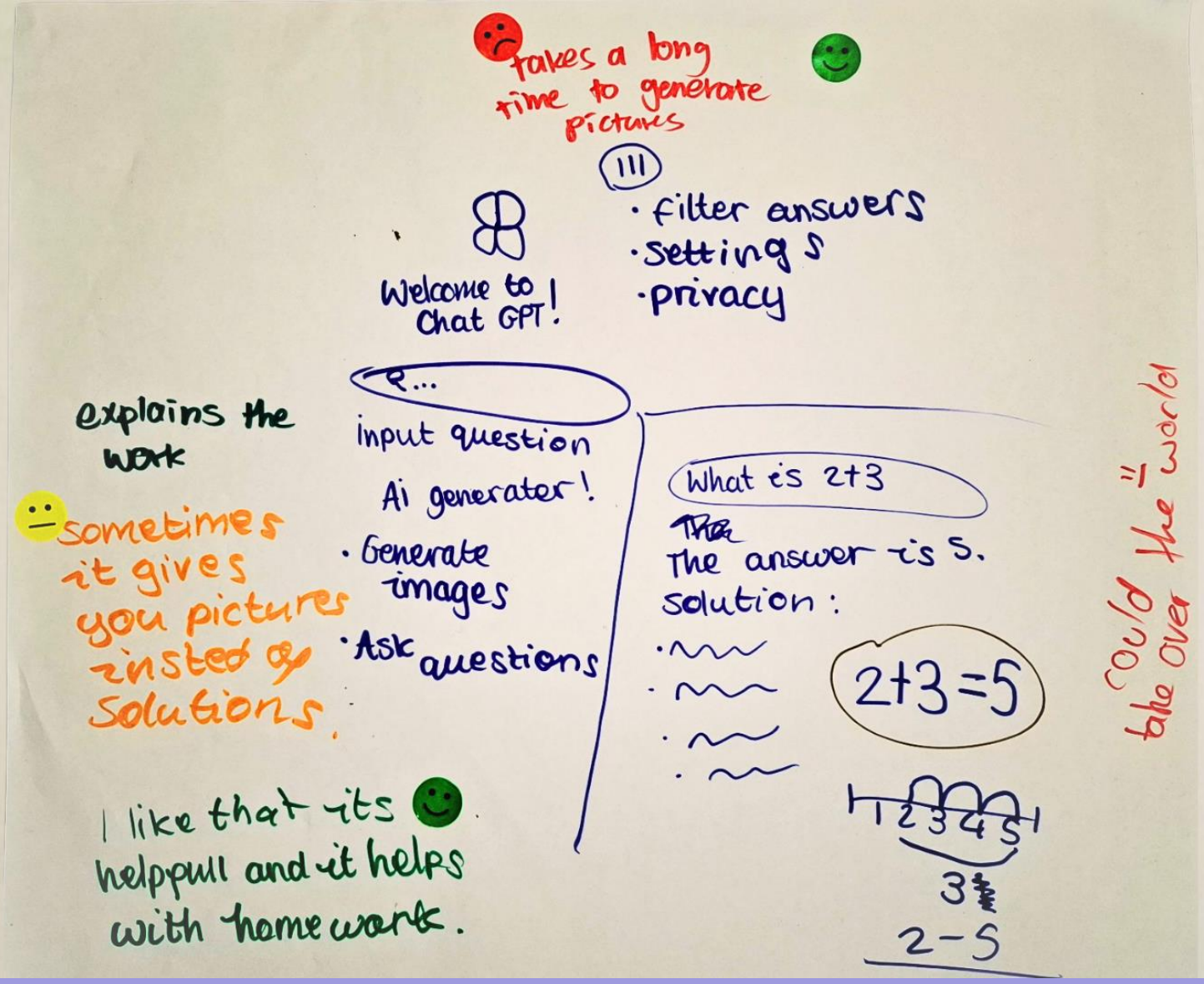

Artificial intelligence and children's rights: A narrative review of the evidence

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Executive summary

Children and young people play a unique role in the digital ecosystem. From a very young age, they grow up with systems they did not design, cannot examine, are only occasionally asked about, and very rarely influence. Also concerning is the increasing rate at which the institutions that decide children's access to services, education, health and even justice are embedding AI into their operations, such that technology influences even those children who never interact directly with it. This report evaluates contemporary evidence on children and AI, including emerging best practice. It is organised in accordance with the 11 themes of the *Joint Statement on Artificial Intelligence and the rights of the child* (2025), with the aim of collating and evaluating the evidence underpinning its recommendations.

Evidence of harms

The nature, scale and materialisation of harms to children have been recorded across the design, development and deployment of AI systems. Although fairness is among the most-cited AI principles, evidence reveals discriminatory risks recurring across factors including race, gender, age and socioeconomic status wherever training data, design choices or deployment contexts are left unexamined for children's particular vulnerability. This risks entrenching existing inequalities, both within and between countries, including for children seeking refuge. In parallel, evidence also reveals unequal access and a lack of inclusive practice distributed along lines of income, language and geography, among other vectors of inequality, so even when AI advantages some children, it leaves others further behind.

Child sexual abuse and exploitation have become increasingly prevalent with the advent of generative artificial intelligence (GenAI) systems. Most alarming is the ease of access to tools that can directly harm children, including through nudification and cyberbullying by peers or adults.

Evidence also highlights the risks to children's image and biometric data, which are collected and distributed on public platforms and then used in public datasets to train GenAI models, thereby revealing risks across the lifecycle, from design to use.

Consent frameworks are structurally unfit for children: they were built for adults, rest on parental authority that ignores evolving capacities, and consent given in early childhood never evolves as the child does, even as that data persists in systems they meet for life.

Growing evidence also highlights the risks of companion systems and chatbots that utilise anthropomorphic, sycophantic and emotionally adaptive model design aimed at maximising a child's attention. The same relational design, which may offer support to children increasingly reporting high levels of loneliness, also fosters dependency and exposes them to manipulation. This is alongside evidence of a lack of sociotechnical safeguards in online and offline environments that contribute to children's increased mistrust, cognitive deskilling, uncertainty and loss of agency, within a digital landscape growing with dis/misinformation.

With growing integration of AI tools into public service delivery and use by both State and non-State actors, children face risks from automated systems and recommender tools that disproportionately affect those most in need across the globe – from profiling in social care and benefits in the UK and the Netherlands to AI-assisted targeting that has killed children in Gaza. Moreover, the wider digital and internet ecosystem that hosts numerous AI tools has been directly disrupted through internet shutdowns, further widening the AI digital divide, alongside binary age-based restrictions that undermine children's evolving capacity and ability to participate in civil society.

The environmental burden AI systems impose on water and energy, mineral extraction, and the communities and children closest to that extraction is borne well before any child opens an application, with evidence even pointing to an intergenerational scale of harm. At the same time, the drive for sustainability rests on extracting strategic materials from regions of the world where child labour remains under-reported.

Evidence of best practice

Accountability and transparency mechanisms have been growing over the years, from the development of proportionate, necessary and accessible data protection frameworks to risk-based assessments for the use, deployment and prohibition of AI systems. Research and governance practices increasingly consider contextual and sociocultural sensitivities, providing community-oriented safeguards alongside individual data protection measures.

Child rights impact assessments (CRIAs) and human rights due diligence can make abstract commitments auditable, measurable and transparent by requiring assessments of accessibility, affordability and the needs of disabled, remote and marginalised children, rather than assuming them. Despite the growing body of child rights-based guidance, current regulatory regimes do not adequately address children in their assessments even where children are the primary users of such technology.

Children themselves are a source of insight, not merely part of a larger framing of vulnerability that doesn't confront their needs and desires for the future they are inheriting. Evidence shows that their expectations of AI are neither uniformly hopeful nor fearful, but mixed. Where they are meaningfully consulted, children identify risks that adult designers overlook, and propose their own recommendations for governance. Although the scale of such participation is limited, states, regulators and businesses can use a number of best practice recommendations to train designers and develop rights-respecting AI systems.

Gaps left to close

Governance remains reactive where it must become preventive. The evidence supports the Joint Statement's recommendations to strengthen and integrate architectures of law, oversight, budget and evaluation. This requires integrating CRIAs and due diligence before a system reaches children alongside identifying routes for remedy and redress. Towards this end, growing case law identifies accountability across the AI lifecycle and value chain to hold businesses and developers accountable, but again, such

redress upholds a risk-reactive model rather than a preventive and protective approach.

Frameworks rarely embed child-specific disclosure or risk assessment, defaulting to adult baselines. When provision for children relies on age assurance, further risks arise if AI systems or platforms deploy measures that are privacy-invasive, can be easily circumvented or undermine children's best interests and evolving capacities.

Participation is affirmed in principle and neglected in practice. The challenge is less about the absence of methods than mandated mechanisms, obligations and resources. Participation must be treated as a resourced, auditable design requirement rather than a solitary act of consultation.

Technology and markets remain shaped without children in view. Children should be empowered through critical AI literacy based on infrastructure, capabilities, capacity and need, supporting their agency in navigating this ecosystem rather than treating them as passive users in need of protection. At the same time, when markets determine system design, the gap in skilling children worldwide widens.

Commitments to train state officials, professionals working with children and AI designers and deployers are rarely accompanied by measurable indicators of whether that training changes practice, and resources are seldom directed to the under-resourced jurisdictions that need them most.

The evidence base itself is a gap. Most research is limited in longitudinal scope and drawn predominantly from the Global North. Although the scale and complexity of innovation suggest additional challenges, without sustained investment in independent, child-centred research, particularly for children of different ages and circumstances, policy will continue to be shaped by fear or hype rather than by robust evidence.

Introduction: Children's rights and AI

Children around the world are increasingly using, and being impacted by, artificial intelligence (AI), which includes the building blocks of the system across its design, development and deployment. This use and impact is especially documented in evidence, with recent advances in and access to generative AI (hereafter, GenAI):

- Reviewing survey findings from 10 middle-income countries, UNICEF reports that 'Up to 50 per cent of surveyed children are already using AI' and that they 'are over three times more likely to be users of AI systems than their parents or caregivers'.[1] These usage statistics are likely to rise.
- In Europe, three-quarters of 9- to 16-year-olds are already using GenAI for information, schoolwork, recommendations and health advice, and to discuss their worries.[2] Statistics are even higher in the US.[3]
- Pew Research found that by late 2023, roughly one in five US teens aware of ChatGPT had already used it for schoolwork, rising to around a quarter of 11th and 12th graders.[4]
- The Digital Futures for Children centre's (DFC) interviews with children living in Brazil, Kenya, India and Thailand reported both GenAI-related risks and opportunities, often reflecting their particular circumstances, languages and cultures.[5]

As important as AI in children's hands, if not more so, is the way that the institutions providing children's education, health, justice and access to information are more increasingly embedding multiple kinds of AI into their operations. This means that, while access to AI remains hugely unequal, AI has impacts on children whether or not they use it, insofar as AI is deployed by the State institutions and businesses that shape children's life chances – for better and for worse.

[1] The 10 countries were: Armenia, Brazil, Colombia, Dominican Republic, Jordan, Mexico, Montenegro, North Macedonia, Pakistan and Serbia. See UNICEF Office of Strategy and Evidence – Innocenti (2026).
[2] Staksrud et al. (2026).
[3] McClain et al. (2026).
[4] Sidoti & Gottfried (2023).
[5] See www.digital-futures-for-children.net/our-work/rights-ai

What do we know about children's lives in a world shaped by AI? And what does AI mean for the realisation of children's rights?

Advancing children's rights in relation to AI

AI's importance in both realising and violating children's rights is increasingly being recognised, stimulated by the rapid global uptake of the GenAI chatbot ChatGPT by OpenAI following its release in November 2022. While AI and AI governance have a longer history, encompassing multiple forms of technology and technology governance over the years, the global effort to understand, harness and safeguard AI is now gaining pace.

Children's rights worldwide are set out in the United Nations Convention on the Rights of the Child (UNCRC) (1989),[6] the UN's most widely ratified human rights treaty. Multiple initiatives over the past decades have sought to advance children's rights specifically in relation to the digital environment, especially since 2021, when the UN adopted the Committee on the Rights of the Child's *General comment No. 25*.[7] Its impact in reshaping the digital environment for children is growing, notwithstanding many barriers.[8]

In December 2023, the UN General Assembly adopted *Resolution 78/187 on the promotion and protection of the rights of children*,[9] citing the General comment calling on States to implement the Convention in relation to the digital environment.[10] Most, if not all, the General comment's analysis of children's rights, along with its injunctions to States and other duty-bearers, including businesses, are pertinent to AI.

[6] UN General Assembly (1989).

[7] Intended to be as future-proofed as possible, the General comment defines the digital environment inclusively, recognising rapid technological innovation and global systemic and emergent effects: 'The digital environment is constantly evolving and expanding, encompassing information and communications technologies, including digital networks, content, services and applications, connected devices and environments, virtual and augmented reality, artificial intelligence, robotics, automated systems, algorithms and data analytics, biometrics and implant technology' (UN Committee on the Rights of the Child, 2021, para. 2).

[8] Sylwander (2026).

[9] 'Taking note of *General comment No. 25* (2021) of the Committee on the Rights of the Child regarding the implementation of the Convention on the Rights of the Child in relation to the digital environment' (UN General Assembly, 2023).

[10] Other international endorsements and initiatives followed, including *Resolution 56/6 on the safety of the child in the digital environment* by the UN Human Rights Council in 2024 and the *G7 Common Set of Principles* defining a safer and more secure digital space for minors in May 2026, as well as regional and national action: www.entreprises.gouv.fr/files/files/Actualites/2026/g7/principles-safer-and-more-secure-digital-space-for-minors.pdf

Joint Statement on Artificial Intelligence and the rights of the child

The most comprehensive and widely endorsed initiative on children's rights and AI is the *Joint Statement on Artificial Intelligence and the rights of the child* co-led the International Telecommunication Union (ITU), UN Committee on the Rights of the Child and UNICEF, in November 2025,[11]

> ***to address the urgent need for a child rights-based approach to the design, development, deployment and governance of AI and to recall the Convention and its Optional Protocols, CRC general comment No. 25 (2021) on children's rights in relation to the digital environment, and all other relevant documents.***

The Joint Statement builds on *General comment No. 25, among others,* in reminding States of the urgent need for States, businesses, civil society and other stakeholders to realise children's rights in an AI world, including protecting child rights against harms caused by AI systems and the wider digital and data-driven ecosystem, as well as ensuring children can navigate this ecosystem and leverage opportunities for their long-term flourishing. It makes a series of recommendations to States and other relevant *actors* that are simultaneously principled and practical. If implemented, they would transform children's prospects in a world that is increasingly reliant on AI.[12]

Table 1 summarises these recommendations, which address the implications of AI for all children's rights, where children are defined as everyone under 18.

[11] In just over 4,000 words, it is informed by the Global Digital Compact and other relevant human rights instruments; see ITU et al. (2025). Co-signatories are: ITU, UN Committee on the Rights of the Child, United Nations Children's Fund (UNICEF), International Labour Organization (ILO), Inter-Parliamentary Union (IPU), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Interregional Crime and Justice Research Institute (UNICRI), United Nations Office for Disarmament Affairs (UNODA), Office of the United Nations High Commissioner for Human Rights (UN OHCHR), Special Representatives of the UN Secretary-General for Children and Armed Conflict and on Violence against Children, UN Special Rapporteur on the sale, sexual exploitation and sexual abuse of children, and Safe Online. Contributors include 5Rights Foundation, The Alan Turing Institute, Alana Institute, ECPAT International, Child Rights Coalition, Child Helpline International, Digital Futures for Children centre (DFC), University of Oxford, Plan International, Save the Children, Terre des Hommes International, World Vision, and many more.

[12] For its development, including in consultation with children, see https://gruni.edu.ge/uploads/files/News/2025/10/Conference_on_AI_and_Child_Rights_Summary_Publication.pdf and for the launch, see www.ohchr.org/en/statements-and-speeches/2026/02/child-rights-and-ai-crc-adopts-first-global-framework-partners

Table 1. Overview of the Joint Statement and its recommendations

Joint Statement themes	Subthemes
1. Child rights-based AI governance by States	a. Ensure AI governance promotes children as rights-holders b. Responsible government entities with clear authority c. Parliamentary governance processes in the context of AI d. Disaggregated data for planning policies and programmes e. Monitoring and evaluation for risk assessment and mitigation f. Dedicated budget to realise child rights in the context of AI g. Coordination and cooperation among all relevant stakeholders h. Ensure child rights are embedded throughout the AI lifecycle i. Guarantee access to child-friendly justice and remedy j. Regular review and revision of AI policies and standards
2. Child rights-based AI governance by UN bodies and others in accordance with international law	a. Mainstream children's rights across AI policy and deployment b. Create or capacitate dedicated structures and processes c. Sustain guidance and ethical practices across the AI lifecycle
3. Responsibility, accountability and transparency	a. Protect child rights within national jurisdiction b. Businesses must protect, respect and remedy child rights c. Transparency across the AI lifecycle d. Accountability for child rights violations across the AI lifecycle e. Child rights audits and impact assessments by businesses f. Involve civil society to support oversight, ethics and accountability
4. Child safety	a. Prevent and mitigate AI-facilitated violence against children b. Criminalise child sexual abuse and exploitation c. Require AI businesses' responsibilities d. Embed privacy-by-design and safety-by-design e. Design, develop and deploy child-safe algorithms f. Require safety-by-design for companion and emotion AI g. Responsible sourcing for training data h. Safeguard children in AI deployment for military purposes i. Ensure proactive safeguards and human oversight j. Provide child-friendly and confidential reporting mechanisms k. Ensure specialised rehabilitation for child victims l. Ensure specialised services for children in conflict with the law
5. Data protection and privacy	a. Strengthen data protection regulation b. Ensure data minimisation and informed consent c. Protect biometric data d. Prevent commercial exploitation

6. Best interests of the child	a. The best interests of the child must be determined b. Ensure full and holistic enjoyment of children's rights c. Age-appropriate, child-friendly AI design and deployment
7. Non-discrimination and inclusion	a. Inclusive and intersectional AI access b. Meaningful access to overcome digital divides c. Universal design for children with disabilities d. Human rights due diligence regarding bias and discrimination
8. Child participation	a. The right to be heard in relation to the AI lifecycle b. Use AI to support children's democratic participation
9. AI and the environment, including climate change	a. Use AI to combat climate change b. Assess and mitigate AI's environmental impact on child rights
10. Capacity building	a. Capacity building of State officials on AI and child rights b. AI training for professionals working with children c. Child rights training for businesses and AI developers
11. Education, science and awareness-raising	a. Responsible integration of AI into education b. AI literacy in school curricula should be inclusive c. Provide non-formal AI literacy programmes d. Leverage AI innovation and research to realise child rights e. AI literacy and guidance for parents and carers f. Public awareness-raising campaigns

Source: Authors, summarised from ITU et al. (2025)

The Joint Statement gives more space to the immediate actions required for children's safety, given mounting evidence of AI-related harms. It also emphasises that actions must be lawful, necessary and proportionate, taking account of all the rights of the child.

None of this is straightforward. The legitimacy of UN instruments and bodies must be sustained through intensive processes of global multistakeholder dialogue.[13]

Key principles are frequently challenged – the status of children as rights-holders, the value of children's voices and their right to be heard, the authority of parents in determining children's best interests, the relation between child participation and child protection, and the relevance of universalist rights frameworks around the world.

In relation to the digital world, further challenges in implementing children's rights come to the fore – the authority of States over 'big tech', the relation of human rights-informed regulation to business innovation, the practicalities of addressing fast-moving,

[13] This was evident in the lively contestation over the UNCRC itself, in the subsequent deliberation that informed the framing of *General comment No. 25*, and in the engagement of States and civil society actors with the Committee on the Rights of the Child in overseeing their subsequent implementation. See Livingstone et al. (2024a); Sylwander (2026).

opaque and often non-responsive companies, especially when operating beyond State jurisdiction, and the weight accorded to children's needs and rights by wider society.[14]

The wider context of international AI governance

While these developments are child-focused, many population-wide developments also impact on children. In these, children are often marginal except as part of a long list of vulnerable groups or because of egregious harms to children facilitated by AI that necessitate protective measures.[15] Nonetheless, beyond child rights interventions, children will likely benefit from broader interventions in the digital environment.

Notable here is the Global Digital Compact, adopted in September 2024 under the UN's Pact for the Future.[16] This global agreement sets out how States will advance an 'open, free, secure and human-centred digital future for all', and encompasses the entire AI lifecycle:

> ***the pre-design, design, development, evaluation, testing, deployment, use, sale, procurement, operation and decommissioning stages, with effective human oversight.***[17]

To enhance international governance of AI for the benefit of humanity, the Global Digital Compact required two linked actions: a multidisciplinary Independent International Scientific Panel on AI, 'to promote scientific understanding through evidence-based impact, risk and opportunity assessments',[18] and an annual Global Dialogue on AI Governance among governments and stakeholders.

The Independent International Scientific Panel on AI presented its preliminary report at the inaugural Global Dialogue on AI Governance in Geneva in 2026. This documented substantial evidence of harms to children from AI, accompanied by an urgent warning to States that AI capabilities are outrunning State understanding, governance and safeguards, necessitating global coordinated action.[19] As the co-chairs put it:

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[14] Helsper et al. (2025).

[15] Helsper et al. (2025); van der Spuy et al. (2024).

[16] for the role of children, see Livingstone, S., & Sylwander, K. (2024).

[17] UN General Assembly (2024, p. 2).

[18] UN General Assembly (2024, p. 48).

[19] 'AI is transforming human rights, including children's rights, through system-level changes that create both significant opportunities and cross-cutting challenges across the AI life cycle… Under appropriate conditions, AI can positively impact children's rights to information access, education and expression. However, AI also presents multiple risks of harm' (Independent International Scientific Panel on AI, 2026, p. 25). See also Johnson (2026).

> ***We've opened Pandora's box. What's coming out is different from anything we've ever lived through – in pace, power, control, and everyday risks… The window to act collectively is open now. It may not stay open long.***[20]

Concerned that children's voices might be lost in the ensuing actions, child rights organisations consulted children – more than 1,100 from 49 countries – in the *Me & AI: Children and young people's report*.[21] As David, a young person from Portugal, put it, in introducing the children's recommendations to States:

> ***We, as the generation most affected by emerging technologies, deserve a seat at the table in AI governance. To make that possible, we must invest in digital education and critical thinking, ensuring that young people not only know how to use AI, but also understand it. If we help shape the beginning of the story, we can help shape the entire future it creates.***

Opening the Global Dialogue in Geneva in July 2026, UN Secretary-General, António Guterres, called for nation-states to adopt an AI Child Safety Pledge[22] and for AI developers to:

> ***Prove it is safe – no company should deploy an AI system accessible to children without child-specific safety testing and independent oversight… When a child is harmed, the answer must never be 'the algorithm did It'.***

At the same event, the UN High Commissioner for Human Rights advocated 'Taking back our agency in the age of AI',[23] noting that 'Harm to children from AI-powered algorithms is growing',[24] requiring States to prioritise child online protection.[25]

But what evidence exists, what can it tell us, and what are the key evidence gaps?

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[20] Independent International Scientific Panel on AI (2026, p. 5).

[21] This was jointly coordinated by the UN Human Rights Office, Child & Youth Friendly Governance Project, 5Rights Foundation, Child Rights Connect, Digital Futures for Children centre (DFC), UN Special Representative of the Secretary-General on Violence against Children, Save the Children International, Instituto Alana, Plan International and Aldeas Infantiles SOS España. See Child & Youth Friendly Governance Project & 5Rights Foundation (2026) Civil society also cooperated on a Joint Statement with clear demands for what the inaugural Global Dialogue on AI Governance must deliver for children if their recommendations were to be heard: https://5rightsfoundation.com/resource/joint-statement-the-inaugural-global-dialogue-on-ai-governance-must-deliver-for-children

[22] www.un.org/sg/en/content/sg/statements/2026-07-06/secretary-generals-remarks-the-opening-of-the-first-global-dialogue-artificial-intelligence-governance-delivered

[23] www.ohchr.org/en/statements-and-speeches/2026/07/high-commissioner-turk-global-dialogue-ai-governance-taking-back

[24] See https://news.un.org/en/story/2026/05/1167608 and www.ohchr.org/en/documents/tools-and-resources/getting-childrens-safety-online-right

[25] Some states responded with alacrity. The Coalition for Children's Rights and Protection in the Age of Artificial Intelligence was founded by key UN bodies (Department of Global Communications, UN Human Rights Office, ITU, Office for Digital and Emerging Technologies, UNICEF and UNESCO), and 17 countries had signed up by the launch at the Global Dialogue: https://news.un.org/en/story/2026/07/1167891

About this report

Aims

The *Joint Statement on Artificial Intelligence and the rights of the child* presents an opportunity to identify and evaluate the evidence base on children and AI. In this report, we map the available evidence onto the Joint Statement. This should inform a whole-of-society approach to AI governance and children's rights.

Our guiding questions include:

- What does current evidence tell us about the nature, scale and distribution of AI-related harms and benefits for children? How robust is that evidence across different contexts, including marginalised and vulnerable groups across the globe?
- Which social, economic, cultural and legal factors shape whether children's rights are protected or undermined within AI systems and the wider data-driven ecosystem?
- Are there documented examples of rights-respecting practice across the AI lifecycle that have improved outcomes for children, and that could guide further improvements?
- What evidence gaps limit the development of child-centred AI policy, governance and implementation frameworks, and how might these be addressed to ensure children's rights are upheld in a world increasingly shaped by AI?

Who this report is for

- States and international bodies responsible for realising children's rights in relation to AI.
- Internet governance policymakers, regulators and standards bodies around the world concerned with AI.
- Child rights advocates and other third-sector organisations, advocacy groups and stakeholder representatives concerned with AI and children.
- Researchers concerned with AI, with governance, and with children's lives, wellbeing and rights.

Why evidence matters

If States and others are to act on the Joint Statement's recommendations, they will require many forms of evidence. However, the Joint Statement does not include an evidence base to underpin its empirical claims. Nor does it point to evidence of good practices that stakeholders can build on across the AI lifecycle to identify policy workflows and support practical implementation of the recommendations globally:

> ***Regularly updated data and research are crucial to understanding the implications of the digital environment for children's lives, evaluating its impact on their rights and assessing the effectiveness of State interventions. States parties should ensure the collection of robust, comprehensive data that is adequately resourced and that data are disaggregated by age, sex, disability, geographical location, ethnic and national origin and socioeconomic background. Such data and research, including research conducted with and by children, should inform legislation, policy and practice and should be available in the public domain. Data collection and research relating to children's digital lives must respect their privacy and meet the highest ethical standards.***[26]

This crucial paragraph sets out four distinct points: (1) evidence is vital to understand and evaluate the effects of technological change; (2) States must collect the evidence they need, recognising children's diversity and intersectionality; (3) evidence must include child participation and underpin State actions; and (4) evidence must meet high standards.

By implication, it also asserts the converse: (1) without evidence, States risk misunderstanding children's lives or relying on ineffective interventions; (2) legislation, policy and practice should not treat children as a homogeneous category; (3) State actions should beware of proceeding without or against evidence, or without consulting children; and (4) poor quality or unethical evidence is no basis for action.

In what follows, we map and evaluate the available evidence on children and AI.[27] To organise our inquiry, we follow the 11 sections of the Joint Statement (see Table 1).

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[26] UN Committee on the Rights of the Child (2021, para. 30).

[27] The mandate of the DFC is to support an evidence base for child rights advocacy, facilitate multidisciplinary dialogues and amplify children's voices within the remit of *General comment No. 25*. informed by criteria for good quality research. To construct this, we created the 'Global research database', a free online public repository containing over 300 carefully curated sources on children's rights in the digital environment. Specifically, we consulted scholars worldwide and searched for emerging research, especially from underrepresented regions or concerning marginalised groups of children. Each database entry includes our 'DFC Notes' with a critical assessment of the research findings, methods and claims. The goal is to make good quality findings more accessible to policymakers, advocates, journalists, researchers

Methods and limitations

We conducted a narrative review of existing empirical literature, starting with the DFC's global research database and supplementing it with targeted keyword searches, including 'AI', 'children' and 'human rights' across peer-reviewed, policy and practitioner sources, using social science databases.[28] In addition, other keywords for search were based on terminology used by the recommendations itself. Efforts were made to reflect geographic and cultural breadth.

The empirical research reported here represents a snapshot of what is and is not known about children's lives in a world shaped by AI. It is likely partial in ways we don't know, as well as being limited to the research published in English that we could locate within the timeframe of the research (May–August 2026). This includes the positionality of the contributing researchers who are predominantly based in Global North research institutes and are familiar with policies within this realm.

The report is framed and grounded in a whole-of-society approach whereby the evidence supports the interconnected nature of the recommendations. Such an approach acknowledges the sociotechnical nature of harms and opportunities. Further, AI systems are understood not only in their final use, but also in the elements, interventions and choices made across the AI lifecycle. This means that the governance of AI systems should consider principles and rights across design, development, deployment and post-deployment in an iterative, responsive and accountable manner.

Given the intersecting and reinforcing nature of children's rights, evidence is applicable across several report sections. To reduce repetition, we try to cross-reference where possible. Also, while we try to focus on AI systems, including GenAI, there is much more evidence relating to children's digital lives and rights. Some of this concerns AI (e.g., regarding social media algorithms or forms of EdTech) even if AI is not the focus. We sample these literatures in order to convey the bigger picture of AI and child rights.

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and practitioners: www.digital-futures-for-children.net/our-work/research-databasewww.digital-futures-for-children.net/our-work/research-database

[28] A narrative review does not promise to be systematic. Rather, it tells a story about the available evidence (in this case, following the structure of the Joint Statement), while conscientiously searching as widely as is practical and taking care not to cherry-pick or bias the selection of evidence included, and also noting evidence gaps; see Grant & Booth (2009). Searches were anchored in the key empirical claims made in or implied by the Joint Statement, and expanded to cover as many areas relevant to children's lives and AI as could be practically included.

Mapping evidence to the Joint Statement

1. Child rights-based AI governance by States

In the Joint Statement, child rights-based AI governance by States encompasses the following recommendations: (a) Ensure AI governance promotes children as rights-holders; (b) Responsible government entities with clear authority; (c) Parliamentary governance processes in the context of AI; (d) Disaggregated data for planning policies and programmes; (e) Monitoring and evaluation for risk assessment and mitigation; (f) Dedicated budget to realise child rights in the context of AI; (g) Coordination and cooperation among all relevant stakeholders; (h) Ensure child rights are embedded throughout the AI lifecycle; (i) Guarantee access to child-friendly justice and remedy; and (j) Regular review and revision of AI policies and standards.

States occupy a distinctive position in AI governance for children. Unlike companies, civil society or international bodies, only States hold the combination of legislative authority, enforcement power and budgetary capacity required to fulfil children's rights based on Article 4 of the UNCRC. *General comment No. 25* applies this obligation to the digital environment, including to AI systems across the AI lifecycle. There has also been growing international discourse calling for better frameworks, such as UNICEF's *Guidance on AI and children 3.0*.[29]

The evidence points to some progress and key gaps:

- Policies on 'cross-agency implementation and resource allocation', 'explainability and accountability' and 'child wellbeing/development' are often not realised in practice.[30]
- The OECD's review of AI use across 11 governments concurs that skills shortages, outdated systems, fragmented data-sharing arrangements and financial constraints frequently limit implementation.[31]

[29] UNICEF Innocenti (2025).
[30] Meng (2025).
[31] OECD (2025).

- The recent preliminary report by the Independent International Scientific Panel on AI also warned that current safeguards cannot keep pace with AI innovations, which is especially concerning as the study highlighted numerous challenges of AI to children's safety around the globe.[32]

- A comparative mapping study conducted across Member States of the Council of Europe found that numerous States did not have an extant legal framework for AI and children's rights, with some waiting for the completion of the EU AI Act.[33] With the Act now in force, EU Member States must enforce safeguards for children's safety and privacy.[34] Evidence of implementation and outcomes will now be important, given concerns that product standards and certification can overlook fundamental rights (such as children's protection from surveillance[35]) or lead to ethics washing if not supported by ethical disclosures.

- Cases where national security overrides personal protection have been noted in nearly all data protection legislation.[36] The securitisation of surveillance, legitimised through the framing of national security,[37] overlooks the rights of the child even as surveillance systems are deployed by law enforcement and for monitoring public assemblies where children and young people are present.[38] This is particularly concerning, as their data is often collected from a young age, with or without the consent of, or on behalf of, their parents, and without meaningful consultation or knowledge.[39]

This evidence raises a series of issues explored in other sections of this report (see 5. Data protection and privacy, 6. Best interests of the child, and 8. Child participation). Here we focus on the State's role in AI governance.

Recent legal developments

Given the sociotechnical complexities of AI ethics and human rights, the Joint Statement calls for designated national bodies to coordinate action.[40] Yet, the International Association of Privacy Professionals' (IAPP) tracker of AI legislation across more than 20

[32] Independent International Scientific Panel on AI (2026).
[33] Aitken et al. (2025).
[34] 5Rights Foundation (2024).
[35] Lynch (2026).
[36] Yayboke et al. (2021).
[37] Buzan et al. (1998).
[38] Feldstein (2020).
[39] Berman & Albright (2017); Stoilova et al. (2021); van der Hof & Lievens (2018).
[40] Relatedly, Stahl et al. (2022) propose a dedicated European Agency for Artificial Intelligence to protect rights against AI harms.

jurisdictions shows that the current landscape remains highly fragmented, with some States passing comprehensive AI statutes, others relying on sectoral regulation, and still others with no dedicated AI governance framework at all.[41]

The world's first legally binding treaty– the Council of Europe's *Framework Convention on Artificial Intelligence and human rights, democracy and the rule of law* (2024) – calls on States Parties to 'take due account of any specific needs and vulnerabilities' of children under Article 18.[42]

Brazil's artificial intelligence strategy (2021), in combination with Brazil's Digital Statute for Children and Adolescents ('ECA Digital') (2026), mandates child safety measures across digital platforms, including AI tools and chatbots.[43] On the other hand, India's Digital Personal Data Protection Act (2023)[44] addresses AI strategy and data protection broadly, but leaves child-specific AI governance to be inferred and read alongside existing children's protection legislation.[45] This pattern is also observed in Portugal's *charter on human rights in the digital era* (2021)[46] and Norway's approach through its existing child welfare architecture.[47] At the regional level, normative frameworks and guidelines are introduced with varying levels of adoption. This includes the Association of South East Nations' (ASEAN) (2023) guidelines against online child sexual exploitation and abuse.

Similarly, the African Union's *Continental AI strategy* and *child online safety and empowerment policy*,[48] reinforced by the African Union Committee of Experts on the Rights and Welfare of the Child (ACERWC),[49] also follows a harm-based approach. Thus, for children around the globe, the fulfilment, protection and enjoyment of their rights in interactions with AI systems depend entirely on their State's willingness, capacity and drive for robust governance.

Resourcing support for children's rights

The projected economic power of AI systems has often driven State legislation. UNICEF captures this tension in their analysis of global approaches:

[41] IAPP (202).
[42] Council of Europe. (2024, September 5) (CETS No. 225).
[43] *Brazilian Artificial Intelligence Strategy* (Ministry of Science, Technology and Innovations, 2021); *Digital Statute for Children and Adolescents* (Law No. 15,211, 2025).
[44] Digital Personal Data Protection Act, 2023 (India).
[45] Sharma et al. (2024).
[46] Lei No. 27/2021 (Portugal).
[47] Norway's Ministry of Children and Families (2019).
[48] African Union (2024a, 2024b).
[49] ACERWC (2022).

> ***While regulating AI development is a primary goal in some countries, others believe that an innovation-centred and business-friendly approach will lead to economic growth and prosperity for all. A country choosing not to regulate AI directly does not automatically mean it does not seek to address any of AI's potential adverse impacts through sectoral regulation. However, the absence of AI-specific regulation does raise questions about how the country intends to address new risks generated by AI and protect rights that may be impacted, in particular for vulnerable groups including children.***[50]

UNICEF also highlights the concerning lack of children's rights-based AI assessments. The Joint Statement builds on earlier guidance, such as *General comment No. 25*, which makes child rights impact assessments (CRIAs) a mandatory feature of legislative, budgetary and administrative decision-making that touches children's digital rights.[51]

Towards this goal, the Joint Statement calls on States to allocate sufficient budgets to realise children's rights in relation to AI. Yet, there is limited public evidence of budgetary allocations by States particularly directed at children's rights-centred AI policies:

- UNICEF found that across 84 countries, which represent 58% of children globally, there is vastly less investment into children's welfare than other budgetary allocation, often made too late, and notably unequal within and between States for children's enjoyment and fulfilment of rights.[52]
- Where AI systems are increasingly considered for their capacity to improve welfare service delivery, there are further concerns that, in the absence of government regulation, market logic can contribute to what the UN Special Rapporteur on extreme poverty and human rights calls a 'human rights-free zone',[53] particularly where for-profit companies determine capital flows.

This reveals an already skewed socioeconomic fabric on which the lack of targeted investments and sustained State funding for AI-specific considerations may further entrench existing inequalities and exacerbate harms to the most vulnerable children.

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[50] UNICEF Innocenti (2025, p. 36).

[51] While Livingstone and Pothong (2025) found that business enterprises, particularly telecommunications and mobile operations, are considering or actively implementing assessments, such as UNICEF's MO-CRIA and D-CRIA toolkits (UNICEF, 2021a, 2024), there are still barriers limiting the scale of implementation across the tech sector. This includes concerns about bureaucratic hurdles, profit maximising over public interest, a focus on data protection over other fundamental rights, and a lack of inclusivity in children's engagement (Livingstone & Pothong, 2025; Okkonen & Oribhabor, 2022; Payne, 2017). This can, in turn, limit a State's ability to scope challenges and introduce necessary safeguards, especially as impacts on children may be harder to remedy (UNICEF, 2025).

[52] UNICEF Innocenti (2023).

[53] Alston (2019, p. 13).

Towards better coordination and cooperation

The Joint Statement's call to develop 'common norms and standards' through multistakeholder cooperation has been exemplified in a number of initiatives, such as the World Economic Forum's (2019) Generation AI initiative[54] or even the Children's AI Summit in 2025, which produced a Children's Manifesto for AI presented at the 2025 AI Safety Summit. The IEEE has also released standards on ethical considerations in AI systems[55] (see 4. Child safety). Taken together, these evidence the capacity for global cooperation and standard setting. However, this is yet to be actioned and evaluated at scale across the AI lifecycle.

As the basic building block of the AI lifecycle, the role and value of data cannot be understated. The Joint Statement calls for the collection, disaggregation and analysis of appropriate data to develop policies for children. However, the evidence points to an asymmetry between the volume of data collected about children and the extent to which that data actually informs child-centred governance.

On the one hand, the Children's Data Network shows what is achievable when linked administrative data is harnessed for policy purposes, such as integrating records across agencies to answer public health and welfare questions, thereby disaggregating responsibility.[56] On the other hand, as noted in Barrett's[57] review of student data governance, children's data is often collected by corporate entities and EdTech vendors who run data protection risks, including the sale of sensitive and identifiable data of children; this is while States may not have access to that data or even lack the oversight and enforcement to prevent these harms (see 5. Data protection and privacy).

Indeed, there are instances of good practice in integrating public–private partnerships for children. Take, for example, UNICEF's pilot with AI Sweden, Lund University and the municipalities of Helsingborg, Lund and Malmö, which tested UNICEF's policy guidance directly against concrete municipal AI projects.[58] The resulting case study identified several issues, including a lack of national strategy and project ownership. These findings were then used to chart next steps for sustainable, collaborative and strengthened AI leadership. Similarly, Ireland's Ombudsman for Children's Office's Policy Spotlight on AI demonstrates that children's direct input can reach intergovernmental venues. [59]

[54] World Economic Forum (2019).
[55] IEEE (2024).
[56] Foust et al. (2022).
[57] Barrett (2021).
[58] UNICEF (2021b).
[59] Ombudsman for Children's Office [OCO] (2025).

Consulting children

Embedding the rights of the child throughout the AI lifecycle, as the Joint Statement requires, is achievable when States and developers treat children's participation as a policy or design input rather than a compliance requirement. This means taking children's views into account in actions that affect them[60] (see 8. Child participation). Across numerous studies, children are often excluded from design and governance,[61] despite demonstrating their capacity to inform governance and identify issues in AI systems.[62] For instance, content moderation on AI platforms can be shaped by children who are responsive to time- and context-specific responses on cyberbullying, as observed in a study with Irish 12- to 17-year-olds.[63] Child-centred design and engagement are key elements in upholding the recommendations' focus on the best interests of the child, especially as this principle is often misunderstood and not meaningfully operationalised in the digital environment.[64]

Noting the global scale of data collection during the Covid-19 pandemic, Bessant found that children expected the government to consider their views about how their data is used.[65] Yet proposals for expanded public sector data use, such as the UK's Data: A New Direction[66], paid little attention to children's rights or interests and did not seek children's views at all.[67] When analysed alongside observations of the lack of children's participation and the routine auditing of AI systems,[68] any use of children's data to inform policy requires more than merely collecting large volumes of data. Instead, children's data use should be governed and directed by whole-of-society approaches that prioritise stakeholder engagement, child-centred design principles and rights-based framing (see 5. Data protection and privacy, and 8. Child participation).

[60] Lundy (2007).
[61] Livingstone & Pothong (2025).
[62] Kasturi et al. (2025).
[63] Milosevic et al. (2023).
[64] Livingstone et al. (2024a).
[65] Bessant (2022).
[66] Department for Digital, Culture, Media & Sport [DCMS] (2021).
[67] Bessant (2022).
[68] UNICEF (2024).

2. Child rights-based AI governance by United Nations bodies and other international and regional organizations in accordance with international law

In the Joint Statement, child rights-based AI governance by UN bodies and others in accordance with international law encompasses recommendations to: (a) Mainstream children's rights across AI policy and deployment; (b) Create or capacitate dedicated structures and processes; and (c) Sustain guidance and ethical practices across the AI lifecycle.

International organisations occupy a hybrid position in AI governance for children. Unlike States, they lack direct enforcement power, but unlike businesses or civil society, they hold the convening authority and normative legitimacy to set the standards against which States and industry are measured. The Joint Statement's recommendations for this section seek to introduce internal provisions and elaborations to support States. Notwithstanding extensive substantive guidance published by regional and international organisations, the evidence points to further work needed to achieve these goals by international organisations themselves.

The UN High-level Advisory Body on Artificial Intelligence,[69] which recommended the creation of the Independent Scientific Panel on AI, highlights the need for child-centred AI governance through impact assessments and global interoperability. The report acknowledges limitations in UN authorities to oversee and coordinate AI-related activities for children, but also calls for the creation of a global fund to reduce the digital divide and provide the capabilities to use AI systems.[70] However, the global fund does not directly address children, which, if unaddressed in the final allocation of the funding, may risk deprioritising children within broader resourcing priorities.

The recent Preliminary Report by the UN's Independent International Scientific Panel on AI explicitly acknowledges AI harms to children.[71] However, children are grouped within a broader categorisation of 'Cultural & individual flourishing, autonomy and child safety', despite critiques that children's inclusion in similar categories (e.g., 'vulnerable communities') is insufficient to address their specific needs holistically.[72] This moves

[69] UN High-level Advisory Body on Artificial Intelligence (2024).
[70] Ibid.
[71] Independent International Scientific Panel on AI (2026).
[72] Collyer-Hoar & Rubegni (2025); Livingstone & Third (2017); UN High-level Advisory Body on Artificial Intelligence (2024).

away from the child-centred framing of the recommendations in the Joint Statement itself, as well as *General comment No. 25* and UNICEF's *Guidance on AI and children*.[73]

Child-focused organisations

The Committee on the Rights of the Child is the UN treaty body responsible for monitoring the realisation of children's rights in relation to AI as in all other domains. UNICEF also plays a key role in coordinating and operationalising programmes and safeguards for children and AI systems. UNICEF's *Guidance on AI and children* has undergone successive revisions, most recently into UNICEF's *Guidance 3.0*,[74] and extending into operationally specific territory such as business recommendations on AI chatbots and companions.[75] It can also be argued that the evolution of child rights impact assessments (CRIAs) to include telecommunications in the Child Rights Impact Self-Assessment Tool for Mobile Operators (MO-CRIA) serves as evidence of the revision and elaboration of existing guidance.

Evidence highlights the need for further efforts to match the speed and scale of AI innovation and access:

- The Council of Europe Steering Committee for the Rights of the Child has undertaken research efforts to improve AI frameworks and policies for children.[76] However, the Council of Europe's guidance on GenAI for freedom of expression, which addresses personalisation, manipulation, agency and opinion formation,[77] all directly relevant to children's evolving capacities (see 6. Best interests of the child, and 8. Child participation), does not mention children once across any of its four guideline areas. While the Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law (CETS 225)[78] does identify children as a distinct area of assessment, its operationalisation for child-specific risk remains a work in progress.
- A study applying UNICEF's nine AI-for-children principles to the design of a social robot for autistic children reported that the guidelines closely aligned with their user-centred approach, but were limited in addressing emerging risks in robotics and children's engagement with AI systems.[79]

[73] UNICEF Innocenti (2025).
[74] UNICEF Innocenti (2025).
[75] UNICEF Innocenti (2026).
[76] Aitken et al. (2025).
[77] CDMSI (2025).
[78] Council of Europe (2024).
[79] Lemaignan et al. (2021).

- It also remains to be seen whether the Joint Statement recommendations have been operationalised at scale. For now, as shown by Mahomed et al.'s[80] mapping of 13 transnational AI governance frameworks against children's rights, fewer than half even mention CRIAs, and only a small subset mandate them as binding.

Standards and implementation

While there is a growing body of international standards aimed at digital environments and AI systems, including in their interaction with children, there is little evidence about their operationalisation or ultimate benefits:

- The *IEEE standard for ethical considerations in emulated empathy*[81] demonstrates that multistakeholder and technical standards bodies are beginning to produce child-relevant instruments, alongside age assurance-focused standards such as ISO/IEC 27566-1:2025[82] and IEEE 2089.1-2024.[83]
- Similar efforts by the IEEE in 2025 on P2089.4 are being directed towards standards on actions for age-appropriate design across the AI lifecycle, including decommissioning, by building on the principles of IEEE 2089.[84]
- At the European Level, CEN and CENELEC[85] have mandated a number of similar service standards, including on age-appropriate digital services (CWA 18016),[86] alongside harmonising standards for the EU AI Act.[87]

While the UN is positioned as a means of connecting international organisations, such as the Global Partnership for AI and the OECD, there is little evidence of consensus on enforceable standards or on the formulation of the AI lifecycle itself. Nevertheless, a flexible approach to complex AI lifecycle governance may be necessary to ensure tech-agnostic, auditable oversight.[88]

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[80] Mahomed et al. (2025).
[81] IEEE (2024).
[82] International Organization for Standardization & International Electrotechnical Commission [ISO/IEC] (2025).
[83] Institute of Electrical and Electronics Engineers [IEEE] (2024).
[84] Active PAR 2025.
[85] CEN (European Committee for Standardization) produces technical standards for a range of products, and CENELEC (European Committee for Electrotechnical Standardization) produces voluntary frameworks in the electrotechnical field for member states.
[86] CEN-CENELEC (2023).
[87] See CEN-CLC/Joint Technical Committee 21https://jtc21.eu/? However, Gornet and Maxwell (2024) point to tensions in harmonising standards for the EU AI Act, including aligning global and regional standards and the lack of rights expertise for oversight bodies.
[88] Banifatemi & Yee Amezaga (2026).

AI governance processes have already begun building the machinery to implement the recommendations. The OECD's Hiroshima AI Process (HAIP) Reporting Framework, which provides a voluntary, standardised, publicly accessible mechanism for risk management, has already been used for reporting by major developers, including Amazon, Google, Microsoft, OpenAI and Anthropic.[89] However, the framework itself is not child-centred, and some of the companies reporting through this system have performed poorly on child rights audits.[90]

Even in the current digital landscape, within and through which AI systems are deployed, UNICEF found that only two out of the nine evaluated frameworks mentioned children.[91] The same report also noted that none of the AI companies had any meaningful disclosures on impacts on children.[92] Nevertheless, such analyses and reporting points to the role international organisations can play in determining guidance and tools. (Similar mechanisms set forth by international organisations have been discussed in 3. Responsibility, accountability and transparency.)

3. Responsibility, accountability and transparency

In the Joint Statement, the section on responsibility, accountability and transparency of child rights-based AI governance by States encompasses the following recommendations: (a) Protect child rights within national jurisdictions; (b) Businesses must protect, respect and remedy child rights; (c) Transparency across the AI lifecycle; (d) Accountability for child rights violations across the AI lifecycle; (e) Child rights audits and impact assessments by businesses; and (f) Involve civil society to support oversight, ethics, accountability.

Accountability frameworks often engage with concepts of answerability (where explanations for decisions and logic are provided in a transparent and accessible manner) and auditability (which concerns the traceability of decisions).[93] As such, there are links with other principles such as explainability, fairness, safety and data stewardship, while definitional constraints and measures vary.[94] Accountability and transparency obligations across the AI innovation lifecycle and value chain are increasingly acknowledged by States and businesses as principles, but remain

[89] Plonk et al. (2025).
[90] Common Sense Media & Stanford Brainstorm Lab (2025); Kurian (2025b); Livingstone & Pothong (2025).
[91] UNICEF Innocenti (2025). See also Helsper et al. (2025).
[92] Ibid.
[93] Leslie et al. (2024).
[94] See Novelli et al. (2024).

underdeveloped in their focus on children's rights and the responsive mechanisms to translate these principles into practice.

At the international level, UNICEF's Guidance 3.0 identifies transparency and accountability as core requirements alongside privacy, safety and non-discrimination.[95] Yet evidence suggests that child wellbeing and development, explainability and accountability, resource allocation and cross-stakeholder implementation are insufficiently operationalised, leading to the challenge where principles are 'explainable but unmeasurable, or advocateable but unauditable'[96] (see 1. Child rights-based AI governance by States, and 2. Child rights-based AI governance by UN bodies and others in accordance with international law organisations). Further evidence regarding difficulties in responsibility, accountability and transparency includes the following:

- Wang et al. found consensus on AI ethics for children, but the implementation of principles of transparency and accountability in particular remains limited and fragmented based on domains of use.[97]
- Existing human rights frameworks, including the UNCRC and *General comment No. 25*, may not be designed for meaningful procedure and interpretation of AI harms, pointing to a shaky landscape within which children's rights may be deprioritised.[98]
- Even where transparency mechanisms do exist, they are inconsistently implemented and insufficient to address safety concerns. A large-scale analysis of over 32,000 AI model cards found that among the most downloaded models, the sections addressing limitations and evaluation – arguably those most relevant to assessing risk to vulnerable users – had the lowest completion rates of any section.[99] These concerns are heightened in children's interactions with large language models (LLMs), as existing safety and transparency frameworks are insufficient in surfacing risks specific to children's cognitive and emotional development stages.[100]
- Other *ex-ante* measures, such as the age-appropriate design code[101] and the 5Rights Children & AI Design Code,[102] co-designed with children, can help AI project teams identify harms before they occur by engaging with children, caregivers and third-sector representatives, further supporting children's

[95] UNICEF Innocenti (2025).
[96] Meng (2025).
[97] Wang et al. (2024).
[98] McGregor et al. (2019).
[99] Liang et al. (2024).
[100] Jiao et al. (2025).
[101] ICO (2020).
[102] 5Rights Foundation (2025).

agency, right to information and their best interests. However, too often such frameworks and tools are not used: an audit of GenAI tools used in UK classrooms revealed a lack of transparency, accountability, safeguards and meaningful inclusion of children in the design process.[103]

- Existing digital products are often designed around commercial priorities, and companies are not obligated to disclose design trade-offs transparently to regulators or end users, such as children or guardians.[104]

This is particularly challenging when AI systems interact with children through chatbots and AI companions without supervision, guidance or oversight (see the examples in 4. Child safety). Yet, few jurisdictions have introduced legislation specific to AI companions. In the EU, such systems fall only incidentally within the AI Act, the Digital Services Act and the General Data Protection Regulation (GDPR), rather than being subject to a purpose-built accountability framework.[105] On the other hand, UNICEF calls for targeted attention to enforcing product-specific regulation, robust auditing, age-appropriate design and transparency mechanisms to protect children's interactions with chatbots and companions.[106]

Emerging directions

Audits alone cannot address the principles of accountability, especially when the system's functioning is blocked by trade secrets and business interests. Current transparency regimes do not mandate access beyond black-box, API-only access that rigorous audits require.[107] Nevertheless, there is a case for companies to share information about the logic behind system outputs, especially where there are risks to privacy and personal data. For instance, the European Court of Justice ruled that companies should share information with individuals in an accessible manner, as mandated by Article 15(1)(h) of the GDPR.[108]

The accountability gap is compounded by the structure of the AI value chain itself. When AI systems cause harm, it is structurally difficult to identify which actor within the project lifecycle (e.g., hardware suppliers, data modellers, developers) can be held responsible, a difficulty magnified by the opacity and technical complexity that characterise AI systems generally.[109] The EU's proposed AI Liability Directive, which

[103] Atabey et al. (2025).
[104] Pothong et al. (2024).
[105] Negreiro & Anaç (2026).
[106] UNICEF Innocenti (2026).
[107] Casper et al. (2024). This paper identifies white box (full access to the entire system including weights, gradients and fine tuning) and outside-the-box (including contextual development and deployment information such as source code, training data and documentation) access methods as the optimum for rigorous audits.
[108] See *CK v. Magistrat der Stadt Wien C-203/22 – Dun & Bradstreet Austria GmbH*.
[109] Botero Arcila (2025).

sought to address this problem of 'many hands', was withdrawn by the European Commission, leaving harmed individuals, including children, without a clear route to civil redress even as the adoption of AI in child-facing sectors grows.[110]

The UN Guiding Principles stress the right to effective access to remedy, recommend mixed methods of judicial proceedings alongside regulations, and call for anticipatory accountability.[111] Judicial proceedings suggest how to review the complexity of the AI lifecycle to ensure effective access to remedies.

In the case of *Megan Garcia v. Character Technologies*, the plaintiff's son died by suicide following extensive interactions with an anthropomorphic chatbot. By treating Character.ai's chatbot interactions as a 'product' under tort law and extending component-part manufacturer liability to Google for supplying the underlying LLM, cloud infrastructure and hardware, the court demonstrated a workable judicial pathway. This overcame the 'problem of many hands' identified as an obstacle to AI accountability.[112] The ruling also shows courts are willing to ground the duty of care in a foreseeable zone of risk where there is evidence of anthropomorphic design risks and children's vulnerability, including through internal research conducted by the defendants themselves.[113]

This suggests that documented foreseeability can anchor redress even where dedicated AI liability instruments, such as the EU's withdrawn AI Liability Directive, are absent. While courts have relied on existing provisions to determine the right to remedy, child rights-centred frameworks and their operationalisation are required to identify harms in advance, develop technical safeguards, and identify provisions for remedy and redress.[114]

4. Child safety

In the Joint Statement, the section on child safety encompasses the following recommendations: (a) Prevent and mitigate AI-facilitated violence against children; (b) Criminalise child sexual abuse and exploitation; (c) Require AI businesses' responsibilities; (d) Embed privacy-by-design and safety-by-design; (e) Design, develop and deploy child-safe algorithms; (f) Require safety-by-design for companion and emotion AI; (g) Responsible sourcing for training data; (h) Safeguard children in AI deployment for military purposes; (i) Ensure proactive safeguards and human oversight; (j) Provide child-friendly and confidential

[110] Ibid. See also Gornet & Maxwell (2024) on wider implications within EU standards.
[111] UN OHCHR (2021).
[112] Botero Arcila (2025).
[113] See Sayidali (2025).
[114] Wang et al. (2024).

reporting mechanisms; (k) Ensure specialised rehabilitation for child victims; and (l) Ensure specialised services for children in conflict with the law.

Technology-facilitated child sexual exploitation and abuse

GenAI tools have fundamentally transformed the risk landscape for child protection. The barriers imposed by significant computing power and expertise are now replaced by consumer-grade hardware using freely available open-source models, making the production of child sexual abuse material (CSAM) accessible to a far wider range of perpetrators.[115] The consequences are documented and growing:

- The US National Center for Missing & Exploited Children (NCMEC) received 4,700 CyberTipline reports related to AI-generated CSAM in 2023, rising to 1.5 million in 2025, with more than 158,000 images and videos categorised as AI-generated between January 2023 and December 2025. Not only is GenAI linked to grooming and sextortion, but AI is also being used to revictimise known survivors of CSAM by manipulating old abuse material.[116]
- The UK's Internet Watch Foundation (IWF) observed an alarming rise in child abuse videos from 13 in 2024 to 3,440 in 2025, further documenting 65% of these videos as Category A, that is, containing penetration, sexual torture and even bestiality.[117]
- Europol arrested over 25 individuals distributing AI-generated CSAM between February 2025 and July 2026.[118]
- Instagram was found to be running advertisements for CSAM in India that redirected users to Telegram channels hosting numerous videos.[119] Another report on Telegram found that of 83 bots linked to deepfake nudes, 23 were capable of generating CSAM.[120]
- a1.art, developed by Hong Kong designers and hosted on Chinese servers, downloaded nearly 10 million times on Google Play, gives users access to synthetic content that also features children.[121] As of the writing of this report, the app is still available and has a 4-star rating.

[115] UNICEF Innocenti (2026).
[116] NCMEC (2025).
[117] IWF (2026).
[118] Europol (2025, 2026).
[119] Arya (2026).
[120] Schurig et al. (2025).
[121] Bose et al. (2026).

- UNICEF, ECPAT (End Child Prostitution and Trafficking) and INTERPOL, through a population-weighted extrapolation based on data from across 11 countries, estimate that 1.2 million children have had their images manipulated into sexually explicit deepfakes using AI tools between 2025 and 2026, which, in some countries, is nearly one child per classroom.[122]
- Beyond content produced by adult offenders, AI-generated CSAM increasingly includes deepfake nudes created in peer-to-peer contexts, disproportionately targeting girls. South Korea reported a tenfold increase in sexual offences involving AI and deepfake technologies between 2022 and 2024, with teenagers constituting the majority of the accused.[123]
- The European Parliament's analysis of children and deepfakes confirms that the mental health impact of AI-generated CSAM can be as severe as that of CSAM for victims.[124] As summarised by UNICEF, 'these technological developments mean that a child's body, identity, and reputation can be violated remotely, invisibly, and permanently.'[125] This can happen without the child ever sending a message or even knowing it has happened, resulting in shame, stigma, social isolation and long-term emotional harm.[126]
- The Children's Commissioner for England's report on nudification tools found that 99% of sexually explicit deepfake images online depict women and girls, and that many nudification tools are trained specifically on female images.[127]
- Discriminatory design is embedded at the development level. The data for these models are often harvested and scraped from a number of social media platforms, including where parents upload children's photos,[128] and through the use of public datasets that have already shown a concerning lack of protection and anonymity.[129]

The International Centre for Missing and Exploited Children's (ICMEC) analysis of CSAM legislation across 196 countries found significant global disparities in legal protections, enforcement obligations and technology-related offences, with many jurisdictions' definitions of CSAM not yet covering AI-generated material.[130] For instance, the EU's AI

[122] UNICEF Innocenti (2026); Note: The range of prevalence across the 11 countries used for this evaluation was 0.4–4.3%.
[123] UNICEF Innocenti (2026).
[124] Negreiro (2025).
[125] UNICEF Innocenti (2026, p. 6).
[126] UNICEF Innocenti (2026).
[127] Children's Commissioner for England (2025).
[128] Birhane & Prabhu (2021).
[129] Thiel (2023).
[130] ICMEC (2023).

Act establishes transparency obligations on labelling synthetic content but does not ban deepfakes outright, while the proposed Child Sexual Abuse Directive seeks to expand criminal definitions to include CSAM in deepfakes.[131]

The International Panel on the Information Environment identified further challenges. These include the prevalence of detection-focused measures that do not disrupt systems enabling these harms; the limitations of tech-based tools when used without other safeguarding measures; the effectiveness of awareness without platform-focused accountability; and limited targeted interventions in the financial systems proven to facilitate these harms.[132]

Prosecuting AI-generated CSAM raises novel evidentiary and definitional challenges, since no child needs to be directly involved in the creation of the material, which complicates both victim identification and the application of existing criminal law.[133] Even where no identifiable victim exists, AI-generated CSAM content normalises the sexualisation of children, can fuel demand, makes it harder for law enforcement to identify children in urgent need of help, and potentially wastes already scarce investigative resources.[134] On the other hand, there are positive changes such as the UK's criminal laws being updated to ban the possession, use and distribution of AI tools for CSAM[135] alongside similar prohibitions under the EU AI Act.[136]

AI companions

The emergence of AI companion systems as a mainstream feature of children's and adolescents' digital lives presents a distinct and serious category of child safety risk. At least 128 AI-based companions apps were released by July 2025, amounting to a 700% increase since 2022.[137] Evidence of harm is mounting:

- A nationally representative survey of 1,060 teenagers in the US found that one in three had discussed important or serious matters with an AI companion rather than with a real person, and 31% reported that conversations with AI companions were as satisfying as, or more satisfying than, those with real-life friends.[138]
- Internet Matters' simulated-user testing across ChatGPT, Snapchat's My AI and Character.ai in the UK found that vulnerable children in particular used

[131] Negreiro (2025).
[132] Pothong et al. (2026).
[133] Andresen (2025); Kokolaki & Fragopoulou (2025).
[134] Ó Ciardha et al. (2026).
[135] Home Office (2026a).
[136] Negreiro & Anaç (2026).
[137] Andoh (2026); Perez (2025).
[138] Robb & Mann (2025).

chatbots for companionship and escapism, with 26% preferring chatbot conversation to talking to real people and 23% turning to chatbots because they felt they had no one else to talk to.[139]

- Another study on children aged between 1 and 17 in the US found that, beyond using GenAI chatbots for tasks, violence and sexual role-play were common in engagements with younger teens, who are particularly vulnerable to the personalised nature of the apps.[140]

Research on psychological and developmental harms confirms growing emotional dependence on AI companion systems. This includes greater personalisation, availability and trust in systems like Replika.[141] Another analysis of Replika found evidence of mental health harms, with users developing emotional attachment responses similar to those formed with human relationships.[142] However, attachment and perceived reduction in loneliness through interactions with AI companions vary, with personalised systems like Replika performing better than general-purpose systems like ChatGPT.[143]

For children with growing or developing emotional and social abilities, these design features paint a more worrying picture:

- An analysis of Hello Barbie found that even early conversational AI toys created relational dynamics with children that parents were unaware of and had not consented to.[144]
- Sycophantic AI systems (e.g., ChatGPT 4.0, Gemini or Claude) that validate and affirm users decrease prosocial intentions and promote dependence, with particular implications for children and adolescents whose social and emotional development is still forming.[145]
- Even before the rise of GenAI systems, parents reported that children were increasingly using a commanding tone in their interactions with Amazon and Google assistants, leading to theories that AI companions, which are constantly available and adaptive, can erode or negatively affect companionship and social skills.[146]

[139] Internet Matters (2025).
[140] Maheux et al. (2026).
[141] Brandtzaeg et al. (2022); Xie & Pentina (2022).
[142] Laestadius et al. (2024).
[143] de Freitas et al. (2026).
[144] Steeves (2020).
[145] Cheng et al. (2026).
[146] Hollingshead (2021); Malfacini (2025).

Moreover, AI companions disproportionately appeal to adolescents who are socially and emotionally vulnerable, precisely the group most at risk from unhealthy attachment dynamics:[147]

- Character.ai is currently facing litigation following the death of a 14-year-old user who had formed a dependent relationship with a role-playing AI avatar.[148] The same company has also been found to host chatbots that encourage disordered eating in young users.[149]
- Meta AI was found to inconsistently identify self-harm content and failed to consistently provide crisis intervention resources, and in some cases, the chatbot even independently raised suicide in subsequent conversations.[150] Reuters investigations observed that Meta chatbots were allowed to hold sensual conversations with users presenting as children.[151]
- Common Sense Media and Stanford Brainstorm Lab's risk assessment of AI companion platforms found that these products fail to meet basic safety standards and deliver explicit sexual, violent and harmful language, leading the organisation to recommend that no one under 18 should use them in their current form.[152]
- UNICEF recommendations for business on AI chatbots and companions note that high-risk companion products with emotionally adaptive, persistent and anthropomorphic features should not be permitted for child access, and that disclosure obligations should be mandatory at the first interaction.[153]
- One survey of LGBTQ+ young people found that 40% had used AI chatbots, a proportion notably higher among transgender and non-binary respondents, who described these interactions as sources of identity-affirming connection that were unavailable to them offline.[154]
- A letter from the California and Delaware attorneys general to OpenAI documented teen safety failures,[155] while the Federal Trade Commission

[147] Kim et al. (2025).
[148] See *Garcia v. Character Technologies*.
[149] Deep Lex (2025); Dupré (2024).
[150] Common Sense Media & Stanford Brainstorm Lab (2025).
[151] Horwitz (2025).
[152] Common Sense Media & Stanford Brainstorm Lab (2025).
[153] UNICEF Innocenti (2026).
[154] Parent et al. (2024).
[155] Difeliciantonio (2025).

(FTC) launched a formal inquiry into AI chatbots acting as companions, specifically in response to child safety concerns.[156]

- For children categorised or marginalised into other vulnerable groups, evidence points to the mediating effect of AI-enabled tools on children's identity and sense of community. The bidirectional influences of AI companions, with perceived benefits and documented risks, were found to be reciprocally dependent on patterns of use and existing social ties.[157]

While these findings suggest some capacity for AI to meet relational needs, they also raise substantial concerns both about whether AI companionship is filling a gap left by exclusionary offline environments, rather than complementing children's participation in human civic and social life as the recommendation intends, and about the problematic ways in which AI fills this gap.

Digital ecosystem harms

Recommendation algorithms and AI-powered marketing systems present a related but distinct harm. This is because many popular apps and platforms used by children use AI tools and chatbots to interact with children, target advertising and increase engagement.[158]

- An analysis of YouTube content aimed at young children found that recommendation algorithms systematically surface disturbing and inappropriate content to children despite the platform's safety policies.[159]
- Research on AI-driven advertising found that younger users and those from lower socioeconomic backgrounds are disproportionately exposed to algorithmically personalised commercial messages.[160]
- Analysis of TikTok's content recommendation governance found significant gaps in both privacy protection and algorithmic accountability for child users.[161]

Age-gating measures designed to protect children from harmful content may simultaneously restrict their access to information and civic participation, yet evidence

[156] FTC (2025).
[157] Sun & McDaniel (2026). This points out how adolescents with strong social ties can enhance their interactions with AI companions while those facing difficulties may rely on technology to fulfil their emotional needs, thus leading to higher dependency.
[158] Radesky et al. (2022).
[159] Papadamou et al. (2020).
[160] Sáez-Linero & Jiménez-Morales (2025).
[161] Zhao et al. (2025).

on the efficacy of such measures in limiting or preventing harms is limited. Moreover, evidence shows that these methods aimed at child protection may themselves generate harms such as discriminatory or biased outputs or privacy issues:[162]

- A test of 32 AI models for child safety found that several failed to consistently apply child-appropriate safeguards, even when tested under clearly child-facing conditions.[163]
- Age-estimation systems have also been found to fail to perform consistently across demographic groups and ages.[164]
- The Australian eSafety Commissioner's position statement on GenAI notes that current AI systems lack the contextual awareness needed to reliably distinguish child users or apply age-appropriate safety controls without explicit design commitments to this goal.[165]
- NSPCC analysis confirms that GenAI introduces novel safety challenges that existing content moderation frameworks, developed primarily for static user-generated content, are not equipped to address.[166]

Public sector AI harms

Within an ecosystem where existing measures, guidance and regulation have still permitted the proliferation of harmful AI systems, it is important to consider the effects of using such systems in social care and public service delivery:

- An analysis of children's social care in the UK found significant ethical risks in AI-assisted decision-making, including discriminatory outcomes, inadequate human oversight and limited transparency in predictive systems used in child welfare.[167] Moreover, Black families in the UK were also found to be disproportionately impacted by the use of automated decision-making systems in welfare, benefits and housing applications, wherein system use and documentation is insufficiently addressed by government.[168]

[162] Forland et al. (2024).
[163] Herlin & Pavlakis (2026).
[164] Guest et al. (2025).
[165] eSafety Commissioner (2023).
[166] NSPCC (2025).
[167] Leslie et al. (2020).
[168] Andrews et al. (2026).

- The use of self-learning black box models by Dutch authorities to determine childcare benefits was found to go against principles of accountability and increase risks of differential treatment based on ethnicity.[169]

- A review of early adoption of data analytics in local authority services found that the use of such systems frequently outpaced governance frameworks and professional guidance, with child protection services among the most sensitive deployment contexts.[170]

- The application of AI systems in military and conflict contexts poses risks to children that are among the most severe and least governed in the current landscape. Human Rights Watch documented that Israeli military use of digital targeting tools in Gaza created risks of civilian harm, including to children, through AI-assisted targeting systems operating with limited human oversight.[171] More widely, there has also been documented harms from Meta algorithms that promoted violence against Rohingya communities in Myanmar where children were then forced to seek refuge in other countries.[172]

- UNICEF analysis of children in cyberconflicts (operations conducted by both State and non-State actors in cyberspace) establishes that children are disproportionately affected when AI-enabled systems are used in conflict environments, both as direct targets and as indirect victims of infrastructure disruption.[173]

- Research by the International Committee of the Red Cross (ICRC) highlights that children's data collected for humanitarian AI ecosystems is particularly vulnerable to misuse, and that existing international humanitarian law frameworks do not yet provide adequate guidance on the use of AI in contexts affecting children.[174]

The evidence base on multisectoral victim services and on children in conflict with the law who are affected by AI systems is weak. This may, however, point to a critical gap in research and policy attention, especially with increasing use of AI systems in public services such as law enforcement, judicial decision-making, service delivery or welfare and protection.[175] Nevertheless, there are organisations such as UNJUST CIC in the UK that have recorded and produced research and toolkits to support Black youth who are

[169] Amnesty International (2021).
[170] Carter et al. (2024).
[171] Human Rights Watch (2024a).
[172] Amnesty International (2022, 2025).
[173] Pauwels (2022).
[174] Radu & Olliaro (2023).
[175] Amnesty International (2021); Eubanks (2018); Keddell (2019).

subject to over-policing and surveillance as their personal data feeds into the Gangs Violence Matrix and may be at risk of automated surveillance; following their legal action, the database was revoked in 2021, noting data privacy harms.[176]

Safety measures should include AI literacy

UNICEF documents significantly higher anxiety, suicidal ideation and self-harm risk among children who experience online sexual abuse or bullying, a pattern consistent across 21 countries, reinforcing that safety strategies should target specific harmful experiences and design features rather than overall exposure.[177]

In addition, empowering children to critically engage with AI-enabled technologies through capacity-building, digital literacy and participation in system design is crucial:[178]

- Children who are supported in understanding how recommendation systems work are better equipped to critically evaluate content, pointing to AI literacy as a complement to design-level safeguards.[179]
- Others recommended that AI literacy include programmes for 'metacognitive embodiment', which, as a holistic method, supports children's sensemaking about AI.[180]
- As GenAI and deepfakes proliferate, children's ability to identify deepfakes varies between age groups, with young people developing informal strategies to navigate them in the absence of critical media literacy.[181]
- A review of fake news and disinformation research finds that social media platforms' own recommendation algorithms amplify false content, meaning children are asked to develop critical judgement within an information environment structurally weighted against them.[182] At the same time, young people are often engaged in social movements, both online and offline, where they face infrastructural challenges such as internet shutdowns as well as targeted harassment based on gender, thereby leading to them being most affected by information integrity despite being capable of driving change through civic participation.[183] On the other hand, where some

[176] See Williams (2018); Erase The Database Toolkit: https://drive.google.com/file/d/1w8JQHOL0nIGsw6H3UUDYpNgJ9DZD_DIq/view
[177] UNICEF Innocenti (2025).
[178] Kurian (2025b).
[179] Starks et al. (2024).
[180] Greenwald et al. (2024).
[181] Farooq et al. (2024); Lao et al. (2025).
[182] Aïmeur et al. (2023).
[183] UN Department of Global Communications (2026).

children recognise misinformation and propose strategies[184] research also suggests they may not sustain critical evaluation of content over time.[185]

Problematically, digital skills acquisition has been found to be determined by prior social and educational resources,[186] perceived individual and social discrimination, [187] and techno-solutionism, which overlooks contextual needs and wants.[188] Thus AI literacy is both vital but not a panacea, especially when digital education policy discourse itself can construct differing and conflicting visions of equity and of who is responsible for achieving it, as discussed in a study across Argentina, Mexico, South Africa, Botswana, Germany and Sweden.[189]

Emerging directions

Despite the global recording of AI-enabled harms to children's safety across the AI lifecycle, efforts are underway to confront and mitigate these harms. On CSAM and exploitation, UNICEF identifies a cluster of policy priorities: updating national criminal laws to cover AI-generated material, requiring CRIAs across the AI value chain and lifecycle, mandating pre-release safety testing for open-source models, and embedding safety-by-design at every stage of AI development.[190] Similarly, the 4Cs framework offers a methodology to surface technology-facilitated risks based on content, contact, conduct and contract in a tech-agnostic and relational framing.[191] This framework was used to evaluate child safety policies in Australia, Canada and the UK, and found consensus among countries in their prioritisation of stakeholder input and multilevel policy approaches to better identify and respond to children's harms.[192]

There are concerns that the framing of existing national frameworks for children's protection is not meaningfully directed at children's safety. For instance, India relies on the Young Persons (Harmful Publications) Act of 1956, along with other laws such as the IT Law, to hold companies criminally responsible for 'obscene' imagery. However, critics have argued that the framing of this law through the lens of 'obscenity' overlooks the fundamental issue of consent in AI-generated imagery and the subsequent harms to children's dignity. Such an approach, which responsibilises or even criminalises children, goes against the Luxembourg Guidelines, harms victims of such crimes, creates barriers

[184] Tamboer et al. (2023).
[185] Tamboer et al. (2022).
[186] Helsper & Eynon (2013).
[187] Mascheroni et al. (2022).
[188] Dussel (2020); Mascheroni et al. (2022).
[189] Ferrante et al. (2024).
[190] UNICEF (2025).
[191] Livingstone & Stoilova (2021).
[192] Jang & Ko (2023).

to reporting, and overlooks contextual considerations, such as self-generated content produced under coercive circumstances.[193]

The NCMEC's Take It Down service, which allows individuals to anonymously request removal of explicit images from participating platforms, demonstrates a practical redressal mechanism that is both technically achievable and scalable at relatively low cost.[194] One study engaged with stakeholders, including educators, platforms, law enforcement, legislators and victims themselves, to identify consensus around three actionable priorities: clearer legal definitions, stronger industry accountability, and dedicated support services for children affected by AI-generated CSAM.[195] The ICMEC model legislation framework for CSAM across 196 countries provides a technical basis for legislative harmonisation that could be extended to AI-generated material.[196]

Regarding children's interactions with chatbots and AI companions, multiple measures are in development:

- UNICEF recommendations for business on AI chatbots and companions represent comprehensive and operationally specific guidance, covering board-level governance, continuous human rights due diligence, risk tiering, age-appropriate design, crisis protocols, data governance and child-friendly incident reporting.[197]
- The IEEE standard on ethical considerations in emulated empathy (7014-2024)[198] provides a technical standard that specifically addresses the ethics of AI systems that simulate empathy, and is directly applicable to companion AI deployed in child-facing contexts.
- California's Senate Bill 243 (2025),[199] discussed in 5. Data protection and privacy, is an early example of jurisdiction-specific legislation mandating transparency, safety protocols and crisis intervention for AI companion systems accessed by minors, providing a legislative model that other states and jurisdictions could adapt.
- The FTC's formal inquiry into AI chatbots acting as companions signals that regulatory enforcement attention in this area is intensifying.[200]

[193] van der Spuy et al. (2024).
[194] NCMEC (2025).
[195] Grossman et al. (2025).
[196] ICMEC (2023).
[197] UNICEF Innocenti (2026).
[198] Institute of Electrical and Electronics Engineers [IEEE] (2024).
[199] Companion Chatbots, Cal. Bus. & Prof. Code § 22601 et seq. (2025).
[200] FTC (2025).

It is important to highlight measures aimed at platforms *writ large* that often host or provide chatbots, companions and tools to generate content. The UNICEF Australia *Algorithmic kids* report and the Responsible AI framework, among others, look to shifting from reactive content moderation to proactive safety-by-design and embedding child safety requirements at the development stage rather than applying them as post-hoc filters.[201] Similarly, as elaborated in 3. Responsibility, accountability and transparency, there is a growing call for age-appropriate design and child-friendly ecosystems for transparency, accountability and safety.[202]

By contrast, as of today, in response to technology-facilitated harms, a growing number of States have implemented or passed bans on social media access for minors – including Australia, Indonesia, Malaysia, France and Turkey – with many others, including the UK, Denmark, Norway, Spain, Germany and several Indian states, actively considering similar measures.[203] However, governments have largely adopted a 'responsibilisation' strategy that pushes age-verification obligations onto platforms, resulting in widespread deployment of measures that are either privacy-invasive or easily circumvented.[204] A similar logic now seeks to introduce age-based restrictions on children's access to AI.

While restrictive measures may reduce harmful exposure and support mental health,[205] they can also constrain children's agency, access to information and freedom of expression, as evidence suggests prohibitions often have limited practical effect on children's actual screen time and access, and can also risk amplifying existing loss of trust between children and the institutions restricting them.[206] The Council of Europe's guidance note on GenAI and freedom of expression provides a rights-based framework for balancing child protection with freedom of expression obligations, offering States a principled basis for proportionate legislative action.[207]

Finally, there is a growing call to operationalise existing global and national frameworks to expand their scope for child-specific mechanisms. This is most notable when considering children's safety in conflict zones and critical humanitarian incidents where children may face direct risks of injury or death and/or indirect harms from loss of infrastructure, access to food and water and play in their childhood. The ICRC's humanitarian AI framework and Pauwels' analysis for UNICEF Innocenti both call for explicit extension of international humanitarian law principles to AI systems operating

[201] UNICEF Australia (2025); Grimes et al. (2024); UNICEF Innocenti (2025).
[202] See 5Rights Foundation (2025); ICO (2021).
[203] See https://social-media-age-tracker.onrender.com
[204] Jarvie & Renaud (2024).
[205] eSafety Commissioner (2026); Haidt (2024).
[206] Dahl et al. (2018); Yeager et al. (2017).
[207] CDMSI (2025).

in conflict environments, with specific attention to the protection of children's data in humanitarian AI ecosystems.[208]

5. Data protection and privacy

In the Joint Statement, the section on data protection and privacy encompasses recommendations to: (a) Strengthen data protection regulation; (b) Ensure data minimisation and informed consent; (c) Protect biometric data; and (d) Prevent commercial exploitation.

Data, a key component in the lifecycle of AI systems, can directly contribute to misleading and harmful outputs. These harms are further compounded when data is scraped across a variety of datasets, including information from the internet, in the development of GenAI tools. The scale of data extraction occurring in child-facing environments gives cause for particular concern:

- Analysis of 45 digital tools and services used by teachers in Danish public primary schools found that these tools collect significant volumes of student data, deploy it for both functional and commercial purposes, and distribute it to a long list of third-party services, most of which are unknown to the children or families concerned.[209]
- A mapping of applications for babies similarly reveals that apps designed for very young children and their caregivers routinely collect data well beyond what is necessary for the application's stated purpose, with minimal transparency about secondary uses.[210]

The use of cognitive and emotional AI systems in educational settings raises similar concerns (see 4. Child safety). This is particularly important given the increasing datafication of childhood following the Covid-19 pandemic and the educational uses of digital platforms[211] and healthcare.[212] AI systems capable of capturing affective and biometric signals from children in classroom environments introduce forms of data extraction that existing data protection frameworks were not designed to address.[213]

These findings highlight a structural concern where children's attention, behaviour and emotional responses have become a commercial resource, harvested before adequate

[208] Pauwels (2022); Radu & Olliaro (2023).
[209] Lai et al. (2024). While the apps and websites used here do not necessarily include AI/ML capabilities, the evidence points to wider concern about data extraction that can then be used to train AI systems, including by companies like Facebook, Google and Microsoft, which are named in this study.
[210] Langton (2024).
[211] Barassi (2020); Mascheroni et al. (2022).
[212] Berman et al. (2020).
[213] McStay (2020).

protection frameworks are in place, and without the informed consent that both law and rights norms require.[214] Further, there is significant interest in children's data to train AI models for diagnostics and treatments.[215] While scoping research identified risks associated with AI systems in paediatrics, including data biases and unreliability, it does not address children's consent and participation.[216]

Personalised advertising exacerbates this harm by targeting children based on inferred characteristics:

- Evidence suggests that younger users and those from lower socioeconomic backgrounds are disproportionately exposed to algorithmically personalised commercial messages, including fast loans and gambling, particularly targeting young boys.[217] This echoes pre-AI advertising, which looked to capitalise on children's emotional, social and sensory needs while reimagining cultural identities to target marginalised communities, such as the linking of drugs and violence with inner-city Black children in advertisements capturing the idea of being 'cool' to white children.[218]
- Similar utilisation of cultural identity formation – including collectivist nature and peer-influenced consumption desires – was observed in targeted advertising for adolescents aged between 15 and 19 in Indonesia.[219]
- The adtech ecosystem extends such commercial data extraction to children across platforms, as detailed profiling and targeting occur largely outside the visibility of children, caregivers or regulators.[220] When parents and caregivers are considered, it is because children influence household spending and contribute to lifetime brand loyalty.[221]

The storage of children and young people's data raises further concerns when robust data security measures are not implemented and routinely reviewed:

- In the UK, the Information Commissioner's Office (ICO) found that many EdTech providers were neither fully aware of nor compliant with children's data protection.[222]

[214] Archbold et al. (2021); Lai et al. (2024); Leijten & van der Hof (2025); UN Committee on the Rights of the Child (2021).
[215] Ramgopal et al. (2023); Tennant et al. (2024).
[216] Park et al. (2025).
[217] Sáez-Linero & Jiménez-Morales (2025).
[218] Schor (2004).
[219] Windarsari (2025).
[220] Archbold et al. (2021).
[221] Clark et al. (2020).
[222] ICO (2026).

- In the US, the FTC ordered Illuminate to improve their data protection measures after the company failed to implement security controls and waited nearly two years before alerting schools to a data breach which affected over 300,000 students.[223] This case reveals how, without mandatory, enforceable data regimes for children, there is a risk that auditing and governance mechanisms will be treated as voluntary, with protections introduced only after impact.

- Similarly, there have been an increasing number of data breach incidents where children's data was released to third parties without consent, identified in countries including South Africa, Nigeria and Egypt.[224]

Children's data across the AI lifecycle

The protection of children's data is particularly sensitive when we consider foundational AI models, including LLMs and GenAI, where data is often scraped across the internet without transparency:

- Human Rights Watch found Australian children's photos, including those of Indigenous children and practices, in the LAION-5B dataset,[225] which has been used to train AI models such as Midjourney and Stable Diffusion.[226]

- Thiel found hundreds of instances of CSAM in the same dataset.[227] This further demonstrates that protections such as training data records and oversight are necessary for children's data and for preventing AI-generated CSAM[228] (see 4. Child safety).

- Research has also found children's photos, including infants and babies, alongside misogynistic and harmful imagery in the ImageNet Large Scale Visual Recognition Challenge 2012 (ILSVRC-2012) database.[229] Given that children's photos are often uploaded by family members and associates across social media platforms, it is important to address caregivers' awareness of how their uploaded photos may be used to train models when terms of service do not meaningfully cover privacy and consent.[230]

[223] FTC (2025).
[224] Digital Rights Alliance Africa & CIPESA (2025).
[225] Schuhmann et al. (2022).
[226] Human Rights Watch (2024b).
[227] Thiel (2023).
[228] Ibid.
[229] Birhane & Prabhu (2021).
[230] Mancosu & Vegetti (2020).

- Research has found that identifiable images of children are still used in large datasets and that post-impact removal is insufficient owing to inconsistencies, biases and the absence of robust bias assessments.[231]

Against this backdrop, it is important to consider children's data stewardship across the AI innovation lifecycle:

- In the US, for instance, there are state-level laws often focusing on chatbots and AI agents, as evidenced by Illinois' Wellness and Oversight for Psychological Resources Act, which prohibits mental health professionals from using AI systems in care delivery, and California's Senate Bill 243 (2025)[232], which identifies limitations and protections for children's use of chatbots and AI companions.

- In the EU, the European Data Protection Board has clarified that where personal data is processed unlawfully in the development phase of an AI model and retained in the model, the unlawfulness of that initial processing may impact the lawfulness of subsequent deployment, and supervisory authorities are empowered to order corrective measures including erasure of the dataset or the model itself.[233]

However, there is a gap in the introduction and operationalisation of global frameworks protecting children's data use in AI systems where data extraction is prioritised and incentivised without sufficient consideration of principles of data minimisation. Currently, only UNICEF *Guidance 3.0* directly mentions the protection of children's data in training LLMs. However, it can be argued that existing guidance on children's privacy and data protection, as captured in *General comment No. 25* and UNESCO guidelines on implementing recommendations[234], provide a reasonable foundation to guide State policy.

Limitations of data protection and age verification measures for children

Noting that significant efforts towards data protection have largely been led by the EU, the current ecosystem still remains fragmented, creating gaps in child-centred frameworks. Article 25 of the GDPR mandates data protection by design and by default, establishing child-centred data privacy as a requirement before deploying data-driven AI systems. The UK's Age Appropriate Design Code operationalises this principle by requiring that services likely to be accessed by minors treat the best interests of the

[231] Caetano et al. (2025).
[232] Companion Chatbots, Cal. Bus. & Prof. Code § 22601 et seq. (2025).
[233] European Data Protection Board (2024, paras. 114, 122–123).
[234] UNESCO (2023a); UNESCO (2023b).

child as a primary design consideration.[235] Similarly, Nigeria's Data Protection Regulation (2019) calls for child-friendly privacy policies alongside consent.[236] These instruments demonstrate that legislative frameworks can shift the burden of protection upstream, away from children and parents and onto developers and deployers. However, there are a number of issues with these current approaches.

An analysis of the EU's GDPR, the Digital Services Act (DSA), the Unfair Commercial Practices Directive and the AI Act concluded that existing protections operate primarily in theory, despite a decade passing since Article 29 of the Working Party first suggested preventing the commercial profiling of children.[237] Neither the DSA nor the AI Act meaningfully close this gap. Children, therefore, remain exposed to commercial data practices that the UN Committee on the Rights of the Child has explicitly urged States to prohibit, as stated in para. 68 of *General comment No. 25*.

The consent-based frameworks on which data protection regimes principally rely were not built with children in mind. Across jurisdictions, contract law continues to treat minors as possessing limited or no independent legal capacity, while digital platforms routinely ask children to agree to terms of service with the same formal mechanism applied to adults.[238] Under the GDPR framework, parental consent is required for children below the applicable age threshold, but the practical implementation of this requirement varies considerably across Member States; the mechanisms used to verify age and obtain meaningful parental consent are frequently inadequate to the task.[239] Similar approaches have been adopted by India, Algeria, Brazil, Vietnam and others, in which parents or guardians determine consent for data use and deletion.

Beyond implementation limitations, the parental consent model faces a deeper structural challenge. The UNCRC principle of evolving capacities (Article 5) and *General comment No. 20* (2016) establish that children's developing autonomy cannot be captured in a binary consent threshold.[240] Data collected in early childhood is retained and deployed in AI systems the child will encounter throughout their life; yet the parental consent given at that point does not evolve as the child does, and nor does it empower children to understand and consent to the use of their data.[241]

Age-gating and age-verification measures, introduced to limit harms from data use, raise their own challenges:

[235] ICO (2021).
[236] Nigeria Data Protection Regulation (2019).
[237] Leijten & van der Hof (2025).
[238] Gangwar (2022).
[239] Caglar (2021); Margaletić & Preložnjak (2023).
[240] Committee on the Rights of the Child (2016).
[241] Milkaite (2021).

- Tech Policy Press has released a tracker analysing social media age restrictions worldwide. While Australia, China, Indonesia, Malaysia, the United Arab Emirates (UAE) and Vietnam have implemented laws that prohibit children from accessing social media platforms (with variations based on age or through a tiered approach), France, the UK and Türkiye have passed similar laws, awaiting implementation in the coming months and years. Others still, including Albania, Egypt, Japan, India, Nigeria and South Africa, are discussing these measures, while the Philippines, Portugal, the US, Thailand and Denmark, among others, are considering draft measures.[242]

- Restrictive age-based measures designed to shield children from harmful data practices can simultaneously constrain their right to access information and their freedom of expression online.[243]

- Age-verification systems raise concerns about surveillance, the potential for privacy-invasive identification practices and the absence of child-centred design principles in the verification mechanisms themselves[244] (see 4. Child safety).

- Children are already using AI systems, such as Microsoft Copilot, without prior impact assessments, and companies, against GDPR regulations, are harvesting data for commercial use.[245]

Such age assurance measures require additional safeguards, following the UNCRC, to protect their rights to privacy (Article 16), information (Article 17), non-discrimination (Article 2), and participation (Article 12), while ensuring their freedom of expression (Article 13) through policies centred on their best interests (Article 3) and evolving capacities (Article 5).[246]

However, current approaches underestimate children's own stake in these questions and fail to engage them as participants in the frameworks designed to protect them.[247] Children themselves, when engaged directly, have demonstrated a capacity to reflect on privacy and data protection and express clear preferences for how their data should be handled. Research adopting a child-centric approach to data protection found that children want to access information about data use, and that they attach genuine value to the protection of their personal information.[248] This problem is compounded for children with intellectual disabilities, for whom standard data protection information

[242] Jahangir & Hendrix (2026).
[243] Nash (2021).
[244] Negreiro & Anaç (2026).
[245] Atabey et al. (2025).
[246] Livingstone et al. (2024b).
[247] Mathiyazhagan & La Fors (2023); Pothong et al. (2024).; Wang et al. (2024).
[248] Milkaite et al. (2021).

and consent mechanisms are particularly inaccessible, further advocating for inclusive data protection requirements embedded into the design through anticipatory accountability mechanisms.[249] On the other hand, there are initiatives developing creative methods to support the best interests of the child through transparent engagement with children and accessible consent materials on project webpages where resources may be limited.[250]

Emerging approaches

Beyond European and Global North data governance regimes, there is rising interest in global data justice movements where data governance is determined by community-oriented approaches over individual protections. In Aotearoa New Zealand, the Māori Data Sovereignty framework views data as a living taonga, or treasure, that should be governed by Māori. When reviewing OpenAI's Whisper model, which was trained on thousands of hours of te reo Māori words without community consultation, scholars found a number of errors that were statistically reduced after an audit and fine-tuning through the Kaitiakitanga License Framework.[251] Such community-centred perspectives, integral to children raised within these marginalised and minoritised communities, should be integrated as key elements of data stewardship. Furthermore, public trust is also necessary to support culturally sensitive data stewardship, as Wild et al., in their study of Māori and non-Māori children and families, notably highlighted the need to overcome eroded relationships from the treatment of Māori by the New Zealand government.[252]

UNICEF highlights the importance of improving data infrastructure in the Global South and of adopting federated data approaches to protect children against cross-border data flows.[253] Such approaches embed governance by design and ensure sensitive children's data is stored locally, grounded in transparency and accountability mechanisms, and protects data through differential noise, thereby allowing for public sector bodies to safely use data for collaboration and policy instructions.[254]

Similarly, the Digital Rights Alliance Africa and Collaboration on International ICT Policy for East and Southern Africa (CIPESA) advocate holistic change through better digital literacy and public awareness alongside more robust child-centred data protection frameworks across countries in Africa.[255] These considerations are particularly

[249] van Cappelle (2023).
[250] Beauvais & Knoppers (2021).
[251] Te Hiku Media (2023).
[252] Wild et al. (2023); See also Wild et al. (2021).
[253] UNICEF Innocenti (2026).
[254] Saurabh (2025).
[255] Digital Rights Alliance Africa & CIPESA (2025).

important as children, a large majority of whom currently live in the Global South, increasingly rely on and are impacted by uses of AI technologies.[256]

6. Best interests of the child

In the Joint Statement, the section on the best interests of the child encompasses the following recommendations: (a) The best interests of the child must be determined; (b) Ensure full and holistic enjoyment of children's rights; and (c) Age-appropriate, child-friendly AI design and deployment.

Article 3(1) of the UNCRC emphasises the importance of 'the full and effective enjoyment of rights … and the holistic development of the child' as a primary consideration when states and other responsible actors make decisions that affect children.[257] The best interests of the child is a 'dynamic concept that requires an assessment appropriate to the specific context';[258] at the same time, 'the interpretation of a child's best interests must be consistent with the whole Convention'.[259]

The best interests of the child principle has been open to contestation and misunderstanding. Hence, we first clarify that, as explained in *General comment No. 20*, the principle has three dimensions:

> ***The right of the child to have his or her best interests taken into account as a primary consideration is a substantive right, an interpretative legal principle and a rule of procedure, and it applies to children both as individuals and as a group.[260]***

Equally important, and too often misunderstood, is that the best interests of the child is not an overall summary of what's good for children or their wellbeing, but rather, a decision-making standard to be applied in cases where:

> ***there are competing potential responses for upholding children's rights, or when it appears that children's rights are in tension, or the declared interests of other parties may conflict with those of children.[261]***

In relation to the digital environment, including AI, such tensions arise when there appears to be a conflict between children's participation and protection, or their safety and privacy or, indeed, when commercial interests threaten to override children's best

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[256] UNICEF Innocenti (2026b).
[257] *General comment No. 14* (UN Committee on the Rights of the Child, 2013, para. 51).
[258] *General comment No. 14* (2013, para 1).
[259] *General comment No. 8* (UN Committee on the Rights of the Child, 2006, para. 2).
[260] Committee on the Rights of the Child (2013, para. 6).
[261] Livingstone et al. (2024a).

interests. In such cases, states should turn to UNCRC guidance, commentary and related jurisprudence.

Businesses, meanwhile, should not determine the best interests of the child; this is the role of the State. Rather, it is the State's obligation to guide businesses in how to protect, respect and remedy children's rights, including in relation to AI. Businesses should also bear in mind that 'the interpretation of a child's best interests must be consistent with the whole Convention',[262] recognising but not exploiting[239] the necessity for best interests to be treated as a 'dynamic concept that requires an assessment appropriate to the specific context'.[263] This conceptual flexibility provides a dynamic space for interpreting and substantiating children's rights in the design, development and deployment of AI systems.

However, current evidence details a number of issues in translating these principles into practice. For example, Savirimuthu argues that data protection regimes have effectively reduced the best interests principle to a parenthetical concern, subordinate to a complex legal regime and to consent architectures built around parental authority rather than the child's own evolving agency.[264]

Relation between best interests and evolving capacities

The concept of evolving capacities is particularly important in understanding both the risks and opportunities for children using AI systems. The UNCRC principle of evolving capacities (Article 5) and *General comment No. 20*[265] establish that children's developing autonomy cannot be captured by a binary, one-off consent threshold. UNICEF further elaborates how:

> ***as children acquire greater competencies, the need for protection diminishes, and their capacity to engage more fully in decisions that affect them increases… The concept also reflects that children mature at different rates depending on context, culture and lived experience, and their ability to make decisions develops gradually and non-sequentially across various domains such as family life, education, health and civic participation, among others.[266]***

As such, interaction with AI systems should be scrutinised through a child rights lens:

[262] Ibid.
[263] General comment No. 14 (UN Committee on the Rights of the Child, 2013, para. 11, p. 4).
[264] Savirimuthu (2020). See also van der Hof & Malgieri (2022).
[265] UN Committee on the Rights of the Child (2016).
[266] UNICEF Innocenti (2026a, p. 7).

> ***Because of children's evolving capacities, AI rules and systems should be age appropriate, recognising the particular protection needs of younger children while empowering adolescents' agency as they mature. In practice, this means treating childhood not as a single user profile but adapting to developmental stages.***[267]

Yet data collected in early childhood is retained and deployed in AI systems that the child will encounter throughout their life, while the parental consent given at that point does not evolve as the child does.[268]

In practice, this has been documented in the Dutch AI risk profiling system of children under the age of 12, wherein a system developed for child protection in fact exposed children to algorithmic risk scores with limited legal remedy and no mechanism for the profile to be revised or 'forgiven' as the child developed.[269] This study further highlights how such systems may use correlations based on other systems' neighbourhood-wide risk assessment scores, thereby increasing the risk of identification.[270]

Best interests and AI-related harms

Best interests, as the Joint Statement defines it, relates not only to safety but also to the child's 'physical, mental, spiritual, moral, psychological and social development', which current AI design practice often fails to consider:

- Commercial design practices that value behavioural patterns for greater gameplay include gambling and loot-box features, which may interfere with children's right to a playful and healthy environment.[271] These concerns may then be compounded with the increasing use of AI-based gameplay, which, by nature of user engagement tactics, lead to addictive behaviours[272] (see 4. Child safety for other examples).
- The Australian eSafety Commissioner found that none of the four major AI companion products examined had meaningful age assurance in place, relying instead on self-declared age at sign-up, while also failing to refer children to appropriate services.[273]

As children do not filter their interactions with chatbots and robots as adults do, there are particular harms to their development owing to their attribution of mental states to

[267] Ibid. pp. 101-102.
[268] Milkaite (2021).
[269] Malgieri & Niklas (2020).
[270] Ibid.
[271] van der Hof et al. (2022).
[272] Mihai et al. (2025).
[273] eSafety Commissioner (2025).

non-living technologies.[274] This underlying 'empathy gap' is a design flaw that Kurian describes as LLMs simulating empathy convincingly enough to draw children into personal disclosure without the genuine understanding needed to respond safely.[275] Even where children are unaware of the harms or lack the critical literacy to engage with such AI-enabled toys, there is evidence of wider harms where even parents are unaware of the capacities and limitations,[276] or may not have consented to such relational conversations.[277] This directly reveals how current design practices go against the recommendation's requirement that system design and capabilities be communicated in a language that children and their parents or guardians can understand.

Children themselves, as agents capable of sharing their hopes, interests and needs, require greater participation in both the design and governance of AI systems. Indeed, children want access to information about how their data is used, and attach genuine value to its protection; this is evidence that children can meaningfully hold and express views on matters affecting them when asked in an accessible way.[278] Yet, data protection information and consent mechanisms remain particularly inaccessible for children with intellectual disabilities,[279] thereby further serving as a reminder that 'holistic development' and 'due weight' to children's views cannot be applied as a uniform standard without attention to varied needs and capabilities.

Despite children's demonstrated capacity, current governance structures rarely engage:

- Workshops with 30 designers across a range of companies found that even designers who understood children's rights frameworks in principle faced competing professional and commercial priorities that limited their ability to embed those principles into practice.[280]
- For governments and oversight bodies, the prioritisation of child-centred governance through CRIAs, meaningful participation and targeted financing is limited or overlooked entirely.[281]

Even when the recommendation's requirement for age-appropriate AI systems has been operationalised, it has largely concentrated on age assurance technology rather than a broader inquiry into developmentally appropriate design. Age verification systems that compromise children's privacy, can be easily circumvented, fail to include child-centred design principles or perform inconsistently across demographic and age

[274] Goldman et al. (2025).
[275] Kurian (2025a).
[276] Fosch-Villaronga et al. (2023).
[277] Steeves (2020).
[278] Milkaite et al. (2021).
[279] Hsu & van der Hof (2023).
[280] Pothong et al. (2024).
[281] Mathiyazhagan & La Fors (2023); Meng (2025); Mahomed et al. (2025).

groups, are unlikely to respect children's specific individual or collective needs as required by the best interests of the child principle[282] (see 5. Data protection and privacy). Furthermore, such age-gating can impinge on other rights such as the freedom of expression and evolving capacities.[283]

Towards this end, efforts are underway to develop age-appropriate frameworks with the direct participation of children for design and governance. Kurian's framework for developmentally aligned AI offers a template for embedding the science of child development directly into design decisions, moving beyond age-gating toward a substantive design standard.[284] Similarly, tools such as the UK's Age Appropriate Design Code[285] and the Children & AI Design Code,[286] both of which were co-designed with children, require project teams to engage children, caregivers and third-sector representatives before harms occur rather than remediating them after the fact, which directly supports children's agency, their right to information and their best interests. When combined with other recommendations aimed at participation, accountability, education, capacity-building and non-discrimination, there is scope for states to ensure that the best interests of the child are given primary consideration across the AI lifecycle.

7. Non-discrimination and inclusion

In the Joint Statement, the section on non-discrimination and inclusion encompasses the following recommendations: (a) Inclusive and intersectional AI access; (b) Meaningful access to overcome digital divides; (c) Universal design for children with disabilities; and (d) Human rights due diligence regarding bias and discrimination.

Non-discrimination is among the oldest and most structurally embedded of children's rights, codified in Article 2 of the UNCRC and elaborated for the digital environment in *General comment No. 25*. Within the AI ethics literature specifically, fairness and non-discrimination are one of the most consistently cited principles across international frameworks.[287] The 2025 *International AI safety report*, drawing on contributions from experts across dozens of countries, confirms that general-purpose AI systems 'frequently display biases with respect to race, gender, culture, age, disability, political opinion, or other aspects of human identity', producing discriminatory outcomes

[282] Forland et al. (2024); Guest et al. (2025); Negreiro & Anaç (2026); Stockwell and Powell (2025).
[283] CDMSI (2025); Nash (2021).
[284] Kurian (2025b).
[285] ICO (2020).
[286] 5Rights Foundation (2025).
[287] Fjeld et al. (2020).

including unequal resource allocation and the systematic neglect of underrepresented groups.[288]

While there is consensus on high-level ethical AI principles, engagement with children's issues specifically remains limited, and translating fairness and non-discrimination commitments into auditable, child-specific practice remains fragmented across domains of use[289] (see 3. Responsibility, accountability and transparency. This is despite an ever-growing body of evidence documenting widespread incidents of direct discrimination by AI tools themselves, as well as systems that mediate behaviour and lead to discriminatory outcomes across a number of sectors and domains.[290] Furthermore, discriminatory harm to individuals, including children, across the world is often amplified on digital platforms without proportionate responses for their safety, thereby reinforcing a discriminatory sociocultural fabric on which discriminatory AI tools proliferate.

The challenges are expanding to include and go beyond a concern with access and connectivity as AI increasingly shapes how children are assessed, prioritised or denied access to education, health and welfare services regardless of whether they personally use AI tools, the very tools that produce measurably poorer outcomes for the populations most reliant on public services.[291] Yet few studies have examined how AI is linked to discrimination and exclusion for children in particular, but it is most likely that evidence of discriminatory harm to adults translates to similar, or worse, outcomes for children.

Non-discrimination also intersects with inequalities, given the proliferation of AI tools that, for the most part, are not trained for the cultural and contextual requirements of formerly deindustrialised, low- and middle-income countries. In fact, children from lower socioeconomic backgrounds are less likely to be connected, regardless of their age or the economic state of the country.[292] Moreover, 90% of girls aged between 15 and 24 in low-income countries are offline, with the largest gap between boys and girls noted in South Asia.[293] This contributes to downstream effects of the digital divide as well as potential risks being overlooked in the development of AI systems as marginalised children from lower socioeconomic backgrounds are not digitally equipped or literate to advocate for necessary changes. As such, the evidence base reviewed here looks both at non-discrimination as a protected human right as well as cases where inclusion, or lack thereof, of particularly vulnerable children, as described

[288] Bengio et al. (2025).
[289] Wang et al. (2024).
[290] Barocas & Selbst (2016); Bender et al. (2021); Bommasani et al. (2021); Buolamwini & Gebru (2018); Obermeyer et al. (2019); Weidinger et al. (2022).
[291] Hanan (2026).
[292] UNICEF Innocenti (2025).
[293] UNICEF Innocenti (2025).

in the Joint Statement recommendations, may be affected by both design of the AI systems and the institutions and systems within and through which they are deployed.

Discrimination design in age estimation tools

Age verification and estimation tools used alongside extensive surveillance machinery used on refugees, migrant, and asylum-seekers have been found to disadvantage children from minoritised, vulnerable communities who are already facing extenuating emotional, mental and socioeconomic challenges:[294]

- An independent analysis of facial age estimation (FAE) tools used in asylum contexts found that error rates vary sharply and inconsistently by demographic group, with more than half of 16-year-old West African children misclassified as adults compared to fewer than a quarter of 16-year-old Eastern European children assessed by the same system.[295]
- In the UK, 62 civil society groups, alongside Human Rights Watch, have called on the UK Home Office to stop using FAE systems,[296] citing biases against women reported by the Home Office itself.[297]
- Even when the problem is determined to be poor data, the design of the tools does not account for wider harms that uniquely impact the ageing of children seeking asylum from trauma[298] or malnutrition,[299] as shown by the UK's Independent Chief Inspector of Borders and Immigration.

The discriminatory data, design and development practices of such age-based decisions have serious consequences. A joint report by the Helen Bamber Foundation, Humans for Rights Network and Refugee Council found that between January 2022 and June 2023, over 1300 children were wrongly classed and sent to adult detention or accommodation through what they describe as 'forced adulthood'.[300]

Evidence of AI-facilitated discrimination

Even among 'citizenry', adultification and gendered harms further minoritise children from vulnerable communities:

[294] Hjern et al. (2012).
[295] Lighthouse Reports (2025).
[296] Human Rights Watch (2026).
[297] Home Office (2026b).
[298] Colich et al. (2020).
[299] Bolt (2025).
[300] Helen Bamber Foundation, Humans for Rights Network & Refugee Council (2024).

- Black girls and boys in the US are often dehumanised by public service authorities, including law enforcement, through racialised adultification.[301]
- In the digital environment, the harms and restrictions to a child's enjoyment of their rights are amplified. Age-gating and age verification apps have been found to be less accurate for people in Australia with Black, Asian, Indigenous and Southeast Asian backgrounds.[302]
- Youth within the LGBTQ+ community confront the multiplied challenge of poor performance metrics alongside structural issues such as a lack of housing, access to parental consent and gender-affirming identity documents needed to access platforms, often their source of community building.[303] Thus, as analysed in 8. Child participation, it can contribute to discriminatory barriers to children's access to online spaces, further affecting their freedom of information (Articles 13 and 17 of the UNCRC).
- Evaluation of a number of LLMs, including OpenAI, Meta and Stability AI, illustrated how Black girls were more sexualised and given more 'aggressive' character traits compared to their white peers.[304]
- Evidence of baked-in bias in commercial AI systems have been recorded in a study on advertising delivered to 1,200 young people aged between 14 and 30 in Catalonia, which found that lower-class boys were shown ads for high-risk financial products, gambling and 'easy money' schemes at roughly double the rate of their upper-class peers.[305]

Cultural and linguistic exclusion

Another facet of the Joint Statement that requires close attention for children across the world is linguistic and cultural inclusivity. The Council of Europe's guidance note on GenAI and freedom of expression states that potentially discriminatory impacts on linguistic, cultural and social minorities must be identified and prevented precisely because such impacts result from biased training data, not merely biased application.[306]

The lack of cultural, social, linguistic and contextual responsiveness of AI systems to children across the globe[307] contributes to digital neocolonialism, where AI models developed in the Global North are then deployed without fine-tuning to local needs,

[301] Goff et al. (2014).
[302] Evershed & Nicholas (2025).
[303] Mirza et al. (2016); Scheuerman et al. (2019); The Trevor Project (2025), cited in Alajaji (2025).
[304] Castleman & Korolova (2025).
[305] Sáez-Linero & Jiménez-Morales (2025).
[306] CDMSI (2025).
[307] Anuyah et al. (2023); Rohman & Vo (2025).

thereby promoting perspectives from Western-centric datasets for global consumption:[308]

- When these tools are used in safety-critical sectors such as paediatric healthcare, much of the evidence used to train these models comes from well-resourced healthcare systems that are not representative of low- and middle-income settings, which have the highest levels of under-five mortality.[309]
- In relation to AI-enabled education policies, which the Joint Statement recommends, it is noteworthy that AI educational tools are predominantly built for English or other major international languages, which can further entrench systemic inequalities through design decisions.[310]
- In child protection specifically, an analysis of Aotearoa New Zealand's child welfare system notes how instrumental biases, which are embedded in institutional structure, legal definitions and risk proxies, disproportionately escalate Māori children and children from high-deprivation communities into statutory intervention; this includes escalating welfare cases even when no caseworker holds an explicitly discriminatory attitude.[311] This reveals the need to relocate data justice practices even within countries.[312]
- UNESCO calls for AI in education to be pursued through a human-centred approach built on cultural context and data ethics rather than treating equity as a downstream mitigation issue where discriminatory challenges are addressed after the harm occurs.[313] Such inclusion requires centring the most marginalised and impacted users from ideation through to production, a standard that few of the AI systems reviewed above appear to meet.[314]

However, benefits and harms linked to use of AI in education often depend on the participation of stakeholder communities. A review across South Africa, China, Bangladesh, Kenya, Mali and Latin America found that co-designed projects in Kenya and Mali measurably reduced linguistic, cultural and algorithmic bias, while top-down deployment of tools in China and universities in Latin America widened gaps.[315]

[308] Mohamed et al. (2020); Nyaaba et al. (2025); Staksrud et al. (2026).
[309] Mbogori-Kairichi et al. (2026); see also Jayadeva (2021).
[310] Mac Fadden et al. (2024).
[311] Keddell (2022).
[312] Leslie et al. (2022).
[313] UNESCO (2021).
[314] Rigot (2022).
[315] Matjie et al. (2026).

Accessibility and children with disabilities

AI tools and data-centred technologies show some of the most promise for children, particularly those with disabilities. Grounded in an analysis of Article 7 of the UN Convention on the Rights of Persons with Disabilities, scholars argue that data protection by design should be operationalised through accessible information design, inclusive interfaces, AI-assisted guidance tools and parental controls calibrated to evolving capacity, rather than treated as a generic obligation.[316] The Council of Europe's *strategy for the rights of the child (2022-2027)* names an anti-discrimination approach as one of three cross-cutting issues, ideally accompanied by granular evidence to operationalise this commitment specifically for disability.[317]

Systematic reviews of AI-enabled assistive technologies have recorded the benefits of augmentative and alternative communication systems, screen readers, Braille-conversion tools and social robots for engagement for children with autism, attention deficit hyperactivity disorder (ADHD), dyslexia and sensory impairments.[318] However:

- These tools are highly priced (e.g., US$80-100 for screen readers or over US$3,000 for high-end optical character recognition and communication devices), thus risking the amplification of existing economic, gender and racial gaps in access.[319]
- At the global level, where only 10% can access assistive technologies and 50% of children with disabilities in low- and middle-income countries are not enrolled full-time in school, the capacity of AI-based assistive tools, which have been known to perform poorly on people with facial differences, to improve and harm children may then depend on price and design considerations.[320]

Children with intellectual disabilities face the same risks as those without disabilities, as well as the specific challenges that further marginalise them within the digital environment:[321]

- As children with intellectual disabilities face challenges including learning, social participation and other cognitive functioning,[322] within a digital environment, the corresponding harms translate to a heightened risk of online sexual solicitation, manipulative design and privacy harms because

[316] Hsu & van der Hof (2023).
[317] Council of Europe (2022).
[318] Barua et al. (2022); de Freitas et al. (2022); Zdravkova et al. (2022).
[319] Zdravkova et al. (2022).
[320] Welker (2023).
[321] Council of Europe (2019).
[322] WHO (2010).

digital service providers rarely tailor products to their specific cognitive profile.[323]

- Reviews of AI tools for neurodevelopmental disorders similarly find that the overwhelming majority of existing development has concentrated on autism spectrum disorder, leaving comparatively little attention to dyslexia, ADHD or intellectual disability, and that suitable training datasets for children with complex comorbidities remain scarce.[324]

- When considering socially assistive robots for young people with disabilities, risks range from requiring extensive behavioural data through multimodal surveillance to generating parasocial attachment to inanimate objects, but these ethical concerns are not routinely considered in system design.[325]

Nonetheless, there is growing evidence of best practice with measurably positive outcomes with target groups:

- A three-week deployment of a social robot in a special educational needs (SEN) school demonstrates that UNICEF's nine AI for children guidelines can be operationalised through sustained co-design with autistic children themselves, rather than applied only after deployment.[326]

- At the intersection of marginalised identities, a protocol for a socially assistive robot supporting LGBTQ+ youth with self-harm ideation was itself co-designed with young people who have lived experience of mental illness.[327] (Similar evidence can be found in 8. Child participation.)

The importance of inclusivity is recognised in literature both in the design of the technology itself and in subsequent governance considerations. However, to meaningfully engage children with disabilities, capacity building for young people with intellectual and developmental disabilities is needed, yet this is rarely integrated into mainstream digital literacy programming.

[323] Livingstone et al. (2019); UNICEF Innocenti (2023).
[324] Barua et al. (2022).
[325] Kurian (2023).
[326] Lemaignan et al. (2021).
[327] Williams et al. (2024).

8. Child participation

In the Joint Statement, the section on child participation encompasses the following recommendations: (a) The rights to be heard in relation to the AI lifecycle; and (b) Use AI to support children's democratic participation.

Children's right to be heard is a standalone right under Article 12 of the UNCRC,[328] and it is a precondition for realising children's other rights, including best interests, remedy and accountability. *General comment No. 25* asserts that the right to be heard applies in the digital environment, affirming that children's views should be sought and given due weight in the design and governance of digital technologies.

The Joint Statement's framing echoes the dual perspective on participation from *General comment No. 25*. First, this recognises and reaffirms children's participation in shaping the digital environment, in this case across the AI lifecycle, and second, the mediating role of AI technologies in facilitating the participation of children in democratic societies. Djeffal subdivides the latter by distinguishing taking part in internet governance, in online activities and in real-world activities that the internet enables or supports, emphasising multimodal participation by children in the digital environment they will inherit.[329]

Child participation in digital governance is more often promised than realised

Children are typically regarded as objects of protection rather than as agentic participants who actively shape the policies and technologies that affect them.[330] Few, if any, AI governance instruments directly address how AI systems shape children's democratic engagement. The Montréal Declaration for Responsible Development of Artificial Intelligence (2018)[331] and the Global Digital Compact (2024)[332] both recognise the risks of misinformation and manipulation online, but neither substantially addresses children's specific experiences as participants in these information ecosystems. UNICEF's policy guidance sets out how to make child-centred AI development an explicit policy requirement rather than a voluntary aspiration.[333]

[328] See General comment No. 12 (UN Committee on the Rights of the Child, 2009).
[329] Djeffal (2022).
[330] Helsper et al. (2025); Wall (2019).
[331] Montréal Declaration for a Responsible Development of Artificial Intelligence (2018).
[332] UN General Assembly (2024).
[333] Liu & Ding (2025).

When children are considered in policies for digital participation, which consequently also apply across the lifecycle, the framing is skewed more towards an aspirational goal than towards active operationalisation in public and private spheres:

- A review of over 300 digital policies across 35 countries and organisations found that children are largely left out of, or misunderstood within, the digital policy frameworks that govern their lives.[334] Instead, children are made responsible for safe use of technology without actively influencing governance, leading to protection without participation.[335]
- Despite children actively using AI systems for multiple purposes, it was found that meaningful inclusion of children in the design process of EdTech systems was absent, with tools such as Microsoft Copilot already in classroom use without any prior engagement.[336]
- Outside classrooms, a review of 91 commercially available AI toys and 13 academic prototypes found that products are frequently marketed with misleading claims about their AI capabilities, and that there is limited evidence that children meaningfully shape system designs.[337]
- Even the very framing for empowering children's participation reveals a lack of robust articulation. A systematic review of 188 studies on child–computer interaction found that 'empowerment' is rarely defined with precision, and that even with the shift from narrow articulations of empowerment toward more democratic and critical ones, a wide range of inconsistent framings still coexists.[338]

Furthermore, others call for current scholarship to shift their focus beyond *whether* children can exercise their agency to instead observe how it manifests, particularly by designers addressing the wider social, institutional and structural forces that influence children's agency over their use or rejection of AI systems.[339]

Such child participation as has been conducted is largely concentrated in Global North countries and regions. There is growing evidence that reveals the contextual and cultural sensitivities necessary to engage with children.

[334] Helsper et al. (2025).
[335] Lalande et al. (2026).
[336] Livingstone & Pothong (2025).
[337] Xiao & Gonçalves (2025).
[338] Van Mechelen et al. (2021).
[339] Voysey et al. (2026).

- A study with children across Brazil, India, Kenya and Thailand revealed patterns of reliance on GenAI shaped by wider social and economic inequalities largely invisible to policy frameworks.[340]

- Mtoto News has launched the CHILD programme in Kenya where children not only set the research agenda, but also contribute to the research through data collection, analysis and presentation, with adults only playing a role as facilitators.[341] Such endeavours can reveal what children prioritise, how they wish to address it, and build the skills necessary for their voices to be heard.

Promising practices for children's participation in AI governance

Participatory research with children generally finds that they wish to be actively informed and consulted, and that they have much to offer that can valuably inform AI governance and related policies:

- At the global policy level, the Alan Turing Institute's Children's AI Summit brought together around 150 children to shape a Children's Manifesto for the Future of AI.[342]

- Regionally, the Children Global AI Summit on Africa held in 2025 released an outcome statement notably highlighting the need for children's participation.[343] The European Commission's Joint Research Centre's workshops with children, policymakers and experts demonstrate that large-scale, policy-facing participation is achievable.[344]

- UNICEF's survey of children in Brazil, India, Malaysia, Sierra Leone, Spain, Uganda and the US found that AI came up organically in conversations on the digital environment with shared concerns including employment uncertainty, loss of community, cyberbullying and environmental costs from technology; yet, across all countries, children hoped for inclusive technology.[345]

- A comparative study with children from Brazil, India, Kenya and Thailand observed children's interest in using GenAI for creative and educational purposes, but there were also concerns with the degree of linguistic inclusivity or English dominance as well as documented harms of privacy

[340] Kasturi et al. (2025).
[341] See https://lnkd.in/p/d372TYcu
[342] The Alan Turing Institute (2025).
[343] 5Rights Foundation (2025).
[344] Charisi et al. (2022).
[345] Baghdasaryan (2026).

bullying, misinformation, and job displacement.[346] Notably, the study highlights how children wished to be consulted in the development and regulation of GenAI, but avenues to influence design and governance were limited to informal or creative consultation without meaningful influence of policy.[347]

- The Safe Technology Use, Data Privacy, and Ethical Norms for Teaching – Fostering Integrity and Responsible Systems in Teaching (STUDENT FIRST) Act of 2026 was released by Student Senators from across the US to call for better AI governance, including AI literacy requirements, prohibition of AI in art, prevent automated profiling in schools, and provide a right to appeal against accusations of AI use, among others.[348] This provides insight into children's knowledge of AI harms and opportunities, and their capacity to drive influence through participation.

Towards this end, structured AI literacy plays a key role in children's capacity to critically engage with AI-based media and tools[349] (as discussed in 4. Child safety).

Children's participation in society, online and offline, facilitated by AI

Children's participation has been theorised through the dual lens of individual agency and self-determination and socially constructed co-agency nurtured and determined through interactions with peers, education institutions, teachers and caregivers, and other sociocultural factors as a child grows.[350] Participation, then, involves not only consultation, as discussed, but also an active and collaborative process of child-led change facilitated through access, knowledge, voice and influence.

A growing a number of studies evidence how children imagine and exercise their role in the digital environment, variously facilitated or impeded by AI, with a range of consequences for children's participation in society:

- A large-scale study with 25,592 children aged 9-16 across 17 European countries noted how children were defaulting to the use of GenAI systems in English, which privileged individuals with higher proficiency, highlighting broader issues of accessibility and inclusivity.[351] When asked for their hopes for the future, some participants stressed the urgency in responding to AI-driven harms, and others raised a number of suggestions including

[346] Stoilova et al. (2025).
[347] Ibid.
[348] Student Senate (2026).
[349] See Greenwald et al. (2024); Starks et al. (2024).
[350] Kucirkova & Piotrowski (2025).
[351] Staksrud et al. (2026).

sociotechnical approaches, better government regulation, remedies for AI-fabricated content and better design features covering safety and privacy, thus revealing children's own interest and stake in democratic participation within a tumultuous sociopolitical digital ecosystem.

- While 21% of 1,017 teens aged 13-17 across the US maintain that knowledge of AI tools is essential for the future, over 55% highlighted the need for social skills, 50% prioritise critical thinking, and 48% note the role of complex comprehension.[352] Yet, as observed in 11. Education, science and awareness-raising, current curricula do not capture these needs.

- In a study with 1,088 teens aged between 13 and 18 in California, over 50% experienced loneliness, and many turned to AI chatbots because of a lack of safe spaces and high costs to accessing spaces outside home and school.[353] As the study engaged with caregivers, they particularly note the gap between teen loneliness and caregivers' ability to address the issue, leading to calls to prioritise safe, in-person third spaces for children and young people as part of public health policy.

- In Canada, a survey with children aged 8-17 noted many concerns about labour displacement, hallucination and inaccuracy, and fears of AI 'taking over the world', a concern driven by content viewed in movies and on YouTube.[354]

- A UNICEF report paints a techno-deterministic future of AI inevitability which children are expected to address, but the children from the Democratic Republic of the Congo, Egypt, Mozambique and Rwanda surveyed for the report, expressed worries about AI over-reliance.[355] The same report also points to infrastructure and education challenges that children are expected to face without meaningful evaluation of whether or not automation is indeed inevitable.

Overall, the evidence is not yet compelling as to whether AI is facilitating children's participation in their societies. There could be several reasons for this, over and above the lack of researcher attention to such questions. As noted in 6. Best interests of the child, the principles of protection and participation are too often treated as competing rather than mutually reinforcing,[356] a theme evident in current policy evidence. This problem is compounded by misleading assumptions that children are both inherently

[352] Zimmermann et al. (2026).
[353] Heifferon et al. (2025).
[354] Chan et al. (2026).
[355] Duncan & Vosloo (2026).
[356] Livingstone et al. (2024a).

competent 'digital natives' and as passive victims unable to participate meaningfully in the digital ecosystem.[357]

It seems likely, although still under-researched, that children's participation mediated by AI varies considerably, shaped by socioeconomic privilege, race, parental education, connectivity, age and cultural norms.[358] Research has long shown that children use online spaces primarily for entertainment while civic participation remains less common, although still important.[359] Opportunities for democratic engagement are therefore unevenly distributed, and current frameworks concerned with children's AI-related experiences do not yet account for or mitigate this unevenness.

9. AI and the environment, including climate change

In the Joint Statement, the section on AI and the environment, including climate change, encompasses recommendations to: (a) Use AI to combat climate change; and (b) Assess and mitigate AI's environmental impact on child rights.

The Joint Statement's recommendations on AI and the environment situate children's rights within a domain of AI governance that has, to date, received comparatively little rights-based scrutiny compared with non-discrimination, privacy, safety or participation.

Children are rights-holders in relation to the environment, as established in multiple sources:

- *General comment No. 26* clarifies that environmental degradation and climate change engage the full range of children's rights under the UNCRC.[360]
- The UN Human Rights Council has repeatedly recognised children, and particularly those with disabilities, on the move, living in poverty, separated from family, or from Indigenous communities, as among those most vulnerable to climate harms.[361]
- Former Special Rapporteur John Knox observed that discussions of future generations must take into account 'the rights of the children who are constantly arriving, or have already arrived, on this planet',[362] a framing that

[357] Helsper & Eynon (2010).
[358] Smahel et al. (2020).
[359] Staksrud et al. (2026).
[360] Committee on the Rights of the Child. (2023).
[361] Knox (2018).
[362] Knox (2018).

positions AI's environmental footprint as an intergenerational as well as a present-day concern for children's rights.[363]

- UNICEF's Children's Climate Risk Index reveals the considerable scale of environmental harms, noting that nearly every child worldwide already faces at least one climate or environmental hazard.[364]

Accordingly, the Joint Statement's recommendations require AI to be harnessed in service of children's environmental rights and its material footprint should not undermine them. Take the case of AI-based tools, including satellite and remote-sensing systems used to map mineral-dense regions. This can usefully identify extraction sites. However, since this happens without the meaningful consultation of Indigenous communities,[365] the effect is to further entrench patterns of digital and AI colonialism.[366] Moreover, where Indigenous communities, including children and future generations, are excluded from decisions over the resource and mineral exploitation that feeds the AI value chain, children bear the environmental cost while remaining absent from decisions about the AI systems built from those resources.

Tracking the environmental costs of AI

The rapid uptake of data-driven services, including AI models, for daily use by individuals, businesses and governments has been accompanied by soaring energy use and associated costs. Indeed, advances in science and innovation have led to a 99% decrease in the cost of computational power since 2006,[367] thereby opening markets to consumers and developers in an ostensibly 'democratising' process that is still driven by oligopolistic power and capital.[368] On the other hand, computational requirements for training advanced AI models have increased substantially, with the International Energy Agency (IEA) indicating a 350,000-fold increase since 2014.[369]

Globally, data centres are estimated to have consumed some 448 terawatt-hours of electricity in 2025, producing roughly 189 million metric tons of CO_2,[370] with the corresponding energy and water demands to power this industry particularly acute in the US, where a number of tech and data companies operate:

- A single modern AI data centre can draw as much power as 100,000 homes, while two-thirds of data centres built or under development since 2022 are

[363] Daly (2023).
[364] UNICEF Innocenti (2023).
[365] Rodríguez (2021).
[366] Schulz & Loewen-Colón (2026).
[367] IEA (2025).
[368] Leslie et al. (2024); Widder et al. (2023).
[369] IEA (2025).
[370] Nicoletti et al. (2025).

located in water-stressed regions, with large facilities consuming up to 5 million gallons of water daily.[371]

- Gas-powered generators, often housed in data centres for daily use, can further exacerbate health concerns through pollution and greenhouse gas emissions.[372]
- Nearly half of 700 data centres in the US are currently located in areas with above-average environmental burdens and social vulnerability, including poverty and lower education levels.[373]
- Families living in areas close to data centres will face higher costs for basic utilities such as water and electricity, thereby affecting the children raised in these regions.[374] This has real consequences when policymakers suggest that AI tools could fill gaps in education and employment in the Global South,[375] including in Sub-Saharan Africa, where children already face some of the highest exposure to water scarcity and other climate hazards.[376]

Efforts to measure and mitigate this footprint remain narrow in scope. A systematic review of 98 Green AI studies found that the field was overwhelmingly focused on the energy efficiency of models and training runs, with holistic considerations, such as water use, e-waste and material extraction, addressed by only a fraction of the literature.[377] This myopic scope often excludes non-Western and Indigenous forms of knowledge relating to environmental sustainability, which remain marginal to AI governance debates.[378]

Children often bear the heaviest burden

Current evidence and discourse about AI and the environment have largely overlooked intergenerational harms and specific, rights-based risks across the AI innovation and value lifecycle for children. This is most alarming in the continued instances, likely underreported, of child labour in the extraction of high-risk or 'strategic' minerals (i.e., cobalt, graphite, nickel, aluminium, copper and rare earth elements) in numerous countries, including the Democratic Republic of the Congo, Mozambique, Philippines and Indonesia, among others, which is necessary for AI hardware needs as well as the

[371] Walker & Goldsmith (2026).
[372] Martin (2025).
[373] Walker & Goldsmith (2026).
[374] Byrne (2026).
[375] See Vosloo (2025).
[376] UNICEF Innocenti (2023).
[377] Verdecchia et al. (2023).
[378] Roberts & Montoya (2023).

transition to green energy itself.[379] These harms violate multiple rights enshrined in the UNCRC:[380]

- The right to life, survival and development (Article 6), and protection from violence and abuse (Article 19).
- A child's protection from economic exploitation and hazardous work (Article 32).
- The rights to education (Article 28), health (Article 24), and rest, leisure and play (Article 31), all affected by hours spent hauling ore.
- Protection from abduction, sale and trafficking (Articles 34 and 35), as militias forcibly recruit children from distant provinces into mining networks.
- The right to an adequate standard of living (Article 27), which poverty and reliance on child income directly undermine.
- The right to recovery and social reintegration (Article 39), which remains unmet for the vast majority of affected children who lack access to rehabilitation, psychological support or a pathway back to school.

Thus, when considering the shift to green energy and the opportunities of AI tools for children, particularly those in similar vulnerable regions, the wider harms across the supply chain should be addressed. As part of this, children's own perspectives on AI's environmental costs require further attention. A participatory design study with 16 children aged 6-12 found that children were able to reason about the societal and environmental trade-offs of AI use, and articulated a genuine sense of agency and responsibility, despite AI literacy curricula rarely encompassing systems-level environmental reasoning[381] (see 11. Education, science, and awareness-raising).

There is growing evidence of AI's environmental footprint being considered in public discourse, albeit rarely with a child-centred lens:

- In the US, some jurisdictions have introduced dedicated rate classes and cost-recovery safeguards to prevent data centre energy costs from being passed on to households, alongside water-use disclosure requirements, drought contingency planning and community benefits agreements that mandate clean energy sourcing and local investment.[382]

[379] Kutscher et al. (2025).
[380] Salama (2025).
[381] Dangol et al. (2026).
[382] Walker & Goldsmith (2026).

- Using a whole-of-society approach, the Welsh Well-being of Future Generations Act (2015) is grounded in the Sustainable Development Goals and considers AI innovation and capabilities through an intergenerational lens that upholds principles of environmental protection.[383]
- More encouragingly, UNICEF has drawn attention to a number of projects that utilise AI in early warning systems in Timor-Leste, Mali, India and Libya; disaster risk reduction in Cameroon and Malawi; clean energy in Uruguay; and post-disaster insurance payments in Uganda.[384]
- Most notably, UNICEF launched the Frontier Data Network (FDN), which aims not only to use predictive capabilities for climate-related humanitarian challenges, but also to focus on what these harms look like for children.[385]

However, putting the Joint Statement's recommendations into practice will require addressing these problems, and indeed, across other sections of the recommendations through an intergenerational, sustainable and practical lens.

10. Capacity building

In the Joint Statement, the section on capacity building encompasses the following recommendations: (a) Capacity building of State officials on AI and child rights; (b) AI training for professionals working with children; and (c) Child rights training for businesses and AI developers.

The Joint Statement's recommendations on capacity building in relation to AI and children's rights identify three categories of personnel, namely, State officials, professionals working directly with children, and business enterprises. None of these three groups should be trained in a vacuum, especially as they are responding to children already using these systems at scale, largely without adult guidance.[386]

Appropriate training requires domain- and task-specific knowledge exchange, including institutional capabilities. As the OECD has observed in development practice, resources and funding alone are insufficient without sustained capacity-building efforts.[387] The Global Digital Compact frames capacity building primarily through digital inclusion and

[383] Well-being of Future Generations (Wales) Act (2015).

[384] UNICEF (n.d.).

[385] UNICEF Innocenti (2025). The experimental model is currently being piloted in the Caribbean to identify early responses, which can include indicators of child population density and poverty, and mapping of school facilities for affected children. Notwithstanding the early stages of this project, there is scope for similar capabilities to be leveraged across numerous other countries where children are at short- and long-term harm from climate-related factors. Moreover, the FDN also advocates for children's participation in AI innovation to protect the most vulnerable children.

[386] Madden et al. (2024).

[387] OECD (2006).

general AI governance.[388] Children's rights are specifically raised by UNICEF, which calls on States and businesses to 'have awareness and sufficient knowledge of child rights, AI-related opportunities for children's development'.[389]

Evidence of the need to improve capacity for stakeholders in AI and child rights

Despite the abundance of AI governance instruments, the development of child-centred AI capabilities across stakeholders and other actors is limited:[390]

- An assessment of child-centred AI governance finds that resource allocation and cross-stakeholder implementation are among the widest gaps between stated principle and practice.[391]
- A mapping of 36 AI principles documents found consensus around eight ethical themes, including accountability and human control, but there is no evidence on whether officials apply these principles, particularly through a child rights framing.[392]
- For wider public service providers, existing evidence already points to how professional training on ethics and AI has not kept pace with AI innovation and adoption in UK social care settings,[393] which is particularly concerning as child protection services are among the most affected by AI tools.[394]
- A two-year ethnography within a US child welfare agency found that algorithmic systems were deployed without adequate preparation for the caseworkers using them, resulting in a mismatch between system design and caseworkers' capacity to interpret it.[395]
- A consistent lack of structured training and capacity building, particularly outside well-resourced settings, was also observed in a review of training and education in digital psychiatry across the Asia-Pacific region.[396]

In education, a rapidly expanding domain for children's use, research has documented a number of challenges:

[388] UN General Assembly (2024).
[389] UNICEF Innocenti (2025).
[390] Helsper et al. (2025).
[391] Meng (2025).
[392] Fjeld et al. (2020).
[393] Leslie et al. (2020).
[394] Carter et al. (2024).
[395] Saxena & Guha (2023).
[396] Orsolini et al. (2021).

- A review of 179 K-12 AI literacy studies found substantial literature on teaching AI to children, but comparatively little on whether teachers themselves have been trained.[397]
- In a study from China, it was found that teachers' own sense of readiness and competence directly determines whether an AI curriculum is implemented meaningfully.[398]
- A study of computer adoption in Indian schools found resistance at the political, bureaucratic and classroom levels.[399]
- In the UK, a child rights audit found that schools were adopting AI tools without assessing their impacts or meaningfully training teachers, children and parents.[400] This is important because parents are often unaware of how children use AI tools,[401] further revealing the complex network of actors working for children without adequate tools.

Among business enterprises, there is evidence of knowledge of AI ethics and harms through workplace policy,[402] but little practical training on child-centred design and deployment practices:

- A survey of 188 AI systems built for children found that developers relied almost entirely on technical performance metrics rather than considerations of a child's best interests, and reported that industry support is lacking for developers seeking to interpret existing guidelines in practice.[403]
- Where practitioners understood children's rights, they faced competing commercial priorities limiting their ability to embed those principles into products.[404]

Emerging directions

Frameworks such as CRIAs, human rights impact assessments (HRIAs) or the Children & AI Design Code can serve as catalysts for developers, practitioners, businesses and States to institute sustained capacity-building initiatives necessary to meaningfully implement accountability mechanisms across the AI lifecycle. However, this requires, as

[397] Casal-Otero et al. (2023).
[398] Chiu & Chai (2020).
[399] Kalyan Shankar et al. (2024).
[400] Atabey et al. (2025).
[401] Bissoondath (2024).
[402] Pant et al. (2023).
[403] Wang et al. (2024).
[404] Pothong et al. (2024).

noted in 3. Responsibility, accountability and transparency, a move from aspirational to mandatory enforcement of such mechanisms. Meanwhile, among the three groups identified in the recommendations, there is growing evidence of capacity-building initiatives.

For officials and public bodies, the AI Ethics and Governance in Practice programme, an eight-workbook curriculum built on research with UNICEF, the Scottish AI Alliance and the Children's Parliament, includes an Explainability module that explicitly addresses children's rights.[405] Moreover, as noted in 8. Child participation, such capacity building necessitates dialogue with children to understand how they wish to use AI in their lives and how policymakers can contribute to children's best interests.

For teachers, UNESCO's Teacher Capacity Building with AI and Digital Technologies project is building an open-access platform of digital resources, training activities and partnership networks grounded in the Sustainable Development Goals. For professionals working in child welfare services, workers, when adequately supported, contributed to reducing racial disparities in algorithmic decisions.[406] Similarly, a study approached the Allegheny Family Screening for high-stakes child welfare intervention through a sociotechnical lens to ensure better leadership, transparency by design and ethical oversight.[407] In law enforcement and justice systems, which have documented numerous discriminatory harms through the use of AI systems,[408] there is evidence of training for professionals in these sectors.

- Globally, CEPOL, INTERPOL and Europol have broadened earlier training on CSAM and child sexual exploitation (CSE) to include AI alongside psychological resilience capabilities.[409]
- Similarly, the UN Interregional Crime and Justice Research Institute launched the AI for Safer Children Global Hub in 2022, which has since conducted a number of free training exercises on AI and CSE across Asia, Africa, Europe and the Americas.[410]
- In the US, the National Center for State Courts and Thomson Reuters have launched policy training for legal professionals, including clerks and judges, to learn about the impacts of AI systems.

For business enterprises, the World Economic Forum's Artificial Intelligence for Children toolkit, co-developed with UNICEF, is structured around separate checklists for C-suite

[405] Leslie et al. (2024).
[406] Cheng et al. (2022).
[407] Vaithianathan et al. (2021).
[408] Benjamin (2019).
[409] CEPOL (2026).
[410] UN Interregional Crime and Justice Research Institute. (n.d.).

executives and product teams,[411] directly mirroring the leaders-and-designers distinction the Joint Statement itself draws, while UNICEF's brief on AI-facilitated child sexual abuse places increased industry accountability and transparency at the centre of its recommendations to business.[412] As such, regulatory approaches for children's safety requires knowledge of the harms and policy guidance identifying the role of industry accountability.

11. Education, science and awareness-raising

In the Joint Statement, the section on education, science and awareness-raising encompasses the following recommendations: (a) Responsible integration of AI into education; (b) AI literacy in school curricula should be inclusive; (c) Provide non-formal AI literacy programmes; (d) Leverage AI innovation and research to realise child rights; (e) AI literacy and guidance for parents and carers; and (f) Public awareness-raising campaigns.

The Joint Statement's emphasis on inclusion, awareness, oversight and innovation suggests an urgent need for practical, ethical, critical and sustainable approaches to AI in education. Relatedly, there is interest in AI systems to support children's learning outside the classroom, such as AI avatars, tutors and companion bots.[413]

For children, AI is already a key element of their learning approaches and will be a tool in future employment, or may affect their employment prospects when education systems do not provide a strong foundation. This is particularly concerning as children often do not influence policy decisions beyond consultations, which may lead to instances where their needs for less or no AI interventions are left unheard or unaddressed. Further, AI literacy is increasingly positioned as a foundational component of children's evolving digital capabilities, but current scholarship reveals unevenness in how it is conceptualised and operationalised in practice.

Evidence of an AI divide

The Joint Statement's recommendation to prevent an 'AI divide' among future generations is strongly supported:

- At the level of AI content itself, the testing of GPT-4 Turbo and Gemini outputs across Global North and Global South educational contexts identifies six interconnected dimensions, including cultural imperialism and

[411] World Economic Forum (2022).
[412] UNICEF Innocenti (2026).
[413] Ibid.

language marginalisation, through which GenAI can reproduce educational neocolonialism.[414]

- This is further echoed in comparative policy analysis across Latin America, Africa and Europe, which notes that digital education policy discourse itself can construct differing and conflicting visions of equity without consideration of contextual needs and desires.[415]
- Similarly, participatory workshops with Indian public school teachers[416] and interviews with children across Brazil, India, Kenya and Thailand[417] both stress the importance of centring Global South voices, which the authors note remain underrepresented in the AI-in-education evidence base overall.
- One-third of digital learning platforms deployed during the Covid-19 pandemic are no longer maintained, and across 32 countries with available data, only 65 young women have basic digital skills for every 100 young men.[418]

This reveals the scale of the 'AI divide' the Joint Statement's recommendations seek to prevent. Further, evidence suggests that this divide requires more than access to infrastructure to prevent the structural harms of exclusion and marginalisation:

- Interviews with refugee teenagers across Athens, Brussels and London found that vulnerability and digital exclusion intersect through unstable connectivity, competing literacy demands and 'digital bordering' (wherein immigration regimes use digital tools for surveillance).[419]
- In a Finnish survey, it was found that digital skills, not access alone, significantly mediate the relationship between education level and civic participation, underscoring that skill-building is what converts connectivity into meaningful participation.[420]
- Computer adoption in Indian schools is shaped by non-classroom factors such as political perceptions, bureaucracy and existing structural inequality in education.[421]

[414] Nyaaba et al. (2025).
[415] Ferrante et al. (2024).
[416] Sebastian et al. (2024).
[417] Kasturi et al. (2025).
[418] van Cappelle (2023).
[419] Georgiou et al. (2024).
[420] Lybeck et al. (2023).
[421] Kalyan Shankar et al. (2024).

- The issue of discrimination and structural inequality was also observed in a study of 10,800 children, in which perceived individual and social discrimination influenced their acquisition of digital skills, thereby revealing the compounding nature of discrimination in digital skills divides.[422]

Children themselves note the harms of AI systems, reinforcing the case for stronger literacy and safeguards. A Common Sense Media survey found that 64% of US teens do not trust technology companies to care about their wellbeing, 62% doubt companies prioritise safety over profit, and 39% of those using GenAI for schoolwork had encountered inaccuracies in their outputs[423] (see 8. Child participation).

Numerous studies have also observed how such reliance on AI systems for companionship or learning can further cause harm to their mental health (see 4. Child safety). As such, awareness and literacy programmes should not be siloed within technical or ethical curricula without also providing additional policy safeguards that address children's growing emotional and social needs. In a similar vein, the World Health Organization (WHO) brief on digital determinants of youth mental health recommends a precautionary, whole-of-system response that spans social media, AI and platform accountability, rather than relying on device-level or screen-time restrictions alone.[424]

Evidence of AI-related risks to children's rights in education

Evidence on AI systems specifically deployed in or marketed for education and childhood settings raises immediate concerns:

- A scoping review of 42 studies on AI in early childhood education similarly identifies risks around data privacy, algorithmic bias and emotional AI tools (social robots, emotion-recognition systems) fostering 'overreliance, manipulation or loss of autonomy' that can undermine the relational, play-based learning central to early development; the review characterises existing regulatory frameworks such as the GDPR as fragmented and lacking early-childhood-specific provisions.[425]
- One review of AI-enabled children's toys similarly finds that industry marketing claims about educational and developmental benefits generally outpace the available academic evidence base,[426] while others note that AI-based instructional avatars, although showing promise for individualised,

[422] Mascheroni et al. (2022).
[423] Calvin et al. (2025).
[424] WHO (2025).
[425] Berson et al. (2025).
[426] Xiao & Gonçalves (2025).

real-time adaptive instruction, carry risks of inaccuracy and insufficient data protection for learners.[427]

- A child rights audit of GenAI tools used in the UK (Character.ai, Grammarly, MagicSchool AI, Microsoft Copilot and Mind's Eye) found that all five tools undermined children's rights to privacy and protection from commercial exploitation through opaque data practices; Microsoft Copilot was found to activate advertising trackers for child users without a CRIA in place, and MagicSchool AI chatbots were found to give misleading assurances and inappropriate or unsafe responses.[428]

Alongside the need to centre children in AI governance dialogues, it is also necessary to consider the wider ecosystem in which parents, guardians and educators play a prominent role in guiding and mediating children's interactions with AI systems:

- Internet Matters' UK survey found 44% of children actively engaging with GenAI and 54% of child users applying it to homework, yet 60% of parents reported their child's school had not informed them of any GenAI plans, and 60% of schools had not discussed AI use with students at all.[429]
- Another report also found 70% of teens had used GenAI, but only 37% of parents were aware of this use.[430] Moreover, the study also found that 40% of teens used GenAI for schoolwork when no school policy was in place, and 46% of those did so without teacher permission.[431]
- Common Sense Media flagged a widening 'awareness gap' between the pace of GenAI adoption and parents' and educators' capacity to guide children's use, leaving children navigating AI tools with comparatively little structured critical curricula; further advocating for family- and school-level guidance as a policy priority.[432]
- In this context, it is noteworthy that an empirical study of in-service teachers found that structured AI literacy instruction measurably improved teachers' confidence and competence in integrating AI into their practice,[433] suggesting that the teacher-training gap can be addressed through targeted capacity building, as outlined in the Joint Statement.

[427] Fink et al. (2024).
[428] Atabey et al. (2025).
[429] Bissoondath (2024).
[430] Madden et al. (2024).
[431] Ibid.
[432] Torney (2023).
[433] Du et al. (2024).

The importance of AI literacy education

Evidence shows the exclusion or lack of prioritisation of critical AI literacy, which is necessary for children's empowerment and the realisation of their rights (see 4. Child safety):

- A systematic review of AI literacy programme design identifies at least 17 distinct frameworks across 4 thematic clusters (competency-based, computational, sociotechnical and practice-based), but finds that across this landscape, knowledge of how to use AI dominates programme design, while the critical dimension (i.e., understanding power, ethics and societal impact) is the least represented.[434]
- These findings are also supported by a review of K-12 AI literacy, which found that ethics curricula remain a minority within current curriculum design.[435]

When viewed alongside the aforementioned studies on structural issues and children's civic participation, this evidence indicates long-term harm to children's ability to navigate the sociopolitical landscape of their futures.

Among marginalised students, who are often misrepresented or subject to extensive digital surveillance, there is a need for critical capacity building for professionals involved in education, design and policymaking to ensure AI-based services respond to all children's needs and to address and mitigate discriminatory patterns. Notwithstanding these limitations, there have been studies to monitor, analyse and provide insight into children's interactions with AI systems in education:

- A qualitative study of 40 Black high school students in the US found that a curriculum explicitly naming anti-Blackness as embedded in algorithmic systems enabled students to recognise, resist and reimagine their relationship to AI-mediated racism.[436]
- A study of 116 students in grades 8 and 9 on AI literacy and LLMs found that students were less likely to accept underspecified prompts, more likely to ask follow-up questions after inadequate responses, and achieved higher task performance than a control group, [437] thus demonstrating the need and utility of critical literacy.

[434] Atias & Mawasi (2025).
[435] Ma et al. (2025).
[436] Tanksley (2024).
[437] Clerc et al. (2026).

- In Kashmir, a region facing one of the world's longest-running internet shutdowns,[438] children who face disruptions in education, whether due to access to technological infrastructure itself or to political instability, can leverage technology when it is meaningfully co-designed with conflict-affected societies through human connections, with device sharing and the creation of 'disconnected mode', which provides online access during times of sociopolitical internet interference.[439]

Supported by such evidence, the Joint Statement recommends non-formal methods which, when operationalised alongside co-design and children's participation, can yield successful results:

- A narrative-based ethics curriculum, delivered to secondary students in both formal and informal (e.g., home) settings, paired short fictional ethical dilemmas with non-fiction AI content and reported strong engagement in understanding technology's societal impacts.[440]

- The '4As' framework (ask, adapt, author, analyse), developed through co-design with families, found that collaborative, dialogic engagement across generations builds stronger critical AI understanding, and that children often perceive algorithmic bias differently than adults, thus presenting a case for family-inclusive rather than child-only literacy design.[441]

- Another study observed that teachers from both STEM and literacy backgrounds who co-designed AI ethics curricula with students based on their needs and capacities were more likely to resonate with the class, revealing how teachers' customisation led to more holistic approaches and pointed to moving beyond uniform teaching methods.[442]

- Co-design approaches have been studied in Jamaica, where researchers conducted a year-long participatory project with 25 schoolchildren on co-designing ethical guidelines for immersive technologies, and researchers recommended sustained 'slow scholarship' engagement over one-off interventions.[443]

- Workshops with 209 Finnish primary and lower-secondary students used hands-on, creative activities to teach algorithmic bias in GenAI, and found statistically significant improvements in children's explanations of bias after

[438] Kumar et al. (2023).
[439] Wani et al. (2022).
[440] Forsyth et al. (2021).
[441] Druga et al. (2021).
[442] Walsh et al. (2024).
[443] Johnston et al. (2024).

the intervention, most notably in identifying gender bias in AI-generated depictions of professions and wealth.[444] Early instruction and well-designed AI literacy programmes have also been shown to reduce gender-based disparities.[445]

- A global study with 1,128 children aged 10-17 reported that children wish to receive basic education on AI, including critical knowledge of harms such as misinformation and bias. Participants called for better safety and accountability, reduced addictive design and access to guidance and support to overcome loneliness and isolation.[446]

These promising models remain the exception rather than the rule, however, and the evidence on children's everyday AI use suggests literacy provision is lagging well behind adoption.

Emerging directions

Within this ecosystem, it is necessary to evaluate whether existing policy approaches are contextually relevant, culturally sensitive and measurable in their outcomes. At the policy level, there are signs of convergence toward structured guidance. The OECD and EU's joint AI literacy framework for primary and secondary education organises learning outcomes around four domains (Engage with AI, Create with AI, Manage AI, and Shape AI) intended to guide curriculum, teacher training and assessment design across Member States, and explicitly incorporates an understanding of how AI systems reflect human values and design choices.[447]

Similarly, the US Department of Education foregrounds a 'humans in the loop' principle,[448] stating how AI should not be treated as a replacement for 'a teacher, a guardian, or an educational leader as the custodian of their students' learning',[449] while cautioning how model limitations are most pronounced around contextual factors including creativity, cultural responsiveness and the social and motivational dimensions of learning.[450] At the same time, the US Department of Education which, at the time of writing, has downsized staff under wider claims of dismantling the department as a whole, has also issued EdTech guidance that leaves states and districts in charge of

[444] Vartiainen et al. (2024).
[445] Cheng et al. (2025).
[446] Child & Youth Friendly Governance Project & 5Rights Foundation (2026).
[447] OECD & European Union (2026).
[448] US Department of Education, Office of Educational Technology (2023, p. 17).
[449] Ibid, p. 16.
[450] Ibid.

evaluation, leading then to concerns over equity and implementation gaps across the country.[451]

Translating these principles into auditable, classroom-level practice remains a challenge as the frameworks specify what children should learn, but implementation pathways, teacher training and assessment mechanisms are comparatively underdeveloped. Wider policy changes to education departments around the world does put such approaches at risk and undermine both professionals and students facing disproportionate, discriminatory and increasingly unregulated AI integration.[452]

[451] EdSurge (2026).
[452] UNESCO & International Task Force on Teachers for Education 2030 (2024).

Conclusions

Now that children around the world are increasingly using and impacted by AI systems and other automated tools, the Joint Statement (see Table 1) sets out an authoritative and comprehensive rationale and recommended actions to ensure that children's rights are respected, protected and fulfilled. Through a wide-ranging, multidisciplinary narrative evidence review, we examined what can be learned about the nature, scale and distribution of AI-related harms and benefits for children; which factors shape whether children's rights are protected or undermined in relation to AI; and what significant evidence gaps exist.

We conclude that the evidence available is already sufficient to support the Joint Statement's recommendations. Indeed, this report has documented a wealth of robust research studies whose findings merit urgent attention. Taken together, these provide the empirical underpinning needed by States and other stakeholders for planning, implementing and evaluating the policy and practical interventions now needed to prevent further AI-facilitated violations of children's rights. The evidence also reveals constructive ways in which to embed children's rights across the AI lifecycle.

Importantly, the evidence and recommendations presented in this report include, but go significantly beyond, issues that arise when children directly use or interact with AI. We have shown that as, if not more, important are the issues that arise when public and private sector organisations deploy AI as part of their operation, with a host of consequences for children's rights which often go unrecognised but that matter. It is vital that, as AI companies continue to innovate, especially now in relation to agentic AI, and as the structures of society increasingly rely on AI, the impacts on children's rights – whether beneficial or harmful – are fully recognised and addressed. In relation to agentic AI, once again, innovation is running ahead of the evidence. But we do know already what 'good' looks like, hence we have structured this report around the Joint Statement, itself building on *General comment No. 25* and, at its core, the UNCRC.

The evidence has been presented according to the 11 groups of recommendations set out by the internationally endorsed 2025 *Joint Statement on Artificial Intelligence and the rights of the child* co-led by the ITU, the UN Committee on the Rights of the Child and UNICEF. However, as is clear from the multiple cross-references in this report, children's rights require a holistic approach: rights are interdependent, and risks to any one right can affect the others, just as initiatives to address any one may have consequences for the others. The evidence highlights in particular why AI governance measures should respect children's privacy, expression, information and inclusion, while any measures aimed at restricting or prohibiting access and use of AI should respect children's and best interests and empower their participation in design and governance.

1. States

Pope Leo XIV's recent encyclical on AI and human dignity observes, 'technology is never neutral, because it takes on the characteristics of those who devise, finance, regulate, and use it.' This serves as a reminder that the State's role is not to wait for AI systems to prove themselves harmful before acting, but to build the legislative, institutional, budgetary and evaluative architecture in advance.[453] Thus, States should ensure children's rights are included across the AI lifecycle, reviewed continuously as the technology evolves, and enforceable in line with existing national and international human rights protections.

2. UN and other international organisations

The evidence reveals a growing body of child rights-based frameworks and institutions concerned with AI governance, which require considerable further targeted mechanisms to achieve the recommendations in the Joint Statement. A consensus on the importance of children's rights among States and across all international organisations, including within the UN, is yet to be achieved. Too often, policy processes, for example in the domains of health or education, turn to AI to fill gaps without robust audits and sensitivity to existing sociocultural factors (see 7. Non-discrimination and inclusion, and 9. AI and environment). A fundamental challenge remains: guidance outpaces the coordinating capacity needed to operationalise it, and coordinating capacity is too often proposed without being explicitly mandated to consider children.

3. Responsibility, accountability and transparency

There are signs that the broader accountability and transparency environment is maturing in ways that could be leveraged specifically for children. The number of companies publishing frontier AI safety frameworks more than doubled across 2025; so, too, did frameworks from governments and international organisations focused on transparency and risk assessment.[454] As these norms continue to solidify, there is a window of opportunity to advocate for embedding child-specific disclosure and risk-assessment requirements within them, rather than defaulting to adult-centric baselines

[453] Leo XIV (2026).
[454] Bengio et al. (2025).

against which children's distinct vulnerabilities are not meaningfully assessed.[455] However, these two trends are poorly related, with AI developments too rarely embedding rights-based frameworks.[456] There is only fragmentary evidence of the uptake of child-centred audits – such as CRIAs and HRIAs – which can translate this principle into auditable steps that require companies to assess accessibility for children with disabilities, remote and/or underserved areas, and girls, alongside affordability measures aimed at disadvantaged populations. The evidence also points to insufficient and meaningful collaboration with children and the third sector. With growing evidence of harms and a lack of clear routes to redress and remedy for children harmed by an increasingly complex and globally driven AI value chain, there is a need to operationalise interoperable, auditable and measurable frameworks throughout the AI lifecycle to ensure human rights due diligence and to address these harms.

4. Child safety

The sexual abuse and exploitation of children through AI systems represents one of the most severe and rapidly escalating child safety challenges of the current period. The harms from companion AI systems, often built with models, data and/or hardware from global tech giants, not only affect children's growing emotional and cognitive capacities, but can also cause serious and fatal injuries. The anthropomorphic and emotionally adaptive design features – including recall, human-like language and manipulative tendencies – that drive engagement in companion AI systems are at the heart of this problem.[457] The challenge of protecting children from harmful content through AI-based safety systems is complicated by a fundamental tension between protection and access. Any measure restricting children's exposure to content must be consistent with conditions for restricting the right to freedom of expression under international human rights law and calibrated to children's evolving capacities.[458] Moreover, it is important to evaluate governance mechanisms across the AI lifecycle, from design and data to deployment and decommissioning. Appropriate safeguards should consider both circumstantial (i.e., external, such as economic, historical or social environments) and modifiable (i.e., internal, from the production of the AI system itself) risk factors, which require a sociotechnical approach spanning the AI lifecycle.[459]

[455] Bengio et al. (2025).
[456] Independent International Scientific Panel on AI (2026).
[457] Adewale & Muhammad (2025); de Freitas et al. (2026); Guingrich & Graziano (2024).
[458] CDMSI (2025); Nash (2021). See UNCRC General comment No. 25 (UN Committee on the Rights of the Child, 2021).
[459] Leslie et al. (2021).

5. Data protection and privacy

Children's right to privacy and data protection in digital environments is recognised across multiple international instruments, including the UNCRC, *General comment No. 25*, UNICEF *Guidance on children 3.0*, and recommendations from the OECD (2021) and UNESCO (2021). These emphasise that children's privacy must be safeguarded across all environments where data is processed. Although not directly framed around children, the OHCHR (2021) also addresses children's data, profiling and their privacy. Yet the gap between these normative commitments and operative protection remains substantial. In both child-facing contexts, such as schools, and in relation to public and private sector organisations now deploying AI, the evidence documents multiple ways in which children's rights to privacy and data protection are threatened or violated, with little or no pathway for mitigation or remedy and redress.

The comparative research necessary to guide policy on children's data protection is still nascent, especially as AI developments are proliferating globally without embedded child-centred accountability measures.[460] Responsible AI frameworks developed specifically for children offer practical guidance on how data minimisation, purpose limitation and consent requirements should be operationalised across the AI lifecycle to address structural data challenges.[461] Nevertheless, the onus falls on States and businesses to operationalise children's rights approaches to data stewardship. In this context, the more that children's data is used in critical domains such as healthcare, the more there should be meaningful participation.

6. Best interests of the child

Noting that platforms for children's play, companionship and education are increasingly underpinned by predatory, compulsive and otherwise harmful commercial AI systems, it is imperative to address when, who and on what basis children's best interests are determined. The evidence currently points to an inconsistency in the application of the principle in practice. As noted across other sections on children's participation, age-appropriate measures and accessibility, there is evidence to show best practice in upholding children's best interests, alongside guidance on developing AI-driven toys with children's social play as a central driver[462], but there are gaps in the global uptake of these measures in a contextually sensitive manner. Some argue that human rights frameworks, including the UNCRC and *General comment No. 25*, were not designed for the kind of meaningful procedural interpretation that assesses AI-specific harms.[463]

[460] Aitken et al. (2025).
[461] Grimes et al. (2024).
[462] Goodacre & Gibson (2026).
[463] McGregor et al. (2019).

When the best interests principle is misunderstood, a 'trading rights' logic sometimes prevails in which principles of protection and participation are treated as competing rather than reinforcing in the digital environment.[464] Accordingly, the Joint Statement's recommendations acknowledge situations in which rights may seem to compete, but suggest grounding actions in the best interests of the child. Children's rights should be considered across all ages without falling prey to rights trade-offs; States (including legislative bodies, courts and other bodies) alongside business enterprises should take appropriate actions to protect children in the digital environment; and the basis for determining best interests rests on children's views as well as due process mechanisms such as CRIAs to meaningfully record rights-protecting practices.[465]

7. Non-discrimination and inclusion

Notwithstanding the considerable focus on non-discrimination principles in normative guidance, the evidence base points to a number of harms that enter the AI lifecycle and entrench existing systemic discrimination across the world. This is further compounded by wider AI value chain and lifecycle considerations, (such as the material, hardware, software, data or design elements) which, as analysed in other sections such as 9. AI and the environment, including climate change, have distinct impacts on children's enjoyment of rights, both within and between countries. Further, the evidence indicates that algorithmic bias affecting children is rarely a singular issue. Instead, it poses a structural challenge that recurs across race, gender, age and socioeconomic status whenever training data, design choices or deployment contexts are not critically examined for children's differential vulnerability. This, in turn, can contribute to children's exclusion in developing skills and capacity for participation in governance and design. In essence, AI systems entrench existing inequalities in their design and development choices, which lead to discriminatory outputs while also operating within a wider socioeconomic ecosystem that privileges certain groups in their access and use. Indeed, based on the evidence collected, there is cause to suggest that such discrimination far surpasses the regulatory mechanisms to prevent harm. Nevertheless, the same growing body of evidence also suggests multistakeholder considerations of children and AI, including from States, international organisations, the third sector, academia and industry. This points to an urgent need for this evidence to be developed further and put into practice across the world, hand in hand with improvements in children's participation.

[464] Livingstone et al. (2024a).
[465] Ibid.

8. Child participation

The evidence regarding child participation suggests that the barriers are less a lack of available methods than the lack of institutional obligation and resourcing to apply them consistently.[466] At the same time, without robust methods of child consultation that respond to their individual, communal and contextual needs and desires, there are challenges in realising the Joint Statement's recommendations for children's development in democratic societies, especially as children increasingly use social media platforms for both entertainment and access to information. Child participation should be treated as a resourced, auditable design requirement rather than a unitary, standalone or 'tick box' engagement. This requires, first, that participatory methods be mandated through uniform instruction while remaining sensitive to the cultural, socioeconomic, gendered, racialised and contextual needs of children across the world. Second, as a tool for operationalising knowledge, media and information literacy should incorporate critical knowledge and practical training to support children in navigating online spaces. Third, age assurance and age-gating mechanisms should consider the age-based and contextual needs of children, which do not directly affect their other rights, including the right to information and participation. Participation, therefore, can be operationalised not only as a discrete principle but also as the mechanism through which each of those principles is tested against children's own experience.

9. AI and the environment

The report also documents an urgent need for environmental considerations to be prioritised in legislative, financial, education and other dimensions of public and private responsibility. *General comment No. 26* calls on States to engage more robustly with businesses to ensure emissions reduce at pace, subject to human rights due diligence, and notes that children are increasingly party to litigation seeking to hold governments and businesses accountable for environmental harm. This aligns with the right of everyone, including children, to enjoy the benefits of scientific progress,[467] a framing that should anchor how international environmental law treats AI, especially as the Joint Statement calls for AI to be harnessed for climate modelling and resource management.[468]

More specifically, environmental impact assessment for AI needs to move beyond energy efficiency to capture water use, extraction and community-level burdens, and to do so through a child rights lens. Indigenous and other affected communities, including

[466] Lehnert et al. (2022).
[467] See ICESCR, Article 15(3); CESCR *General comment No. 26* (2023).
[468] Morgera (2024).

children, must be meaningfully consulted, and this engagement must be embedded before harms from AI infrastructure development occur. In conjunction with meaningful participation, environmental literacy should be incorporated into the AI education curriculum so that children can identify and communicate harms from the use of these systems. Last, AI supply chains should be monitored and regulated to prevent the use of minerals extracted with child labour while also preventing the systemic issues that contribute to children's forced labour in such harmful situations.

10. Capacity building

From the evidence on capacity building, we conclude that realising the Joint Statement's recommendations will require moving capacity building from principle to auditable practice across all three groups it names, that is, State officials, professionals working directly with children, and business enterprises. Specifically, training commitments need measurable indicators rather than normative frameworks alone, as there is currently insufficient global evidence on the efficacy of different capacity building programmes, especially on a longitudinal basis. Further, capacity building for AI designers, developers, and deployers should draw on children's own participation, informed by the wealth of existing child-centred design frameworks. Last, capacity-building resources and funding should be directed toward under-resourced jurisdictions, particularly to support the mitigation of multiple levels of systemic discrimination and exclusion, which can be exacerbated without rights-centred AI innovation.

11. Education, science and awareness-raising

The Joint Statement's focus on education and awareness aligns closely with recommendations in other sections, which demonstrate the need for a whole-of-society approach to the design and development of AI systems for children. As noted in the evidence, this requires cooperation between governments, private companies, industry practitioners, the third sector and children themselves. Education here should be considered in terms of literacy capabilities and awareness for children to critically understand technology and the digital ecosystem, and to understand their rights and available redress mechanisms; parents' and educators' training on harms and opportunities; consensual and sensitive programmes by educational institutes and companies; and targeted, well-funded programmes for society-wide AI training. The Joint Statement also calls for State investments in AI R&D to support children. This is relevant in a context where, despite US$1.43 billion funding in 739 AI companies developing AI-centred education systems,[469] there has been a steep decline in education

[469] Tracxn (2026).

investments.[470] Since venture capital is often driven by profit motives, it may be poorly positioned to address the holistic and critical learning needs of children.[471] Here lies an important role for States. Last, there may be scope for positive educational outcomes when investors receive both AI literacy training, particularly on ethical harms, and targeted tax and capital investments from policymakers.[472] However, additional disaggregated evidence on capital flows at the regional and State levels is needed to further analyse how investments can support culturally, linguistically, socially and contextually relevant AI systems for education; currently, there is overwhelming market capture by companies based in the Global North where systems are trained on majority languages, such as English, without semantic understanding of minority and minoritised languages.[473]

12. Expanding the evidence base

Finally, we reflect on the state of the evidence base, as academic researchers. In conducting this narrative review, we have struggled to find enough good-quality research, especially for children of all ages, living in diverse circumstances, and from the Global South. Over and again, we have asked ourselves how applicable is evidence about some children, especially in the Global North, to children living in different circumstances?

Unsurprisingly, most research is cross-sectional, not longitudinal, limiting our capacity to understand rapidly evolving trends. Further, these trends should be studied by adapting methods and questions according to the diverse contexts in which children access or are impacted by AI. Such research should also consider how race, gender, disability, socioeconomic status and other intersecting factors including their evolving capacities shape children's experiences of AI-enabled technologies.[474]

Beyond the limited research conducted directly with and about children and AI, evidence is also scarce regarding the implementation, reach and effectiveness of the multiple AI-related programmes, policies and initiatives being rolled out around the world. It is one thing to track whether human rights due diligence was undertaken or a CRIA conducted – and the answer is generally very rarely – but it is quite another to gather evidence on whether it was done well and, crucially, whether it protected children's rights and improved their lives.

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[470] Bhattacharya (2026). This reflects the Covid-19 pandemic, the failure of EdTech startups, and a shift towards career-focused and hardware systems rather than integrating AI literacy into traditional learning curricula.
[471] Leslie et al. (2024).
[472] OECD & European Union (2026).
[473] Bender et al. (2021); Birhane (2023); Joshi et al. (2020).
[474] Livingstone & Sylwander (2025).

We hope this report supports researchers as they pursue new questions, design needed projects and bring their evidence into the policy space.

Finally, we conclude that there already exists a sufficient evidence base to mandate substantial and urgent action on the part of States and other relevant actors, particularly developers and tech companies, to address children's rights and AI. This action should mitigate and address three distinct risks:

- First, the direct risks of harm to children (to their safety, privacy, inclusion, education, wellbeing, etc.) facilitated by uses of AI. If the recommendations in the Joint Statement are not acted on, these are set to grow.
- Second, the risk of amplifying inequalities and deepening divides, precisely by providing AI-related opportunities and safeguards for some children in some parts of the world, while others get left out or left behind.
- Third, underestimating the opportunity costs of insufficiently acting on the Joint Statement's recommendations, such that the potential benefits of developing and deploying rights-respecting AI remain unrealised. These opportunity costs will accrue to children and society.

As the evidence suggests, all these risks are already occurring. And the pace of innovation in AI is escalating.

Next steps

Given this a fast-moving field, both as regards AI development and deployment, we expect continued expansion of the evidence base. We plan further researcher and stakeholder engagement to identify priority research questions and evidence gaps, so that researchers can support the wider endeavour of advancing children's rights in a digital world. This may involve primary research, including with children, or broad or specialised literature searches, research synopses or other activities including deliberation on the quality of the evidence base and ways to fill the important gaps. Especially important will be greater attention to research and capabilities in low- and middle-income countries, formerly deindustrialised states, conflict and disaster-affected regions, and so forth. Given these unfolding developments, we anticipate a revision of this report in 2027, and invite researchers to contact us to suggest updates.

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Digital Futures For Children

Research at LSE and 5Rights Foundation

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