- The EU AI Act, approved on 13 March 2024, has the potential to set a universal benchmark for AI regulation, similar to the impact of the General Data Protection Regulation (GDPR).

Sources: Council of the European Union (2023); European Parliament (2024).

AI integration into education

Most countries lack regulatory strategies to integrate AI into education, but some MENA countries, notably GCC, are investing in digital infrastructure, teacher training, etc. (Soliman 2021).

A common weakness across the region is the lack of talent working on AI solutions (Tortoise Intelligence 2023). Therefore, a key policy focus is to **cultivate local AI talent** for an increasingly tech-dependent economy (Langendorf & Farley 2021). For example, KSA aims to increase AI literacy in 40% of its workforce by incorporating AI into educational institutions (Pasquarelli 2022). The country also partnered with Kazakhstan's EdTech startup CodiPlay and Artificially

Intelligent Learning Assistant (AILA) to introduce advanced tech to 200 schools (Asia Education Review 2024). The UAE is also increasingly using technology to improve educational outcomes, with plans to introduce generative AI in classrooms (Oxford Business Group 2023).

AI integration in education in MENA countries has predominantly focused on talent development, overlooking human rights implications, particularly regarding access to education for disadvantaged groups. The 2023 ALESCO symposium highlighted AI's potential to address educational challenges and support SDG4 of the 2030 Agenda, yet the region's digital divide hinders the potential role of AI in reducing inequalities and risks exacerbating existing inequalities.

Significantly, the closure of educational institutions during the pandemic and the transition to distance learning exposed disparities in technology and internet access between and within countries. Disadvantaged communities without sufficient access to digital infrastructure, devices or connectivity were particularly affected by school closures (UNHCR 2021). A UNICEF (2020) survey in seven countries ² of the region highlights that only 55% of students aged 5-17 had access to distance learning.

² The survey was conducted with families across seven countries in the region: Algeria, Egypt, Jordan, Qatar, Morocco, Syria and Tunisia.

Problem description

The MENA region is very diverse in terms of cultural norms, labour markets, education systems, etc. These differences are also reflected in the uneven AI readiness level across countries. Nonetheless, common policy challenges for AI integration in education can be identified here below, while related human rights implications under the international normative framework are addressed in the subsequent section.

Readiness of educational institutions

In general, public education systems in the MENA region are poorly prepared for AI integration due to limited technology, internet access and teacher training (Carey Institute for Global Good 2021). While GCC countries show higher tech adoption, with around 80% of schools equipped with computers and high-speed internet access, North African and conflict-affected countries lag behind (McKinsey 2017; Hamlaoui & Salhi 2021).

Despite differences, internet access is limited across all education levels, suggesting that AI will not become a fundamental element of public schools' infrastructure in the short term (UNESCO, UNICEF & World Bank 2021; Pasquarelli 2022).

Digital divide³

The digital divide in the MENA region is mainly associated with low socio-economic status and rural contexts, as well as gender disparities. There is a large gap in internet use between rural and urban areas, with 82% of people in urban areas and 51% in rural areas (ITU 2023). In terms of digital infrastructure, only 34% of rural households had access to a computer in 2021 (Langendorf & Farley 2021).

The **gender digital divide** is one of the largest in the world. In 2023, 74% of men and 64% of women used the internet, respectively, meaning that women were 10% less likely to use it than men (ITU 2023). Family dynamics often prioritise male members' access to computers or mobile phones (Langendorf & Farley 2021; Al-Khazraji, Al-Breiki & Al-Hosani 2021). In addition, women also face a higher risk of cyber violence (Farley & Langendorf 2021; Al-Sumait 2022).

Despite progress, **inequalities in internet access** in the region are among the highest globally (Raz 2020; Farley & Langendorf 2021). In 2023, regional internet usage was 69%, but with significant variation, the GCC countries had some of the highest rates in the world (Farley & Langendorf 2021) and other countries such as Sudan and Yemen had rates as low as 30% (UNICEF 2020; Statista 2024a).

While 82% of MENA residents own mobile phones (ITU 2023), computer access varies widely. In 2022, 99.5% of households in KSA had access to a computer, laptop or tablet, compared with 27.2% in Jordan (ITU 2022). Mobile devices are key to internet access in the region, used by 67% of its residents in 2021 (Langendorf & Farley 2021).

Despite rising internet access, digital inclusion remains inadequate. Digital literacy is crucial for the effective use of AI tools and the region faces significant inequalities. In Tunisia, where 16% have advanced digital skills, only 20% possess basic skills (Farley & Langendorf 2021).

Data governance and protection

Data privacy concerns are amplified by the lack of comprehensive regulations for personal data protection and digital security. Some countries such as UAE, KSA, Egypt and Morocco have introduced legislation, but enforcement is limited (Pasquarelli 2022; Kautsch et al. 2022; Langendorf et al. 2023).

Language barriers, AI biases and AI talent

The scarcity of Arabic content in the datasets raises concerns about the reliability of AI-generated knowledge about the MENA region, as well as potential biases. The lack of AI tools and EdTech content in Arabic, which partly stems from a shortage of local AI talent, represents a barrier to accessibility and inclusivity (UNESCO 2021).

As stated in a UNESCO press release in December 2021, '[f]or AI systems to be accessible and inclusive, there is a need for AI tools that use native languages and dialects rather than rely on the English language for Natural Language Processing (NLP)'. For AI systems to be useful for the region's population and to minimise bias, they need to be trained in Arabic-language data. However, Al-Muscatai (2023) notes that Arabic's rich morphology and complex syntax pose challenges for language processing.

³ According to the OECD definition (2021), the digital divide is the gap within and between individuals, households, businesses and geographic areas at different socioeconomic levels with regard to both their opportunities to access information and communication technologies (ICTs) and to their use of the internet.

Rationale for action

Existing AI integration efforts

Policies on AI in education in the MENA region are limited. Current efforts, led by GCC countries, focus

on talent development and educational enhancement, but overlook AI's impact on the right to education.

Amid COVID-10, MENA governments launched

initiatives to address the digital divide, such as: purchasing devices for teachers and underprivileged students; partnering with telecommunications companies for free access to educational websites; extending electricity hours in refugee camps; broadcasting educational lessons on national media; or enabling access to online learning platforms through mobile phones (Faek 2020; UNESCO, UNICEF & World Bank 2021; Miwa & Blom 2021). In addition, 33% of MENA countries provided digital literacy training for teachers (UNESCO, UNICEF & World Bank 2021).

BOX 3: Governments' strategies to address inequalities during the COVID-19 pandemic

- **Jordan's** Ministry of Education (MoE) partnered with the Ministry of Digital Economy and Entrepreneurship and with private companies to create online learning platforms and repurposed a national TV sports channel for student learning.
- **Egypt** established a national online knowledge bank, provided extra data for home bundles via Vodafone and aired educational content on national TV.
- **Bahrain's** internet provider Batelco offered free browsing on education websites.
- **Iraq's** Asiacell offered internet access to educational content for primary and secondary students.
- **Morocco's** Inwi granted free access to MoE training sites for students.
- **Lebanon** used TV channels for educational broadcasts and the Alsama project streamed English lessons to children in refugee camps.

Source: Farley & Langendorf (2021); Hall et al. (2022).

These temporary measures were necessary but did not evolve into sustainable policies, nor did they address the root causes of the digital divide.

Negative impacts on human rights: widening inequalities

Level of preparedness of educational institutions

Disparities in AI integration among educational institutions, both within and between countries, could have a negative impact on the right to education (Article 26 UDHR 1948; Article 13 ICESCR 1966). Private schools are more prepared to integrate AI, which may favour privileged students and exclude

disadvantaged communities, which in turn may affect the right to work, to equal pay and to protection from unemployment (Article 23 UDHR 1948; Articles 6 & 7 ICESCR 1966) and the right to an adequate standard of living (Article 25 UDHR 1948; Article 11 ICESCR 1966; Article 38 ACHR 2004).

Digital divide as a human rights issue

Even in areas with internet access, many students lack computers and rely on phones to access the Internet (Langendorf & Farley 2021; Reid 2021), limiting their use of EdTech and AI tools, which are primarily designed for computers, and impacting their right to education (Article 26 UDHR 1948; Article 13 ICESCR 1966; Articles 28 & 29 UNCRC 1989), which in turn reinforces existing inequalities and impacts on children's right not to be discriminated against (Article 2 UNCRC 1989) and their right to access information (Article 13 UNCRC 1989; Article 32 ACHR 2004). Those with lower digital skills are also disadvantaged, as this hinders their ability to use EdTech and AI tools effectively, and also makes individuals more vulnerable once they are online, which could jeopardise the right of children to be protected from all forms of violence and abuse (Article 19 UNCRC 1989, Article 33 ACHR 2004).

The digital gender divide in the MENA region not only affects women's right to quality education, but also their right to participate in and enjoy culture, art and science (Article 27 UDHR 1948; Article 15 ICESCR 1966), to socio-economic equality (Article 3 ICESCR 1966) and participation in decision-making (Article 21 UDHR 1948; Articles 7 & 8 CEDAW 1979). The fact that women are more likely to experience cyber violence, coupled with the inadequate protection of human rights, including women's rights, in the region, also impacts their right to equality (Article 2 CEDAW 1979) and to a life free from violence (Articles 2 & 3 CEDAW 1979).

Data governance and protection in respect to privacy and freedom of expression

Data protection policies are scarce in the region and face many implementation challenges. AI's dependence on large datasets, coupled with scarce data protection policies and implementation challenges, raises concerns about the right to privacy and freedom from attacks on one's reputation (Article 12 UDHR 1948; Article 17 ICCPR 1966; Article 16 ACHR 2004). In a region characterised by weak rule of law and human rights protection, AI also opens the door to authoritarian abuses in the area of digital surveillance (Kautsch et al. 2022), impacting the right to freedom of opinion and expression (Article 19 UDHR 1948; Article 19 ICCPR 1966; Article 32 ACHR 2004).

Language barriers, AI bias and AI talent against education and equality

The fact that most AI generative tools and EdTech content are primarily available in English impacts the right to inclusive education and may further increase inequalities. Moreover, the absence of Arabic developers and content in AI dataset systems increases the risk of algorithmic bias, which could affect children's right not to suffer discrimination (Article 2 UNCRC 1989).

Cognitive effects of digital technologies in education ⁴

AI integration in education may increase screen time and decrease face-to-face interactions, which could prevent children from developing the social, emotional and communication skills necessary to build healthy social relationships, therefore impacting students' mental health and their right to well-being (Article 25 UDHR 1948, Article 12 ICESCR 1966). This issue, not unique to the MENA region, will depend on whether AI is seen as a tool to enhance or replace traditional face-to-face education.

Positive impacts on human rights: Fostering accessibility and inclusiveness

The potential positive impacts, which are still aspiration given the early stage of AI integration in education and the lack of comprehensive research, are outlined in three sub-paragraphs by following the connections identified by Holmes et al. (2022): learning with AI; using AI to learn about learning; and learning about AI or AI literacy.

Enhancing educational outcomes

MENA countries often lag behind in global education assessments due to outdated teaching methods and curricula (Hall et al. 2022). AI tools could update MENA education systems by making learning more dynamic and interactive, which could increase student engagement and motivation. A recent study (González, Baren & Zapata 2023) has found that AI can enhance learning by providing wider access to tutoring and mentoring services. However, excessive reliance on AI risks diminishing problem-solving skills.

Supporting teachers

AI tools could alleviate teachers' administrative burden by automating tasks like grading, freeing up time for more student engagement, especially in public schools with high student-teacher ratios (Bryant et al. 2020). However, the integration of AI will require rethinking the evaluation and learning and it also raises concerns about AI's accuracy compared to teachers (Holmes et al. 2022), as well as its potential to change teachers' role to mere facilitators (Seldon & Abidoye 2018, cited in Holmes et al. 2022).

Tailoring educational content to individual needs

Research on data-driven AI in education (Ahmad et al. 2023; Hall et al. 2022; Aparicio-Gómez 2023) has found that using AI to collect data on student progress could improve the learning process by informing educators about student's individual needs and tailoring content accordingly. It could also enable early identification of learning issues, potentially reducing dropout rates. However, concerns persist regarding data privacy and its usage by private entities.

Improving youth employment opportunities

High youth unemployment in the region is attributed to a skills gap due between education and market demand (Farley & Langendorf 2021). Enhancing AI knowledge could bridge this gap, equipping students with the digital skills sought by employers (Miwa & Bloom 2021; UNESCO, UNICEF & World Bank 2021).⁵ However, AI literacy should extend beyond technical aspects to encompass its societal impact, including human rights considerations.

Facilitating women's access to the labour market

Despite comparable education levels, female participation in the labour market is particularly low in the region, especially in science, technology, engineering and mathematics (STEM) fields (World Economic Forum 2020; National Geographic 2022). As highlighted by Afouaiz (2021, cited in Al-Khazraji, Al-Breiki & Al-Hosani 2021), the digital gender gap hinders women's employment opportunities in the era of the fourth industrial revolution. In this context, AI literacy could potentially improve women's access to the labour market.

⁴ While this is not a challenge that was previously identified, it is fundamental to acknowledge potential mental health impacts of AI integration into education.

⁵ The Information and Communications Technology Association (Int@j) in Jordan has published several skills gap and labour market assessments and conducted workshops to ensure that the digital skills taught in schools match those required by employers.

Policy options

Challenges and opportunities of AI development and digital transformation in Tunisia

Tunisia's political instability, coupled with economic challenges and social inequalities, has had an impact on AI and digital transformation efforts. Since 2018, steps have been taken to integrate AI but a national AI strategy has yet to be adopted.

In 2018, the Secretary of State for Research created a task force bringing together the UNESCO Chair in Science, Technology and Innovation Policy and the National Agency for the Promotion of Scientific Research (ANPR) to jointly manage the design of a national AI strategy. In 2019, the Ministry of Industry, Mines and Energy (MIEM), along with other entities, launched the Tunisia AI Roadmap (2021-2025), proposing initiatives for AI development, research and training (Mejri 2020; OECD AI Policy Observatory n.d.).

Table 1: Tunisia AI Roadmap (2021-2025)

Tunisia AI Roadmap (2021-2025)

Phases	Objectives	Tools	Initiatives
1 Raising awareness	<ul style="list-style-type: none"> • Raise awareness about AI's challenges and possibilities • Demystify AI for easier appropriation • Highlight impact on job transformation and future skills • Understanding AI pitfalls 	<ul style="list-style-type: none"> • Webinar, seminars, conferences • Hackathons • Workshops • Radio emissions • Trainings 	Conference 'AI as a lever of economic competitiveness' (2019) Webinar 'AI, an instrument for economic recovery in Tunisia?' (2020) Workshop 'Inclusive dialogue on the ethics of AI' (2020)
2 Boosting AI ecosystem	<ul style="list-style-type: none"> • Enhance AI ecosystem by focusing on key pillars: • Talent development and reskilling • Establishing infrastructure (cloud, HPC...) • Data policies, Open Data, crowdsourcing platforms • Networking activities 	<ul style="list-style-type: none"> • Webinar, seminars, conferences • Trainings, articles • Workshops, field visits • Surveys, competition • Festivals, expo 	Event 'Industry 4.0 in Tunisia, a Transition on the Way' (2020) Partnership agreement with the Tunis Afrique Presse Agency (TAP) to train journalists (2020)
3 Launching use cases	<ul style="list-style-type: none"> • Initiative AI pilot projects in schools • Launch open innovation initiatives • Develop research to industry projects • Promote AI techniques 	<ul style="list-style-type: none"> • Pilot projects • Hackathons • Research projects 	Project 'Smart Water Management - Case study of the Mornag basin' (2019) Hackathon 'AI Hack Tunisia' (2019)
4 Adopting the national AI strategy	<ul style="list-style-type: none"> • Formulating the national AI strategy • Adopting a national AI action plan 2021-2025 	<ul style="list-style-type: none"> • National dialogue • Connecting stakeholders 	

Source: OECD AI Policy Observatory (n.d).

Despite the several policy instruments outlined in the Tunisian AI roadmap, the adoption of a national AI strategy remains unfinished. Furthermore, existing initiatives have focused on economic prospects and AI talent development, neglecting the impact of AI on human rights.

Tunisia, like other MENA countries, faces a significant digital divide, particularly between urban and rural areas. Without an inclusive approach, AI integration could exacerbate inequalities. While Tunisia's education system is relatively advanced, it falls short of meeting current workforce demands for digital skills (El-Khoueiri 2019, cited in Langendorf et al. 2023). Initiatives such as AI clubs in public high schools or the 'Digital Solutions for All' programme, launched by the MoE in 2015, aim to improve the digital skills of primary and secondary school teachers and students (Yarrow 2017).

Tunisia also grapples with high youth unemployment, particularly among graduates, due to education-market mismatch.⁶ In this regard, AI and digital transformation are seen as an opportunity to mitigate unemployment. Initiatives like 'Digital Tunisia 2020', launched in 2018, or 'Tunisia's Numerical Strategy', aim to leverage digital transformation for job creation, but these initiatives have had limited impact in addressing social inequalities (Langendorf et al. 2023).

A comprehensive Tunisian AI strategy emphasising the inclusion of disadvantaged communities in the digital transformation needs to be launched to ensure equitable access to AI tools and education. Active EU cooperation, including financial aid for digital education, is also crucial.

Lebanon's multi-crisis and its impact on digital transformation

Lebanon's economic crisis, identified by the World Bank in 2021 as one of the worst since the mid-19th century, has been further exacerbated by the impact of regional conflicts, the COVID-19 pandemic and the Beirut port explosion in 2020. These events have

exposed the weakness of state structures and the inability of traditional political parties to provide stability and basic services. In the context of such crises and state paralysis, AI integration in education faces numerous challenges, heightened by the lack of basic infrastructure, frequent power cuts and the high cost of internet access (ITU 2023).

In 2019, the Ministry of Industry (MoI) proposed a National Artificial Intelligence Strategy in Lebanese Industry (2020-2050), composed of eight pillars (Republic of Lebanon 2019):

- Raising awareness and developing human skills
- Research and development (R&D), and innovation
- Public-private partnerships (PPPs)
- Investment and financing
- Enhance legal, administrative and operational environment to improve competitiveness
- Expanding the domestic market and increasing exports of intelligent products
- Ensuring inclusive economic and social development
- Promoting international and technical cooperation with foreign actors to exchange technology and expertise

While the strategy recognises the need of awareness raising, skills development and AI integration into education, it predominantly focuses on the economic prospects of AI, without addressing AI's impact on the right to education.

EU support for digital transformation and AI integration is crucial, including funding for infrastructure improvement, internet access and digital inclusion initiatives. Yet, systemic challenges such as corruption and political instability also need national policymakers' attention (Langendorf et al. 2023).

⁶ In 2023, youth unemployment rate in Tunisia was one of the highest in the region in 2023 (40.46%) (Statista 2024b), surpassed only by Jordan (41.69%) (Statista 2024c).

Policy recommendations

As MENA countries are still developing regulatory strategies for AI integration in education, recommendations primarily target national governments. To address the lack of regional policy harmonisation, recommendations are also addressed to regional organisations such as the Arab League. As the challenges highlighted in this brief have implications for EU policy and cooperation with MENA partners, a number of recommendations are provided in this regard. Additionally, recommendations are made to donors, private companies, EdTech startups and academia.

Recommendations for national governments:

- Improve the **technological infrastructure** in public educational institutions, with a focus on rural and remote areas.
- Integrate **digital literacy** into the curriculum from an early age and through an **active learning approach**.
- Provide **teacher training** in digital literacy, AI integration and ethics.
- Ensure that **disadvantaged students** have access to tools and resources for digital education, for example by establishing community hubs with free internet or collaborating with telecom companies to provide free or subsidised devices and internet access.
- Support **low-bandwidth or offline EdTech tools** to ensure access for those without regular connectivity and promote tools that can be accessed on mobile devices.
- Establish **partnerships with startups and technology companies** to ensure user-centred and inclusive initiatives.
- Develop or update **privacy policies** to ensure adequate data protection mechanisms in light of the challenges posed by AI.
- Develop **national open data platforms** to enable startups and researchers to use reliable data for AI systems.

- Create a platform for **multi-stakeholder collaboration**, involving key actors, such as teachers, MoE, public and private education institutions, ed tech and startups, donors, academia, think tanks, students, etc.
- Engage **young people and students** in the design of educational materials to ensure that the curriculum meets their needs.
- Capitalise from **lessons learned in other contexts**, including existing ethical guidelines (e.g. EU AI Act).

Recommendations for the private sector and donors:

- Increase **funding for digital inclusion initiatives** and support **capacity building and internship opportunities for disadvantaged communities**.
- Establish **partnerships with civil society organisations or non-governmental organisations** to fund programmes aimed at tackling cultural issues that hinder equal access of women to tech.
- Promote **mentorship programmes and funding opportunities** for startups.
- Fund **surveys to understand young people's perceptions of EdTech** and how young people across the region would like to see digital transformation in the education sector.
- Provide **free or low-cost internet-enabled devices** to low-tech communities.

Recommendations for tech startups:

- Prioritise inclusion from project conception and not as an afterthought.
- Develop **offline-accessible AI tools**.
- Establish **safeguards against algorithmic discrimination**.
- Collaborate with national governments to **design digital curriculum** in educational institutions.

Recommendations for researchers and academia:

- Support **R&D efforts** on AI's impact in education.
- Gather **empirical evidence** to inform policy design.
- Collaborate with startups to develop **monitoring and evaluation systems** for the evaluation of AI tools.

Recommendations to the Arab League:

- Enhance the **Arab AI Working Group**, to develop a joint MENA AI strategy.
- Develop **joint capacity building frameworks** to provide digital skills for the region's population.
- Improve **data protection mechanisms**, drawing inspiration from the EU's GDPR.

Recommendations for the EU and its member states (including the Italian Ministry of Foreign Affairs and the Italian Agency for International Cooperation):

- Integrate **efforts to promote the rights to education and privacy** into EU's bilateral cooperation with MENA countries.
- Promote the **data privacy rights**, leveraging the **GDPR as a pressure tool**. Data transfers, which are essential for global trade, are only possible

to countries that guarantee an 'adequate level of protection' (under Article 44 GDPR), which could incentivise MENA governments to align their data protection laws with EU standards.

- Promote a human rights-based approach to AI by advocating for **regulations aligned with international standards**. Similar to the so-called 'Brussels effect' of the GDPR, by setting requirements for AI technologies commercialised in the EU, the EU AI Act can have a global regulatory impact. It is equally important to ensure that EU rules **prevent exporting non-human rights compliant AI technologies to authoritarian regimes**.
- Offer concrete and affordable **alternatives to Chinese technologies** to prevent China from becoming a major supplier of authoritarian tech in the region. If the EU AI Act fails to have a global impact, China's influence in the region (a shared concern between the US and the EU that has led to the US-EU Trade and Technology Council) could be strengthened, with implications for human rights protection in the region.
- Support **data protection mechanisms** through various means, such as monitoring implementation of protection laws, offering policy advisory and expertise, etc.
- Engage **MENA stakeholders** in AI governance discussions to seek global consensus on AI norms.

Conclusion

The integration of AI in education will bring significant changes for all learners in the MENA region. While it could enhance learning and job prospects for those with access to technology, it could widen existing inequalities, creating a 'Matthew effect': the rich get richer while the poor get poorer. Most MENA countries are unprepared for AI integration, lacking adequate human rights protection and facing a significant digital divide. A rapid shift to AI in education without addressing existing inequalities could exacerbate inequalities for generations to come.

Many MENA countries are still developing their strategies and policies and can learn from experiences

in other contexts. It is equally an opportunity for the EU and other donors to engage on this issue. However, EU policy and cooperation with MENA countries could be undermined by the positions of some European countries regarding the Israel-Gaza war, potentially fuelling further grievances in the region, and hindering cooperation with the EU.

Narrowing the digital divide and establishing robust human rights regulatory frameworks are crucial steps to ensure that disadvantaged communities are not left behind. While all countries want to compete in the global AI race, the technological dimension should not be prioritised at the expense of the human dimension.

References

- ACHR (Arab Charter on Human Rights) adopted 22 May 2004, entered into force 15 March 2008, 12 IHRR 893
- Ahmad K, Iqbal W, El-Hassan A, Qadir J, Benhadou D, Ayyash M, Al-Fuqaha A 'Data-Driven Artificial Intelligence in Education: A Comprehensive Review' (2023) IEEE Transactions on Learning Technologies, DOI: <https://doi.org/10.1109/TLT.2023.3314610> (last visited 27 May 2024)
- Al-Khazraji R, Al-Breiki A & Al-Hosani E 'Perspective from the Gulf Region: MENA's Post-Covid-19 Recovery Must Include Its Youth' (2021) Konrad Adenauer Stiftung, available at <https://www.kas.de/en/web/rpg/detail/-/content/perspective-from-the-gulf-region-mena-s-post-covid-19-recovery-must-include-its-youth> (last visited 26 May 2024)
- Al-Muscatti S 'The State of AI in the Arab World' (16 April 2023) Waya, available at <https://waya.media/the-state-of-ai-in-the-arab-world/> (last visited 24 May 2024)
- Al-Sumait F 'Inequalities: The Persistent Obstacle to Kuwait's Digital Transformation' (29 June 2022) LSE, available at <https://blogs.lse.ac.uk/mec/2022/06/29/inequalities-the-persistent-obstacle-to-kuwaits-digital-transformation/> (last visited 23 April 2024)
- ANPR 'National AI Strategy: Unlocking Tunisia's capabilities potential' (n.d.), available at <http://www.anpr.tn/national-ai-strategy-unlocking-tunisias-capabilities-potential/> (last visited 20 April 2024)
- Arab League of Educational, Cultural and Scientific Organisation (ALECSO) 'Symposium on the Use of Artificial Intelligence in Education in the Arab World' (n.d.), available at <https://shorturl.at/jqxIU> (last visited 22 January 2024)
- AASTMT-NEWS "Arab Artificial Intelligence Working Group" at AASTMT Alamein Campus' (2 December 2021) AASTMT, available at https://aast.edu/en/news.php?language=1&unit_id=1&event=6183&get_event_type=1 (last visited 26 June 2024) Al Monitor 'What to know about MGX, UAE's latest AI investment firm' (12 March 2023), available at <https://www.al-monitor.com/originals/2024/03/what-know-about-mgx-uaes-latest-ai-investment-firm> (last visited 16 April 2024)
- Al-Awwal R 'Arab League Calls for Regional Cooperation to Launch Arab Strategy Regarding AI' (9 October 2023) Asharq Al-Awsat, available at <https://english.aawsat.com/node/4595251> (last visited 12 March 2024)
- Almutairi D 'Arab League announces establishment of Council of Ministers for Cybersecurity' (11 September 2023) Arab News, available at <https://www.arabnews.com/node/2371501/saudi-arabia> (last visited 12 March 2024)
- Asia Education Review 'Kazakhstan's CodiPlay Partners with Saudi EdTech Firm Promoting Education' (13 March 2024), available at <https://www.asiaeducationreview.com/others/news/kazakhstan-s-codiplay-partners-with-saudi-ed-tech-firm-promoting-education-nwid-1380.html> (last visited 13 April 2024)
- Aparicio-Gómez WO 'La Inteligencia Artificial y su Incidencia en la Educación: Transformando el Aprendizaje para el Siglo XXI' (2023) 3(2) Revista Internacional de Pedagogía e Innovación Educativa 217
- Bryant J, Heitz C, Sanghvi S & Wagle D 'How artificial intelligence will impact K-12 teachers' (14 January 2020) McKinsey and Company, available at <https://www.mckinsey.com/industries/education/our-insights/how-artificial-intelligence-will-impact-k-12-teachers> (last visited 23 February 2024)
- Carey Institute for Global Good 'MENA Higher Education Pedagogy, Technology and the Refugee Experience. Sustainable Learning Pathways to Teacher Digital Fluency' (2021), available at https://clip.careyinstitute.org/wp-content/uploads/sites/2/2021/02/MENA_Project_Report.pdf (last visited 14 January 2024)
- CEDAW (Convention on the Elimination of All Forms of Discrimination against Women) adopted 18 December 1979, entered into force 3 September 1981, 1249 UNTS 13
- Council of the European Union 'Artificial intelligence act: Council and Parliament strike a deal on the first rules for AI in the world' (9 December 2023), available at <https://www.consilium.europa.eu/en/press/press-releases/2023/12/09/artificial-intelligence-act-council-and-parliament-strike-a-deal-on-the-first-worldwide-rules-for-ai/> (last visited 14 January 2024)
- DEVAW (UN Declaration on the Elimination of Discrimination against Women) adopted 7 November 1967, Resolution 2263, A/RES/22/2263
- European Parliament 'Artificial Intelligence Act: MEPs adopt landmark law' (13 March 2024), available at <https://www.europarl.europa.eu/news/en/press-room/20240308IPR19015/artificial-intelligence-act-meps-adopt-landmark-law> (last visited 18 March 2024)
- Faek R 'Coronavirus Outbreak Forces Arab Countries to Consider Long-Ignored Online Education' (12 March 2020) Al-Fanar Media, available at <https://www.al-fanarmedia.org/2020/03/coronavirus-outbreak-forces-arab-countries-to-consider-long-ignored-online-education/> (last visited 18 January 2024)
- Farley A & Langendorf M 'COVID-19 and Internet Accessibility in the MENA Region: Maximizing digital skills and connectivity for economic recovery' (2021) Wilson Center, available at <https://www.wilsoncenter.org/publication/covid-19-and-internet-accessibility-mena-region-maximizing-digital-skills-and> (last visited 18 May 2024)
- GDPR (General Data Protection Regulation) 'Art 44 GDPR General principle for transfers' (n.d.), available at <https://gdpr-info.eu/art-44-gdpr/> (last visited 27 May 2024)
- González LAO, Baren CYO & Zapata EJP 'El impacto de la inteligencia artificial en el ámbito educativo' (2023) 8 Revista Científica FIPCAEC (Fomento de la investigación y publicación científico-técnica multidisciplinaria) 342
- Hamlouli S & Salhi A 'Digital Education in the Mediterranean. State of the Art and Barriers towards Cooperation and Collaboration' in IEMed Mediterranean Yearbook (2021), available at <https://www.iemed.org/publication/digital-education-in-the-mediterranean-state-of-the-art-and-barriers-towards-cooperation-and-collaboration/?lang=es> (last visited 18 April 2024)
- Hall S, Schmutz D, Tmiri S & Tschupp R 'Reimagining education in MENAP' (26 July 2022) McKinsey & Company, available at <https://www.mckinsey.com/industries/education/our-insights/reimagining-education-in-menap> (last visited 24 April 2024)
- Hankins E, Fuentes P, Martinescu L, Grau G & Rahim S 'Government AI Readiness Index 2023' (2023) Oxford Insights, available at <https://oxfordinsights.com/wp-content/uploads/2023/12/2023-Government-AI-Readiness-Index-2.pdf> (last visited 12 May 2024)
- Holmes W, Persson J, Chounta IA, Wasson B & Dimitrova V 'Artificial Intelligence and education. A critical view through the lens of human rights, democracy and the rule of law' (2022) Council of Europe, available at <https://rm.coe.int/artificial-intelligence-and-education-a-critical-view-through-the-lens/1680a886bd> (last visited 23 February 2024)
- ICCPR (International Covenant on Civil and Political Rights) adopted 16 December 1966, entered into force 23 March 1976, 999 UNTS 171
- ICESCR (International Covenant on Economic, Social and Cultural Rights) adopted 16 December 1966, entered into force 3 January 1976, 993 UNTS 3
- ITU 'Measuring digital development: Facts and Figures' (2023), available at <https://www.itu.int:443/en/ITU-D/Statistics/Pages/facts/default.aspx> (last visited 13 March 2024)
- Jones MO 'The Two Faces of Digitalization in Politics: The Role of Social Networks in Political Mobilizations and the Threat of "Digital Authoritarianism" in the MENA Region' (2022) IEMed, available at <https://www.iemed.org/publication/the-two-faces-of-digitalization-in-politics-the-role-of-social-networks-in-political-mobilizations-and-the-threat-of-digital-authoritarianism-in-the-mena-region/?lang=es> (last visited 15 March 2024)

- Kautsch K, Bonsoms A, Kasapoglu C, Shemitt L & Švedkauskas Ž 'Liberty's Doom? Artificial Intelligence in Middle Eastern Security' (May 2022) EuroMeSCo, available at <https://www.euromesco.net/publication/libertys-doom-artificial-intelligence-in-middle-eastern-security/> (last visited 18 April 2024)
- Langendorf M & Farley A 'Digital Transformation and COVID-19 in MENA 'Turning Challenge into Opportunity' (10 May 2021) Wilson Center, available at <https://www.wilsoncenter.org/article/digital-transformation-and-covid-19-mena-turning-challenge-opportunity> (last visited 26 April 2024)
- Langendorf M, Anwar Z, Colin F & Macinkowska I 'The Digital Transition in the EU's Southern Neighbourhood: Progress, Obstacles and Opportunities' (June 2023) EuroMeSCo, available at <https://www.euromesco.net/publication/the-digital-transition-in-the-eus-southern-neighbourhood-progress-obstacles-and-opportunities/> (last visited 12 May 2024)
- MAGNITT '2023 FY 2023 MENA Venture Investment Summary' (January 2024), available at <https://magnitt.com/research/2023-mena-venture-investment-summary-50906#:~:text=In%202023%2C%20the%20MENA%20region,although%20MEGA%20funding%20remained%20flat> (last visited 19 April 2024)
- MAGNITT '2021 MENA Venture Investment Report' (January 2021), available at https://magnitt.com/research/2021-mena-venture-investment-report-50736?utm_source=MAGNITT&utm_campaign=f4640e32d8-EMAIL_CAMPAIGN_2021_01_18_08_03&utm_medium=email&utm_term=0_45876afdd8-f4640e32d8-109580589 (last visited 24 May 2024)
- McKinsey & Company 'Drivers of student performance: Insights from the Middle East and North Africa' (13 October 2017), available at <https://www.mckinsey.com/industries/public-sector/our-insights/drivers-of-student-performance-insights-from-the-middle-east-and-north-africa> (last visited 13 April 2024)
- Mejri K 'Maghreb: Mapping de l'écosystème de l'intelligence artificielle' (2020), available at <https://es.scribd.com/document/554725611/2021065526mghappingecoghsystemefhiadsmaghrgegb> (last visited 27 April 2024)
- Miwa K & Blom A 'Accelerating the EdTech ecosystem in the Middle East and North Africa' (28 May 2021) World Bank Blogs, available at <https://blogs.worldbank.org/arabvoices/accelerating-edtech-ecosystem-middle-east-and-north-africa> (last visited 2 January 2024)
- National Geographic 'Women Earning STEM Degrees in the Middle East and North Africa' (2022), available at <https://education.nationalgeographic.org/resource/women-earning-stem-degrees-middle-east-and-north-africa> (last visited 12 March 2024)
- OECD 'Understanding the Digital Divide' (2021) OECD Digital Economy Papers No. 49, DOI: <https://dx.doi.org/10.1787/236405667766> (last visited 18 April 2024)
- OECD AI Policy Observatory 'Tunisia AI Roadmap' (n.d), available at <https://oecd.ai/en/dashboards/policy-initiatives/http:%2F%2Faiipo.oecd.org%2F2021-data-policyInitiatives-27126> (last visited 20 April 2024)
- Oxford Business Group 'How generative AI could transform education in the GCC' (18 April 2023), available at <https://oxfordbusinessgroup.com/articles-interviews/how-generative-ai-could-transform-education-in-the-gcc/> (last visited 4 April 2024)
- Pasquarelli W 'Pushing forward: the future of AI in the Middle East and North Africa' (14 June 2022) Economist Impact, available at <https://impact.economist.com/perspectives/technology-innovation/pushing-forward-future-ai-middle-east-and-north-af-rica> (last visited 12 May 2024)
- Polyakova A & Meserole C 'Exporting digital authoritarianism: The Russian and Chinese models' (27 August 2019) Policy Commons, available at <https://policycommons.net/artifacts/3527460/exporting-digital-authoritarianism/4328250/> (last visited 2 February 2024)
- PwC 'Bridging the Digital Gap: The state of digital inclusion in the MENA region' (2022) available at <https://www.pwc.com/m1/en/publications/documents/bridging-digital-gap-state-digital-inclusion-mena-region.pdf> (last visited 19 April 2024)
- PwC 'The potential impact of AI in the Middle East' (2018), available at <https://www.pwc.com/m1/en/publications/potential-impact-artificial-intelligence-middle-east.html> (last visited 10 April 2024)
- Raz D 'The Arab World's Digital Divide' (25 September 2020) Arab Barometer, available at <https://www.arabbarometer.org/2020/09/the-mena-digital-divide/> (last visited 22 May 2024)
- Soliman M 'In the Middle East, cyber sovereignty hampers economic diversification' (6 January 2021) Middle East Institute, available at <https://www.mei.edu/publications/middle-east-cyber-sovereignty-hampers-economic-diversification> (last visited 1 January 2023)
- Statista a 'Internet usage in MENA - statistics and facts' (26 May 2024) Statista Research Department, available at <https://www.statista.com/topics/5550/internet-usage-in-mena/#topicOverview> (last visited 22 May 2024)
- Statista b 'Jordan: Unemployment rate from 2004 to 2023' (May 2024), available at <https://www.statista.com/statistics/385565/unemployment-rate-in-jordan/> (last visited 27 May 2024)
- Statista c 'Tunisia: Unemployment rate from 2004 to 2023' (May 2024), available at <https://www.statista.com/statistics/524516/unemployment-rate-in-tunisia/> (last visited 27 May 2024)
- The Economist Group 'Pushing forward: the future of AI in the Middle East and North Africa' (2022), available at https://impact.economist.com/perspectives/sites/default/files/google_ai_mena_report.pdf (last visited 18 May 2024)
- Tortoise Intelligence 'The Global AI Index' (2023), available at <https://www.tortoisemedia.com/intelligence/global-ai/> (last visited 27 May 2024)
- Reid K 'Digital Inclusion of Refugees Resettling to Canada: Opportunities and Barriers' (2021), available at <https://publications.iom.int/books/digital-inclusion-refugees-resettling-canada-opportunities-and-barriers> (last visited 12 April 2024)
- Republic of Lebanon, Ministry of Industry 'National Artificial Intelligence Strategy in Lebanese Industry (2020-2050)' (August 2019), available at <https://andp.unescwa.org/sites/default/files/2021-07/National%20Artificial%20Intelligence%20Strategy.pdf> (last visited 20 April 2024)
- UDHR (Universal Declaration of Human Rights) adopted 10 December 1948, UNGA Res 217 A(III)
- UNCRC (United Nations Convention on the Rights of the Child) adopted 20 November 1989, entered into force 2 September 1990, 1577 UNTS 3
- UNESCO 'Towards a common Artificial Intelligence strategy for Arab States: Digital Inclusion Week' 2021 (14 December 2021), available at <https://www.unesco.org/en/articles/towards-common-artificial-intelligence-strategy-arab-states-digital-inclusion-week-2021> (last visited 1 March 2024)
- UNESCO 'Millions of Children in Middle East and North Africa Are Missing out on Education' (27 January 2020), available at <https://www.unesco.org/en/articles/millions-children-middle-east-and-north-africa-are-missing-out-education-unesco-and-wfp-say#:~:text=CAIRO%2FBELRUT%20%E2%80%93%20On%20the%20occasion,of%20school%2C%20undermining%20the%20development> (last visited 18 April 2024)
- UNESCO 'Education 2030' (n.d.), available at <https://www.unesco.org/sdg4education2030/en> (last visited 26 April 2024)
- UNESCO, UNICEF & The World Bank 'COVID-19 Learning Losses. Rebuilding Quality Learning for all in the MENA Region' (2021), available at <https://unesdoc.unesco.org/ark:/48223/pf0000380118> (last visited 24 April 2024)
- UNHCR 'Connected Education for Refugees: Addressing the Digital Divide' (2021), available at <https://www.unhcr.org/media/connected-education-refugees-addressing-digital-divide> (last visited 13 May 2024)
- UNICEF 'COVID-19, an opportunity to bridge the digital gap and reform education systems in the region' (3 January 2021), available at <https://www.unicef.org/mena/stories/covid-19-opportunity-bridge-digital-gap-and-reform-education-systems-region> (last visited 28 May 2024)
- UNICEF 'The impact of COVID-19 on children in the Middle East and North Africa' (2020), available at <https://www.unicef.org/mena/media/10231/file/Impact%20of%20COVID%20on%20Children-Snapshot%20report.pdf%20.pdf> (last visited 13 May 2024)
- UNICEF 'MENA Generation 2030 | UNICEF Middle East and North Africa' (April 2019), available at <https://www.unicef.org/mena/reports/mena-generation-2030> (last visited 12 January 2024)

World Bank 'Lebanon Sinking (To the Top 3' (2021), available at <https://documents1.worldbank.org/curated/en/394741622469174252/pdf/Lebanon-Economic-Monitor-Lebanon-Sinking-to-the-Top-3.pdf> (last visited 26 April 2024)

World Economic Forum Global Gender Gap Report 2020 (2020), available at <https://www.weforum.org/reports/gender-gap-2020-report-100-years-pay-equality/> (last visited 24 January 2024)

Yacoub S & Ortiz Villacorta L 'Bringing an Arabized computer science education to the MENA region' (31 August 2021) World Bank Blogs, available at <https://blogs.worldbank.org/arabvoices/bringing-arabized-computer-science-education-mena-region> (last visited 24 April 2024)

Yarrow N 'Education In Tunisia: Technology, A Tool To Improve The School' (24 October 2017) World Bank Blogs, available at <https://blogs.worldbank.org/arabvoices/tunisia-technology-support-school-improvement> (last visited 13 March 2024)

Zaaimi S 'I spoke to an AI "God." We chatted about the ethical implications of artificial intelligence in the MENA' (9 August 2023) Atlantic Council, available at <https://www.atlanticcouncil.org/blogs/mena-source/artificial-intelligence-ai-mena-ethics/> (last visited 10 May 2024)

Zawacki-Richter O, Marin VI, Bond M & Gouverneur F 'Systematic review of research on artificial intelligence applications in higher education – Where are the educators?' (2019) 16(1) International Journal of Educational Technology in Higher Education 1, DOI: <https://doi.org/10.1186/s41239-019-0171-0> (last visited 27 May 2024)

Europe	Central Asia
South East Europe	Caucasus
Latin America-Caribbean	Arab World
Asia-Pacific	Africa

The Global Campus of Human Rights

is a unique network of more than one hundred participating universities around the world, seeking to advance human rights and democracy through regional and global cooperation for education and research. This global network is promoted through eight Regional Programmes which are based in Venice (GC Europe), Sarajevo/Bologna (GC South East Europe), Pretoria (GC Africa), Bangkok (GC Asia-Pacific), Yerevan (GC Caucasus), Buenos Aires (GC Latin America and the Caribbean), Beirut (GC Arab World), and Bishkek (GC Central Asia).

The Global Campus Policy Observatory

aims to enhance the role of the Global Campus and its regional members in undertaking coordinated research initiatives and providing guidance and expert opinions in response to urgent human rights issues to a broad primary and secondary audience. It provides a virtual hub with the participation of a team of researchers who are alumni from GC regional programmes, for the production of a set of complementary policy analyses on selected topics.

GC Headquarters

Monastery of San Nicolò,
Riviera San Nicolò, 26
I-30126 Venice Lido (Italy)

www.gchumanrights.org

Supported by

