A global review of selected digital inclusion policies

Key findings and policy requirements for greater digital equality of children

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for every child

Contents

Note: This review should be read alongside the UNICEF child-centred digital equality framework, which outlines the elements and stakeholders necessary for achieving digital equality for children.

I. Introduction: Why the review and how it was undertaken

Digital inclusion policies, developed either by governments or international stakeholders, set the road map for how to increase digital inclusion for children. They are crucially important in determining the extent to which children can develop and be protected and empowered online. Policies, and the ways they have been implemented to date, have evolved from the days when they were dominated by the idea of the 'digital divide' – i.e., the gap between those who could access the internet and those who could not – to a broader outlook that considers aspects such as digital literacy, online content and safety. This policy change to increase digital inclusion has shown results: Many more children are connected, are digitally skilled and are safer online than in the past.

However, a more holistic approach – with a focus on digital equality – is needed. Data show that, because of unaddressed inequalities in their lives, disadvantaged and vulnerable children (or those perceived to be vulnerable, such as girls) are less likely than other children to be able to take up the opportunities and avoid some of the risks that come with digitization. Levels of internet access, digital skills and patterns of use, and the opportunities and outcomes they present for children, are influenced by gender, with wider gaps between the genders seen in low- and middle-income countries.[1] In 54 countries and territories analysed, mostly representing low- and lower-middle-income economies, only eight have achieved gender parity in internet use among youth aged 15–24.[2] Adolescent girls and young women trail behind their male counterparts in internet use by up to 27 per cent. Cultural and social norms can be barriers to going online, especially for girls.[3] Socioeconomic status matters: Even in Europe, children from poorer contexts can, at best, be half as likely to have connectivity as their more privileged peers, impacting on their ability to benefit from online learning.[4] For some children growing up in rural areas or countries with limited infrastructure, lack of electricity is a barrier to online usage.[5] In other places, children's level of digital inclusion is dependent on race or ethnicity.[6] Other determining factors include their background, class, disability and humanitarian context. These characteristics and the resources available to children should not impact their digital lives.

Taking a holistic approach, UNICEF's child-centred digital equality framework stipulates the elements that need to be taken into consideration (see Figure 1) and the stakeholders that need to be involved (see Figure 2) if policies and related interventions are to increase digital equality for children. We used this framework to review 126 selected digital inclusion policies or related public communiqués of regional bodies, as well as those from a minimum of three countries in five major regions (see Annex I).[7] We wanted to understand to what extent policies attempt to increase digital inclusion for children, highlight promising practices, and identify policy gaps that need to be addressed if greater digital equality of children is to be achieved (see Annex II for more on the review approach).

Figure 1: A child-centred digital equality framework

Policies robust enough for an equitable digital future incorporate all of these aspects
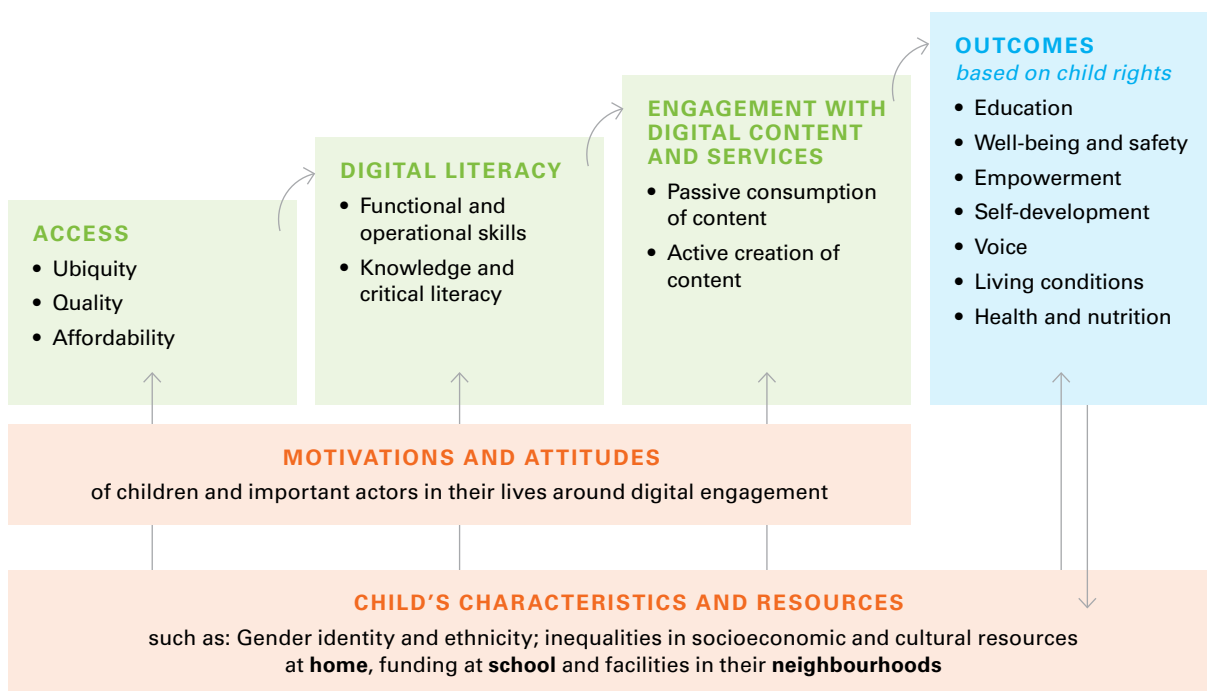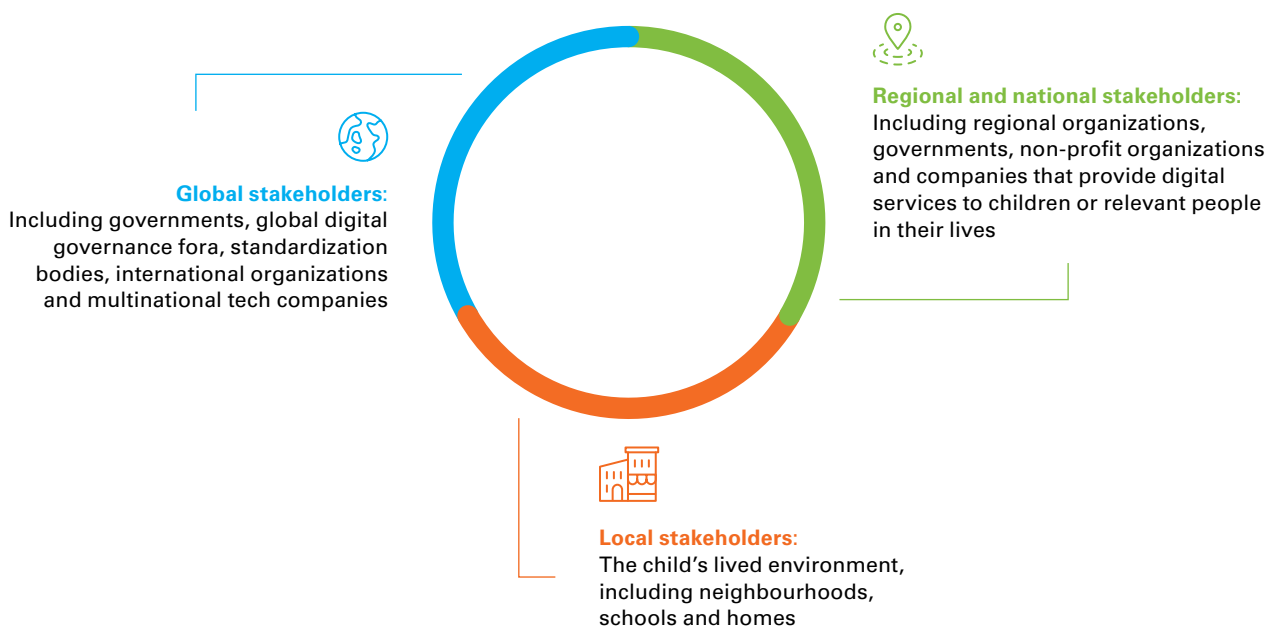
OUTCOMES
based on child rights
- Education
- Well-being and safety
- Empowerment
- Self-development
- Voice
- Living conditions
- Health and nutrition

ENGAGEMENT WITH DIGITAL CONTENT AND SERVICES
- Passive consumption of content
- Active creation of content

DIGITAL LITERACY
- Functional and operational skills
- Knowledge and critical literacy

ACCESS
- Ubiquity
- Quality
- Affordability

MOTIVATIONS AND ATTITUDES
of children and important actors in their lives around digital engagement

CHILD'S CHARACTERISTICS AND RESOURCES
such as: Gender identity and ethnicity; inequalities in socioeconomic and cultural resources at **home**, funding at **school** and facilities in their **neighbourhoods**

Figure 2: Framework of stakeholders

Policies should call on these stakeholders' involvement for a more equitable digital future

Global stakeholders:
Including governments, global digital governance fora, standardization bodies, international organizations and multinational tech companies

Regional and national stakeholders:
Including regional organizations, governments, non-profit organizations and companies that provide digital services to children or relevant people in their lives

Local stakeholders:
The child's lived environment, including neighbourhoods, schools and homes

Outline of the review

The review first briefly discusses global insights obtained from the policies reviewed. We then provide requirements for future digital equality policies, drawing on key findings from regional and national cases in each of the five regions, as well as the child-centred digital equality framework. Examples are presented to illustrate cross-cutting issues as well as promising – and often unique – approaches.[8] The final section contains recommendations aimed at specific stakeholder groups. We did not find examples for these recommendations and provide them to inspire future change.

II. Overall insights from the review

The review of all selected policies related to digital inclusion found both commonalities and considerable regional and national differences across the five regions. The review revealed both positive elements in the policies and key gaps that need to be addressed if digital equality is to be achieved. The five main insights are grouped around policy approaches to education, digital inclusion, inequalities and their roots, children as a distinct user group and multi-stakeholder involvement.

1. **Policy approaches to education are widespread but limited in scope.** The review found that while many policies view education as a driver for digital inclusion, they do so in a narrow way. This is because:

    - Most digital inclusion policies do not consider children explicitly, except in the context of education.

    - When children are considered, the focus is generally on youth aged 16 and older and higher education, mostly in relation to increasing participation in science, technology, engineering and mathematics (STEM) degrees, employability and careers.

    - Early childhood education is rarely mentioned, and nor are children's different developmental stages, which may need tailored digital inclusion interventions.

2. **Policy approaches to digital inclusion show promising practices but need to be more holistic and forward-looking.** Policies generally cover various aspects of digital inclusion, but with limitations. For example, they do not tend to place a strong emphasis on online content or the outcomes of digitization.

    - All of the policies include infrastructure and access plans (although details and implementation strategies vary widely).

    - Most countries reviewed have a functional approach to building digital literacy skills for work. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO),[9] an important stakeholder in media and digital literacy programmes in Asia, national digital literacy policies for children emphasize learning the technical aspects of digital technologies (e.g., how to use them and how to code software), but there is less focus on critical literacy in relation to the ethical, social and emotional impacts of digitization on people and society. At the same time, some other countries, such as South Africa and some in the Middle East and North Africa (MENA), also include more critical, social and creative aspects of digital skills that relate to citizenship, building relationships and bringing about positive change.

    - Some countries in the Global South, such as Saudi Arabia, emphasize local (cultural) content creation and not just the availability of content and services in different languages.

- Some policies include key performance indicators (KPIs) related to digital opportunities (e.g., infrastructure roll-out, reducing the cost of devices, and number of youth trained in digital skills), but few policies have KPIs that relate to the outcomes of digital interventions (such as improvements in the quality of education, mental and physical health, and civic participation, or a reduction in discrimination).

- While some policies consider emerging technologies (e.g., artificial intelligence [AI], 5G or elements of smart cities), they rarely show an awareness of how the technologies might aggravate existing inequalities among children.

3. **A 'build it and they will come' approach with insufficient attention to inequalities and their causes.** Most policies included in the review aim to increase digital inclusion rather than tackle digital inequalities. Many follow a 'build it and they will come' approach (e.g., improving infrastructure and access, and putting educational content online) as the only drivers of inclusion. When digital inclusion policies do focus on inequalities, they cover a few key types of inequalities relevant to children.

- Explicit mentions are made of poverty (especially in relation to those living in rural areas – such as in Brazilian policies), gender and physical disability (such as by China).

- Language-based differences within countries and regions also figure heavily, with policies, such as in India and the European Union, calling for content and services to be available in different dialects and languages.

- Instead of focusing on a single issue such as gender, income or location, some countries in the Global South consider a variety of intersectional inequalities not generally considered in research or policymaking elsewhere, such as the obstacles faced by migrant women or poor families living in rural areas.

Other inequalities relevant to children are mentioned extremely rarely – for example, those based on class, caste, religion, ethnicity, race, citizenship, social isolation or mental health.

Overall, the policies include little discussion about the reasons why inequalities exist.

- Digital inclusion policies assume that digital inequalities stem from a lack of access, training or awareness of benefits, but they tend not to focus on the root causes of unequal conditions.

- In the case of the most frequently mentioned child-related inequality – girls' lack of digital access and engagement – policies propose training to develop individual skills and raise awareness of the benefits of technology. However, the policies do not consider the reasons for differences between boys and girls in skills or attitudes towards digital technologies and their use; nor do they suggest actions to address these differences.

4. **Children's varied characteristics and development stages are not fully recognized.** When children are explicitly mentioned in the policies, they are often presented as a homogeneous group, and key nuances are not discussed. For example:

    -   Children are assumed to be 'digital natives'. Especially in relation to interventions to increase digital skills in the general population, children are often assumed to already have skills or be able to acquire them without training or interventions. While many children may have technical aptitude, they still need to be taught critical digital skills.

    -   In Global South countries with young populations, the policies reviewed sometimes assert that because children are 'digital natives', digitization leapfrogging is possible in those countries.

    -   In policies related to cybersafety and data protection, children are often broadly seen as victims of detrimental 'media effects' on their health and safety. There is little recognition of the differential impacts of digital media exposure and consumption on the well-being of more vulnerable and less vulnerable children.

    -   The opportunities and risks that emerging technologies present to children from different backgrounds and with different characteristics (e.g., ethnicity or gender identity) are rarely articulated.

5. **Multi-stakeholder involvement is acknowledged, but silos persist and key actors are missing.** The importance of multi-stakeholder involvement in achieving digital inclusion is frequently mentioned, especially with regard to public–private partnerships with telecommunications companies. However, there are some limitations in approaches to such involvement. For example:

    -   It is not clear who is accountable in cases where inequalities increase with digitization. Further, the allocation of responsibility for the implementation of digital inclusion policies and interventions is not always clearly defined.

    -   While some of the policies reviewed refer to multiple government ministries as carrying some responsibilities, most digital inclusion policies are siloed in ministries responsible for information and communications technology (ICT) or infrastructure, with only marginal input from other departments.

    -   Key actors who work with disadvantaged youth are rarely mentioned in the policies reviewed. Organizations working on equity and inclusion in general (e.g., gender equality or racial discrimination) or those working with children (apart from large international non-governmental organizations) are not mentioned as potential stakeholders in digital inclusion policies. Social and public service providers are mentioned only in the context of 'digital by default' – that is, enforcing digital inclusion by making services available online only. Local charities and civil society organizations are rarely mentioned in policies, even though they often carry out initiatives such as providing basic digital skills training in communities.

III. Key requirements for child-centred digital inclusion and equality policies

To address the gaps identified, the following requirements apply to all stakeholders designing or implementing digital inclusion and equality policies. Because no policy that we reviewed covered all aspects of digital inclusion, much can be learned from the promising practices of different regional and national policies, which, taken together, can inspire future change. The illustrative examples are provided to support more targeted and holistic policy approaches in the future. Policies should:

1. Focus on children as a key user group

Requirement

The policy agenda should recognize that children are implicated in many aspects of digital societies, beyond just being mentioned when it comes to formal education and safety, and should be a central user group to consider. This holistic view is particularly important when policies discuss equalities to be achieved and when emerging technologies are taken up in society by children. Even when children do not use emerging technologies directly, they can be impacted by them, such as when AI automated decision-making systems determine children's education access or health-care opportunities.

Illustrative approaches

The **African Union**'s Digital Transformation Strategy for Africa (2020–2030) is the most important recent regional policy document regarding digital inclusion. It mentions various economic and cultural groups, including children, in the context of the roll-out of a digital identity (ID) programme to help people access digital services and undertake transactions. Children are included alongside women, who are highlighted because, as carers, they need to be trained in digital skills and have digital IDs (to access benefits such as food vouchers or funding for education).[10] Children are also mentioned in relation to safety and protection from exploitation.

Kenya stands out for its explicit mentions of children in relation to safety and broadband access, digital skills-building and literacy training, and awareness-raising about safety. Its policies also consider the need for equity among children in digital skills and access.

For countries that are less mature in digital transformation, it is important to still start with access. **Niger** is focused heavily on getting its citizens connected to the internet. Children are mentioned in relation to education: The country aims to get schools connected and improve digital skills through the educational curriculum and help centres. While **Togo** is focused mostly on general access, it will be the first African country to link to the Equiano undersea fibre cable, which will enable improved internet access throughout the country for children as well as adults.

India's digital inclusion policies are accompanied by large-scale infrastructure developments and digital initiatives that impact children. For example, the Diksha platform is the world's largest open-source learning management system, BharatNet is the world's largest rural broadband project, and India Stack is an initiative that offers scholarships to children from minorities and children with disabilities, paid directly to beneficiary accounts.

The most recent **Mexican** Digital Education Agenda mentions child rights, children and youth explicitly, rather than just by proxy through schools and teachers. An update to the Mexican constitution around the right to education now calls for digital education as a necessary provision to ensure this right.

In **Europe**'s policies there is an explicit aim to ensure age-appropriate material is available for children in different age groups, and regulation aims to provide a safe environment for children. The **United Kingdom** (UK) has included children and their rights in digital policies and legislation, such as in the Age Appropriate Design Code.[11]

2. Apply digital inclusion and think of equality holistically

Requirement
Policies should be based on an understanding of why there are inequalities in digital access, skills, attitudes, content creation and consumption, rather than assuming the provision of digital opportunities will solve historical inequalities. This means looking at offline interventions, focusing on economic, social or cultural inequalities, alongside digital ones to establish equal outcomes in a digital future.

Illustrative approaches
Uniquely, **Qatar**'s policies mention not only skills, knowledge and infrastructure deficits as barriers to accessing digital services, but also weak or unstable family relationships as complicating equal engagement with digital technologies. There are specific strategies to reach young people and create awareness about the benefits of digitization through different channels, including traditional media. More broadly in MENA, the draft policies reviewed make mention of vulnerability in terms of conflict (e.g., refugee status) and social injustice (marginalization in legal systems) as causes of digital exclusion. They also note the potential for technology to give women a voice and help combat violence against women.

In **France** there is recognition that digital and social inequalities are strongly related, and almost impossible to consider separately. This is seen in development aid policies focusing on countries that were former colonies, which promote digital learning and access to digital technologies for the disadvantaged, and focus on helping girls gain access and skills. It should be noted that inequality among children is not linked to digital inclusion in France's domestic national policies that were reviewed.

In **Mexico** there is a policy proposal to establish a national education programme called the New Mexican School, incorporating digital education and content creation for citizens, including children, from all backgrounds. The proposal is realistic in arguing that for such a programme to be implemented, inequalities such as poverty, violence, poor-quality education and failing infrastructure need to be addressed first.

3. Address inequalities by focusing on specific needs

Requirement

Instead of promoting the broad ideas of children as digital natives or else victims of media effects, policies should be nuanced and based on an analysis of the digital inequalities of different disadvantaged and vulnerable groups. Policies should thus be targeted towards the specific needs of children. They should focus on tackling the aspects of digital inequality that create barriers to inclusion (e.g., a lack of critical digital skills) for disadvantaged or vulnerable children, such as girls from ethnic minority backgrounds not in employment, education or training.

Illustrative approaches

China's policies uniquely consider a range of inequalities among children (e.g., girls, children without family care or children with disabilities) and aim to help them through digital literacy education. There is also strict regulation to protect children's data and privacy from commercial and external interests.

India's digital inclusion policies mention inequalities in access in relation to rurality, poverty, caste, tribe, gender, disability and 'minorities', but not inequalities among children or in education. There is, however, specific mention of employment opportunities for rural youth, and gender inequalities are implicitly addressed in apps created to monitor and support mother and (girl) child safety and health. The country has established a National Educational Technology Forum to set standards for digital education. Education and digital inclusion policies contain a specific push for the development of software, digital archives and updated content in a range of Indian languages, to address needs around language barriers.

UK policies explicitly mention disadvantaged young people in the establishment of a UK National Academy, a new digital education service to support learners from all backgrounds and areas of the UK, which is free and available online.

In **Latin America and the Caribbean** (LAC) the main regional policies are the Agenda Digital 2030 of the intergovernmental trade body Mercado Común del Sur (MERCOSUR) and the eLAC 2022 agenda of the regional economic development body La Comisión Económica para América Latina (CEPAL). While both are largely focused on economic development, there are some unique points that are relevant for children and the important actors in their lives. First, the policies aim to improve the digital accessibility and cultural participation of people with disabilities. Also, eLAC 2022 is explicitly linked to the United Nations Sustainable Development Goals (SDGs) and includes a strong emphasis on overcoming gender and poverty inequalities. Girls are the only youth group mentioned in the policies; their digital inclusion is linked to safe participation online (non-discrimination is explicitly mentioned), alongside female leadership.

Brazil has introduced several policies on digitization, all of which mention children, with the exception of the Connected Education and Information Programme, which focuses more on teachers. Inequalities relevant to children are also mentioned in connection with varying levels of access and geographical poverty.

4. Follow an intersectional approach to supporting girls' digital inclusion and equality

Requirement

A focus on girls' inclusion is critical and must continue. However, it is important to take an intersectional approach, focusing on supporting girls who are most at risk of marginalization. Beyond girls, such a nuanced approach should seek to identify and support all groups of particularly vulnerable or marginalized children. It is also important that policies recognize the different stages of children's development and provide appropriate support during their life cycles.

Illustrative approaches

As noted above in the insights, a number of Global South country policies are concerned with intersectional inequalities – something not common in policymaking in the North.

In this regard, truly unique is the Technological Development of Orphanages initiative mentioned in **Egypt**'s policies, which supports orphanages for girls by teaching girls living there to become trainers in digital literacy (mostly coding-related) to other young people and help distribute laptop computers to other orphans in need.

Kenya's policies describe causes of digital inequalities along the lines of compound socioeconomic and socio-demographic characteristics such as age, gender, mental health, disability and financial resources. Even if the policies do not explicitly link these characteristics to inequalities among youth, they benefit youth indirectly, as they also make up a significant part of these categories.

5. Drive broad-based digital literacy

Requirement

Policies should push for digital literacy training that is not just technical but also creative and critical, especially in younger age groups but continuing across the learning journey. Children with creative digital skills are not only consumers of content, but empowered creators of it. Children with critical digital literacy have the tools to be discerning users of digital technology and possess the competence and confidence to use it safely to accrue benefits for themselves and others. Policies should move away from the narrow focus on economic outcomes (such as getting young people jobs in STEM subjects) and broaden the scope of digital literacy to increase child well-being and participation as part of respecting, protecting and fulfilling children's rights.

Illustrative approaches

The **European Commission** has a broad suite of policies related to digital inclusion that are relevant to children's digital skills and usage. Key points of these are:

- There is a strong focus on promoting basic digital skills and competencies from an early age.

- Digital literacy and tackling disinformation through education and training are explicitly mentioned.

- There is an emphasis on quality digital engagement to produce positive outcomes for children. While many countries simply publish material online that children study at their own pace, in the European Union this is complemented by solid training. The content that is published covers a broad range of topics, in all countries and in local languages.

- Children are seen as active agents; policies aim to empower children to help them make safe and informed choices and express their creativity online.

- In the context of education, language is mentioned as a barrier to access; thus online multilingualism is promoted.

There are two related sources that shape digital inclusion policy in the **MENA** region:[12] the Arab Digital Agenda (draft 2021), which followed the Beirut Consensus on Technology for Sustainable Development in the Arab Region (2018). While these policies are in draft status and not formally ratified, they contain several notable and, in some cases, unique aspects. For example, the policies go beyond promoting simple technical skills necessary for employment and mention critical and creative literacy for general digital participation. They also uniquely mention skills for primary, secondary and tertiary education and not just higher education. They advocate for content creation and engagement around local and regional culture as a way to foster inclusion.

In **Saudi Arabia** the policy push is towards e-government and digital education with the provision of free-of-charge access to government services and government platforms for distance learning. In general, there is an emphasis on overcoming gender inequalities. Unique here is the focus on Arabic content creation that showcases culture and heritage.

In **Brazil**'s policies on STEM programmes, women and girls are considered priority groups for inclusion. Unique to Brazil's digital inclusion policies is the explicit discussion of the regulation of personal data protection in relation to children and adolescents.

Indonesia's policies take a more safety-oriented approach to how digitization may impact children than some other countries, and the needs of children are mostly discussed in relation to digital literacy. Children's well-being is related to the 'seven harms of internet use',[13] and the national digital literacy movement focuses on promoting diversity to combat online radicalization.

6. Focus on outcomes, not only inputs

Requirement

Regarding the implementation of digital inclusion, policies should call for accountability by including KPIs relating to developmental outcomes, including well-being, in addition to indicators measuring the level of digital opportunities provided. Mechanisms should be established to monitor progress against the KPIs.

Illustrative approaches

In its digital inclusion policies, **Kenya** is unique among the countries reviewed in that it uses child-focused economic and social well-being as its starting points, rather than digital inclusion per se.

The most visible collaboration around digital inclusion in **Asia** comes from the Association for Southeast Asian Nations (ASEAN) Digital Masterplan 2025. The ASEAN approach has a unique focus on a variety of well-being outcomes from digitization, including family life, health and finances. Child-specific features of the approach are its emphasis on the importance of broadband for formal education after the COVID-19 pandemic, and the promotion of digital technology 'bootcamps' to help young people gain the necessary skills for digital jobs.

In **Estonia** the Ministry of Education and Research is a key stakeholder in the Estonian Digital Society Development Plan 2030, and its general Education Strategy emphasizes digital skills and engagement. The Education Strategy is commendable for its clear KPIs for different outcomes. These are mostly related to teacher training and the improvement of digital learning platforms and content rather than access to infrastructure and devices, which is already close to universal. A wide range of local stakeholders are mentioned, including parents, school owners, civil society groups and local authorities. Also noteworthy is the importance placed on informal learning alongside formal education in relation to youth work. In **Europe** more broadly, the European Digital Skills Agenda includes children and youth aged 16 years and older in its KPIs. This agenda is aimed squarely at improving employability and the digital economy.

7. Aim to be future ready

Requirement

Policies should be made as 'future ready' as possible by balancing general and specific perspectives as appropriate. They should be broad enough to be transferrable to a different digital future where emerging technologies – such as AI and sensors embedded in our everyday environments – could be more pervasive. At the same time, policies need to be more specific about new technologies whose impacts can be better anticipated. For example, research into children's online social gaming and virtual reality experiences yields insights about the future of immersive virtual environments and the metaverse. By taking anticipatory and precautionary approaches, policies can draw on current knowledge to help us better prepare for the future.

Illustrative approaches

South Africa stands out for its policy relating to the Fourth Industrial Revolution, which is grounded in an understanding of the link between digital and historical inequalities and its emphasis on the potential benefits and consequences of digitization for women and youth. It is unique in a commitment to integrate science, technology, engineering, arts, mathematics, innovation and entrepreneurship (STEAMIE) subjects alongside competency skills (e.g., creative and critical thinking) and foundational digital skills into the curriculum from early-stage education. The aim is for young people to become content creators and not just content consumers. Policies aim to help youth become job creators (e.g., entrepreneurs and business leaders) and not just job fillers (e.g., employees and ad hoc workers) in a digital future.

China aims to build a unified and lifelong personal electronic learning profile system to keep track of students' learning outcomes, and encourages schools to use AI to give students personalized learning experiences.

The **UK** is considered a front-runner in digital inclusion policies. Its broad suite of up-to-date policies incorporate emerging technologies and issues, such as AI and data governance. The policies stand out in referencing the risks of emerging technologies for children.

Policies reviewed from the **MENA** region explicitly link emerging technologies to potential benefits and risks for youth unemployment, which indicates a reflection of the impacts of such technologies. The policies also point to the potential importance of such technologies in empowering youth and involving them in policymaking. **Egypt** has an explicit AI strategy to develop and upskill the country's youth.

8. Embody a coordinated approach

Requirement
To mitigate against government silos, policies should call for greater coordination and consideration of the consequences of child-related inequalities across all government ministries and departments. The development of policies should include a broad range of government stakeholders.

Illustrative approaches
India launched the Digital India Campaign in 2015 with the goal of transforming the country into a digitally empowered society and knowledge economy. Multiple ministries have responsibility for its digital inclusion policies, which means they can potentially have an impact on many aspects of children's lives.

Kenya is unique for having an integrated approach across its digital policies (e.g., there is cross-referencing between policies on infrastructure and access, cybersafety, employment, and education and skills), including those related to children.

9. Be based on true multi-stakeholderism

Requirement
Policies should call for the involvement of a broad range of stakeholders, from across global, regional, national and local spheres. Equal and ongoing multi-stakeholder engagement between government, non-governmental organization, community, school and industry actors on the impact of digitization and how each can play a role in shaping it positively and equitably for children should be promoted.

Illustrative approaches
In **Africa**, the African Union's policy emphasizes that funding and development are not even among countries and territories of the continent, and that a multi-stakeholder regional approach is needed to support those who are at risk of missing out on the opportunities that come with digitization.

In the **United Arab Emirates**, the policy mentions children primarily in relation to digital safety. However, it also has a notable ecological approach and addresses parents, the community and educators as important stakeholders in digital inclusion.

Indonesia is one of the few countries reviewed with an explicit multi-stakeholder approach, emphasizing the importance of teachers, religious leaders and parental guidance, especially in relation to children.

Mexico's Digital Education Agenda also has an ecological approach involving the community and children's everyday environment (e.g., their homes, neighbourhoods, schools, clubs and local organizations).

Colombia's main policies are concerned with implementing the MERCOSUR and eLAC regional digital policies. Since the MERCOSUR and eLAC policies are inspired by the SDGs, the implementation in Colombia focuses on gender equality by arguing that it can be tackled by increasing girls' and women's participation in STEM. The SDG related to poverty is addressed by policies relating to the improvement of infrastructure and access. Further calls are made for equality in access to digital education. With these goals in mind and the need for multiple actors to help achieve them, Colombia's policies are among the few that explicitly mention the non-profit and commercial sectors as important actors in improving digital inclusion.

France's policies have clear action points for a range of stakeholders, including government ministries and departments, the telecoms and tech industry, the media, non-governmental organizations and telecommunications companies.

IV. Recommendations for key stakeholder groups

In addition to the policy requirements, the recommendations below are aimed at specific stakeholder groups, which represent different spheres of influence around the child. They represent actions we rarely see in policy development and implementation today and would make a significant contribution to achieving digital equality in the future.

Global stakeholders

These include governments, global digital governance forums, standardization bodies, international organizations, United Nations bodies and multinational technology companies, which collectively develop or shape global digital inclusion policies, strategies, infrastructure and platforms that influence regional, national or even local stakeholders. In the development and implementation of policies, global stakeholders should:

- **Be aware of and responsive to the positive and negative impacts of digitization and emerging and embedded technologies on all children,** so that those in the Global South or from disadvantaged backgrounds do not benefit less or are at greater risk. This involves greater cooperation, ensuring Global South countries are included at the global policy table, and taking action to enhance opportunities and mitigate risks for children.

- **Prioritize the empowerment and protection of all children in governance efforts,** using child rights as the basis for the development and evaluation of equitable digital agendas, digital policies, tech industry policies, digital public goods and digital public infrastructure,[14] and in the creation of technology standards.

- **Actively engage tech companies and industries that have global footprints to provide equal protections for all children** impacted by their digital products and services, regardless of where or who they are.

Regional and national stakeholders

These include regional organizations, governments, non-profit organizations and companies that provide digital services to children or relevant people in their lives. Regional and national government policies and regulations inform the provision and availability of digital content, products and services, as adapted to the regional or national context. In the development and implementation of policies, these stakeholders should:

- **Invest in understanding how inequalities lead to differential impacts of digitization** on well-being and developmental outcomes for children in the particular region or country.

- **Ensure that government digital interventions are implemented in tandem with addressing 'analogue' social and economic issues** to alleviate non-digital inequalities – for example, by improving the reach and quality of education, strengthening social services and the

provision of health care, and curbing hate and discrimination.

- **Develop ethical and regulatory frameworks that integrate child rights in the design of existing and emerging technologies, services and content,** and set up mechanisms at the national level to support redress for parents and other important actors when children experience digital harms.

Local stakeholders

The child's environment incorporates important actors, socioeconomic and cultural influences, as well as physical and digital infrastructures. This environment is the most important for the provision of digital access and shaping children's digital behaviours and views of the digital world. Much learning about technology takes place informally and collectively through learning by doing and observation of others rather than formal training.[15,16,17] For the actions below, these stakeholders should be supported – for example, by governments and foundations, and in policy approaches. Suggestions for the latter are provided.

Neighbourhoods – Including local organizations that interact with children, such as sports, hobby, girls or boys clubs, community centres, libraries, local councils, non-profit organizations, charities, religious centres, and professionals such as architects and designers of smart-city initiatives. In the development and implementation of policies, these stakeholders should be able to:

- **Teach children and important actors in their lives (e.g., parents, teachers, caregivers) how to critically and responsibly engage with digital technologies.** Those working for these organizations will need to be supported to do this through awareness-raising campaigns and training.

- **Provide physical access environments** where all children, especially girls and those whose home environments are not supportive, can access technology safely and confidently.[18] The stakeholders should be empowered to provide inclusive digital services to children – especially those who are vulnerable and disadvantaged.

Schools – Including teachers and principals/leaders. A child's school has a great influence on their access, ability to acquire skills, the kinds of digital practices – the 'netiquette' – they are exposed to, and whether they achieve learning outcomes. In the development and implementation of policies, school stakeholders should be able to:

- **Provide good connectivity and access to quality devices and content,** and ensure that comprehensive digital literacy training is integrated into the curriculum. Policies that support infrastructure and affordable access are critical.

- **Improve awareness of how teachers' and school leaders' own behaviours and attitudes towards digital practices might inhibit certain students** from engaging fully and positively with technologies.[19] Training and awareness-raising among school stakeholders will be needed.

- **Encourage children to be playful and creative with digital technologies,** including being active content creators, with an understanding of the impact of their outputs on others.

Households – Including parents, caregivers, siblings and friends. These are the most important stakeholders, as the home is one of the main locations where inequalities express themselves in terms of access, motivations and attitudes, and acquisition of digital skills. Policies should acknowledge the importance of these stakeholders in achieving digital equality, and they should be empowered to:

- **Mediate children's engagement with technologies in ways that allow them to achieve positive outcomes and avoid negative ones,** such as cyberbullying or excessive use. Training and support should be provided to parents and caregivers to help them engage their children in this way. Campaigns that counter biases (e.g., based on gender, ethnicity, class, etc.) held by households about who should and should not be engaging with technologies will be helpful, as will awareness-raising campaigns with parents, caregivers and children about how they can seek redress if they experience or observe digital harms.

- **Have a voice in policy development and implementation.** Children especially should be meaningfully involved in how digital inclusion and equality are achieved and how such efforts can be adapted to local contexts and children's specific needs.

Figure 3: Summary of recommendations for key stakeholders

Policies should call on these stakeholders' involvement for a more equitable digital future

GLOBAL STAKEHOLDERS: Governments, global digital governance forums, standardization bodies, international organizations, United Nations bodies and multinational tech companies

Be aware of and responsive to the **positive and negative impacts of digitization and emerging technologies** on all children

Prioritize child rights in global digital policymaking, solutions development and standard setting

Engage global tech companies to provide **equal protection to all children** everywhere impacted by their products

REGIONAL AND NATIONAL STAKEHOLDERS: Regional organizations, governments, non-profit organizations and companies that provide digital services to children or relevant people in their lives

Invest in understanding **how inequalities lead to differential impacts of digitization** on children's well-being and development in their region or country

Implement digital interventions alongside efforts to **address 'analogue' social and economic issues** to alleviate non-digital inequalities

Develop ethical and regulatory frameworks that **integrate child rights** in the design of technologies, services and content

LOCAL STAKEHOLDERS: The child's lived environment

NEIGHBOURHOODS

Teach children and important actors in their lives about the **importance of critical and responsible engagement** with digital technologies

Provide **physical access environments** where all children, especially girls, can safely and confidently access technology

SCHOOLS

Ensure access to good connectivity, devices and quality content, and provision of comprehensive digital literacy training

Improve awareness of how **teachers' and school leaders' behaviours and attitudes towards digital practices might inhibit certain students** from engaging with technologies

Encourage children to be **playful and creative with digital technologies,** with an understanding of the impact of their outputs on others

HOUSEHOLDS

Train and **support parents and caregivers to actively mediate their child's digital engagement** towards positive outcomes

Have a **voice in policy development and implementation**

Annex I: Documents included in the review

REGION	REGIONAL BODY/ COUNTRY	SOURCE
Africa	African Union	African Union, *The Digital Transformation Strategy for Africa*, African Union, Addis Ababa, 2020, <https://au.int/en/documents/20200518/digital-transformation-strategy-africa-2020-2030>
	Kenya	Ministry of ICT, Innovation and Youth Affairs, *Kenya Youth Development Policy, 2019*, Republic of Kenya, Nairobi, 2019, <https://ict.go.ke/wp-content/uploads/2020/08/Kenya-Youth-Development-Policy-2019.pdf>
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		ICT Authority, *ICT Authority Strategic Plan (2020-2024)*, Republic of Kenya, Nairobi, 2021, <https://cms.icta.go.ke/sites/default/files/2021-12/downloads_9.pdf>
		Communications Authority of Kenya, *National Broadband Strategy 2023*, Republic of Kenya, Nairobi, 2023, <www.itu.int/dms_pub/itu-d/oth/07/0d/D070D0000030001PDFE.pdf>
		Communications Authority of Kenya, *National ICT Policy 2019*, Republic of Kenya, Nairobi, 2019, <www.ca.go.ke/downloads/publications/national-broadband-strategy/>
	Niger	Agence Nationale pour la Société de l'Information (ANSI – National Agency for the Digital Society): <www.ansi.ne/>
		Broader national policies: <https://static1.squarespace.com/static/58a4235717bffc153c6d9a3c/t/5a5f81aac8302548e71db750/1516208576121/programme_de_renaissance_phase_2-2016-2021_2.pdf>

Africa _(continued)_	Niger _(continued)_	Digital advancements to improve education access for children, especially in more remote areas (no national policies; this comes from France). Brancato, R., 'Tablettes, cours de code : au Niger, le numérique comme arme pour favoriser la scolarisation des enfants', France Inter, 20 November 2019, <www.franceinter.fr/education/education-au-niger-les-balbutiements-du-numerique-face-a-une-descolarisation-massive>
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		Republic of Niger, _National programme to improve access to digital technologies_, Republic of Niger, Niamey, <www.hcntic.ne/doc/PolitiqueSectorielleTelecommunications.pdf>
	South Africa	Republic of South Africa, _Report of the Presidential Commission on the 4th Industrial Revolution_, Republic of South Africa, Pretoria, 2020, <www.gov.za/documents/report-presidential-commission-4th-industrial-revolution-23-oct-2020-0000>
		Republic of South Africa, _National Digital and Future Skills Strategy_, Republic of South Africa, Pretoria, 2020, <www.gov.za/sites/default/files/gcis_document/202009/43730gen513.pdf>
		Department of Communications & Digital Technologies, _Implementation Programme Guide for the National Digital and Future Skills Strategy of South Africa (2021 – 2025)_, Republic of South Africa, Pretoria, 2022, <www.dcdt.gov.za/documents/reports/file/198-implementation-programme-guide-for-the-national-digital-and-future-skills-strategy-of-south-africa-2021-2025.html>
		Department of Health, _National Digital Health Strategy for South Africa 2019 – 2024_, Republic of South Africa, Pretoria, 2019, <www.health.gov.za/wp-content/uploads/2020/11/national-digital-strategy-for-south-africa-2019-2024-b.pdf>

Africa *(continued)*	Togo	West African Regional Communications Infrastructure Program (WARCIP), which aims to improve access to the internet and online tools: <https://numerique.gouv.tg/projet/west-african-regional-communications-infrastructure-program-warcip/>
		The Ministère de l'Economie Numérique et de la Transformation Digitale, dedicated to the 'digital economy', lists its projects and objectives: <https://numerique.gouv.tg/projets/>
		Togolese Republic, 'Le Togo va se doter d'une stratégie de transformation numérique, "Togo Digital 2025", Official Portal of the Togolese Republic, 19 February 2020, <www.republiquetogolaise.com/tic/1902-4060-le-togo-va-se-doter-d-une-strategie-de-transformation-numerique-togo-digital-2025>
		Togolese Republic, *Plan National de Développement (PND) 2018-2022*, Togolese Republic, Lomé, 2018, <www.republiquetogolaise.com/documents-officiels/listes>
		Togolese Republic, 'Le Projet ENT pour intégrer les TIC dans l'enseignement au Togo', Official Portal of the Togolese Republic, 21 July 2017, <www.republiquetogolaise.com/tic/2107-850-le-projet-ent-pour-integrer-les-tic-dans-l-enseignement-au-togo>
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		Ministère de l'Economie Numérique et de la Transformation Digitale, *Déclaration de politique sectorielle 2018-2022*, Togolese Republic, Lomé, 2018, <numerique.gouv.tg/projet/declaration-de-politique-sectorielle-2018-2022/>
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	China	Cyberspace Administration of China, _Provisions on the Cyber Protection of Children's Personal Information_, CAC, Beijing, 22 August 2019, <www.managebac.com/files/Provisions-on-the-Cyber-Protection.pdf>
		People's Republic of China, _The Information and Communication Industry Development Plan for the '14th Five-Year Plan' Period_, People's Republic of China, Beijing, 2021, <www.gov.cn/zhengce/zhengceku/2021-11/16/5651262/files/96989dadf83a4302895cd17cbeec6600.pdf>
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	China sub-policy 1	Ministry of Education of the People's Republic of China, _Education Informationization Policy 2.0_, People's Republic of China, Beijing, April 2018, <www.moe.gov.cn/srcsite/A16/s3342/201804/t20180425_334188.html>
	China sub-policy 2	Cyberspace Administration of China, _Digital Rural Development Action Plan (2022–2025)_, CAC, Beijing, 2022, <www.cac.gov.cn/2022-01/25/c_1644713315749608.htm>

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		Ministry of Human Resource Development, *National Education Policy 2020*, Government of India, New Delhi, 2020, <www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf>
		Department of Telecommunications, *National Digital Communications Policy 2018*, Government of India, New Delhi, 2018, <https://dot.gov.in/sites/default/files/EnglishPolicy-NDCP.pdf>
		Department of Telecommunications, *National Broadband Mission*, Government of India, New Delhi, 2019, <https://dot.gov.in/sites/default/files/National Broadband Mission - Booklet_0.pdf?download=1>
		Ministry of Electronics and Information Technology, *Digital Bharat, Saksham Bharat: A Compendium on Digital India*, Government of India, New Delhi, <www.meity.gov.in/writereaddata/files/digital_bharat-saksham_bharat-a_compendium_on_digital_india.pdf>
	Indonesia	Dinas Komunikasi dan Informatika Kabupaten Kuningan, *Rencana Pembangunan Pitalebar Indonesia 2014-2019 (Indonesia Broadband Plan 2014-2019)*, Diskominfo, Jakarta, 2015, <http://diskominfo.kuningankab.go.id/rencana-pembangunan-pitalebar-indonesia-2014-2019/>
		Republic of Indonesia, *Rencana Pembangunan Jangka Menengah Nasional Tahun 2020-2024 (Presidential Decree No. 18 Year 2020 on National Medium-Term Development Plan 2020-2024)*, Appendix 1 and 2, Republic of Indonesia, Jakarta, 2020, <https://peraturan.bpk.go.id/Home/Details/131386/perpres-no-18-tahun-2020>

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		Ministry of Education and Culture, *Peraturan Menteri Pendidikan dan Kebudayaan Nomor 31 Tahun 2019 (Ministry of Education and Culture Decree No. 31 Year 2019 on Technical Instructions on Affirmative School Operational Aid and Performance School Operational Aid)*, Republic of Indonesia, Jakarta, 2019, <https://pendidikan.infoasn.id/peraturan-menteri-pendidikan-dan-kebudayaan-nomor-31-tahun-2019/>
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		Ministry of Communications and Information, *Roadmap Literasi Digital 2020-2024 (Digital Literacy Roadmap 2021-2024)*, Republic of Indonesia, Jakarta, 2021, <https://literasidigital.id/books/roadmap-literasi-digital-2020-2024-full-deck>
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Europe	European Commission	European Commission, 'Digital inclusion', European Commission, 2022, <https://digital-strategy.ec.europa.eu/en/policies/digital-inclusion>
		European Commission, *Digital Education Action Plan (2021-2027)*, European Commission, Brussels, 2020, <https://education.ec.europa.eu/focus-topics/digital-education/about/digital-education-action-plan>
		European Commission, 'Shaping Europe's digital future', European Commission, 2023, <https://digital-strategy.ec.europa.eu/en>
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		European Commission, 'Europe's Digital Decade: digital targets for 2030', European Commission, 2022, <https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en>
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		Eurostat, 'Employment and social inclusion indicators: Digital inclusion', <https://ec.europa.eu/eurostat/web/employment-and-social-inclusion-indicators/digital-inclusion> (data rather than policy)
		Mallows, D., 'A digital inclusion pathway', European Commission EPALE blog, 10 January 2019, <https://epale.ec.europa.eu/en/blog/digital-inclusion-pathway> (inactive for 3 years)
		European Training Foundation, 'Just how important are digital skills for inclusion?', European Training Foundation, 1 January 2022, <www.etf.europa.eu/en/news-and-events/news/just-how-important-are-digital-skills-inclusion>
		European Commission, 'DigComp Framework', European Commission, 2022, <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>
	Estonia	Ministry of Economics and Communications, *Eesti digiühiskond 2030 (Estonian Digital Society Development Plan 2030)*, Republic of Estonia, Tallinn, 2021, <www.valitsus.ee/media/4165/download>
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		Ministry of Education and Research, *Youth Sector Development Plan 2021–2035*, Republic of Estonia, Tallinn, 2020, <www.hm.ee/media/1600/download>

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	France	Ministry of Education and Youth, *Développement du numérique educative (Development of digital education)*, French Republic, Paris, 2019, <www.education.gouv.fr/media/11027/download#:~:text=Le%20num%C3%A9rique%20repr%C3%A9sente%20un%20levier,et%20aux%20m%C3%A9tiers%20de%20demain>
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		Short brochures and webpages on digital inclusion, but with no clear references to policy reports: <www.inclusion-numerique.fr/> and <https://societenumerique.gouv.fr/fr/>
		Education policies: <www.education.gouv.fr/le-numerique-au-service-de-l-ecole-de-la-confiance-308365>
		Suggestions for schools to address their own progress towards digital inclusion: <www.clemi.fr/fr/emi-ecole-primaire.html>
		Key online resources, few reports: <www.education.gouv.fr/l-utilisation-du-numerique-l-ecole-12074>
		Broadband plan: <www.cohesion-territoires.gouv.fr/sites/default/files/2021-09/%23TresHautDebit_DP_Aout2021.pdf>

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		Plan International, *Pour une education inclusive des filles et des jeunes femmes au numérique (For an inclusive digital education for girls and young women)*, Plan International, Paris, 2021, <www.plan-international.fr/pour-une-education-inclusive-des-filles-et-des-jeunes-femmes-au-numerique> (focused on international development)
	United Kingdom	Department for Digital Culture, Media and Sport, *National Data Strategy*, UK Government, London, December 2020, <www.gov.uk/government/publications/uk-national-data-strategy/national-data-strategy>
		Cabinet Office, *Government Digital Inclusion Strategy*, UK Government, London, December 2014, <www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy#executive-summary>
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		UK Online Safety Bill supporting documents: <www.gov.uk/government/publications/online-safety-bill-supporting-documents/online-safety-bill-factsheet#:~:text=The%20Online%20Safety%20Bill%20delivers,outcome%20of%20extensive%20Parliamentary%20scrutiny>
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		Federal Republic of Brazil, *Lei Geral de Proteção de Dados Pessoais (General Law of Personal Data Protection)*, Federal Republic of Brazil, Brasilia, 14 August 2018, <www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.htm>
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		Ministry of Science, Technology and Innovation, *Estratégia Brasileira de Transformação Digital (Brazilian Strategy for Digital Transformation)*, Federal Republic of Brazil, Brasilia, 2018, <www.gov.br/mcti/pt-br/centrais-de-conteudo/comunicados-mcti/estrategia-digital-brasileira/estrategiadigital.pdf> – it is a broad agenda "for a future digital society", not necessarily referring to a unique policy
	Colombia	Ministry of Information and Communication Technologies, 'Viceministerio de Conectividad' ('Sub-ministry of Connectivity'), <https://mintic.gov.co/portal/inicio/Ministerio/Viceministerio-de-Conectividad/>
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Annex II: Review approach

The 17 countries across various regions were selected based on the existence of traditional inequalities and differing levels of internet access, and to represent a diversity of contexts. At least one country per region was selected because it is considered to be a front-runner in digital inclusion. The range of countries is in no way meant to be a comprehensive representation of each region; it is instead illustrative of a diversity of environments and approaches. In this brief review it is not possible to describe the rich landscape of all policies and their implementation in the selected regions and countries. Country policies were selected through online searches in the local languages for digital (inclusion) agendas, broadband strategies and (digital) education policies.[20] Policy documents in 10 languages were reviewed.

These policies were assessed based on the answers to three questions:

1. Are children, or important actors and environments in their lives, explicitly referenced, and are these mentions associated with access, skills, motivations, different types of content and services, and a range of positive and negative outcomes of digitization?

2. Are inequalities among children mentioned in relation to these areas?

3. Which stakeholders are mentioned as having to be involved in digital inclusion policy areas relevant to children (e.g., non-profit, private and public sector organizations and institutions)? At what level do stakeholders operate: intergovernmental/global, regional, national or local?

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7   The regions and countries in each were: Africa (Kenya, Niger, Togo and South Africa), Asia (China, Indonesia and India), Europe (the UK, France and Estonia), Latin America and the Caribbean (Brazil, Colombia and Mexico), and the Middle East and North Africa (Egypt, Saudi Arabia, Qatar and the United Arab Emirates).

8   Note that the practices are derived from policy documents and do not necessarily reflect their actual implementation on the ground.

9   UNESCO has supported and evaluated many digital literacy programmes and set the baseline for many child-related aspects of digital policies in the region. These conclusions are from United Nations Educational, Scientific and Cultural Organization, *Media and Information Literacy Education in Asia: Exploration of policies and practices in Japan, Thailand, Indonesia, Malaysia, and the Philippines*, UNESCO, Bangkok, 2020, <https://unesdoc.unesco.org/ark:/48223/pf0000374575>.

10   Within the scope of this report we are unable to go into the more technical design and regulatory complexities associated with digital policies, such as digital IDs, data governance and privacy protection. Different approaches in those areas should be recognized as having the potential to provide more or less agency to users, and to make it easier or more difficult for young people to manage technologies in their own interests.

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12   Country policies in the Middle East apply to citizens only. This means that expatriates are not considered as reference groups in digital inclusion initiatives.

13   The seven harms of internet use are: sexual abuse and pornography, other abusive content/abuse, addiction, personal data breach, fraud, cyberbullying and human trafficking.

14 Digital public goods are open-source software, open data, open AI models, open standards and open content that adhere to privacy and other applicable laws and best practices, do no harm by design, and help attain the SDGs. Digital public infrastructure (DPI) refers to solutions and systems that draw on digital public goods to enable the effective provision of essential society-wide functions and services in the public and private sectors, such as digital forms for civil registration, payment systems (digital transactions and money transfers) and data exchanges. For more information, see <https://digitalpublicgoods.net>.

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20 Child online protection policies were reviewed but not included because they generally did not discuss inclusion or inequalities. In addition, they were generally siloed off and not referenced in national or regional digital inclusion policies.

Acknowledgements

About us

UNICEF works in the world's toughest places to reach the most disadvantaged children and adolescents — and to protect the rights of every child, everywhere. Across 190 countries and territories, we do whatever it takes to help children survive, thrive and fulfill their potential, from early childhood through adolescence. And we never give up.

UNICEF Innocenti – Global Office of Research and Foresight tackles the questions of greatest importance for children, both current and emerging. It drives change through research and foresight on a wide range of child rights issues, sparking global discourse and actively engaging young people in its work.

UNICEF Innocenti equips thought leaders and decision-makers with the evidence they need to build a better, safer world for children. The office undertakes research on unresolved and emerging issues, using primary and secondary data that represent the voices of children and families themselves. It uses foresight to set the agenda for children, including horizon scanning, trends analysis and scenario development. The office produces a diverse and dynamic library of high-level reports, analyses and policy papers, and provides a platform for debate and advocacy on a wide range of child rights issues.

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