

# Children and Artificial Intelligence. Towards an Italian Discussion on Artificial Intelligence, Children's Rights and Regulatory Sandboxes

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## Abstract

In the context of an ever-changing digital panorama, the pervasiveness of Artificial Intelligence (AI) is rapidly transforming various aspects of people's daily lives, including those involving children and teenagers. An important issue, that needs to be addressed, is related to the introduction and enforcement of specific rules to ensure children's rights and special needs in those AI systems created for, accessed by, and impacting minors. Looking at the Italian debates on AI systems, currently, there is no sufficient attention to these aspects. The situation is even worse for more general AI-related issues like the creation of a national sandbox by 2026, as expected by the EU AI Act.

Accordingly, by briefly presenting the ongoing discussion at the international and national level, this paper would like to set the ground for an Italian debate on how to start thinking and developing a sandbox that considers the special needs and characteristics of children. The Italian scientific community is called by the *Italian Strategy for AI* [1] to join forces and promote and develop interdisciplinary research projects for social well-being. Accordingly, this paper would like to be a call to not miss the opportunity to frame, from the very beginning, the national sandbox so as to be compliant with children's rights standards and obligations.

## Keywords

Artificial Intelligence, Regulatory Sandboxes, Children's Rights

## 1. Introduction

The digital panorama is constantly changing, and with it, the way children interact with technology. Artificial intelligence (AI) is rapidly transforming various aspects of our lives, and its reach now extends to applications designed specifically for minors. While AI offers immense potential for education, entertainment, and personalized learning experiences for children, it also raises some critical concerns regarding safety, privacy, and ethical considerations. Indeed, these systems can significantly affect children's well-being and day-to-day lives to varying extents. This makes it increasingly crucial to evaluate the current state of this interaction and anticipate future trends to establish ethical and responsible frameworks for AI development.

Countries and international bodies are working on new institutions and portfolios, on the expansion of regulatory powers, and on new tools to address risks related to digital transformation, including those related to human rights [2]. In this scenario, the private sector and companies are also playing an important role and are achieving, day by day, greater influence.

While States have the duty, under international human rights law, to protect people in their jurisdiction or/and their territory from human rights abuses, corporate responsibility to respect human rights exists wherever they operate and regardless of their size and industry [3] (see, for example, [4]). Therefore, States and businesses have different but complementary responsibilities in preventing and addressing business-related human rights abuses [3]. Their duties are affirmed at the international level through

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non-binding instruments of soft law, such as the United Nations (UN) *Guided Principles on Business and Human Rights* (UNGPs) [2]. These principles encompass three pillars: (i) state duty to protect, (ii) access to remedy, and (iii) corporate responsibility to respect human rights [5]. The latter refers to those rights expressed in the "*Universal Declaration of Human Rights*", the International Covenants on "*Civil and Political Rights*" and on "*Economic, Social and Cultural Rights*", as well as those set out in the "*Declaration on Fundamental Principles and Rights at Work*" [6]. Nevertheless, depending on circumstances, businesses may need to consider others and additional standards like children's rights [6].

The exercise and protection of human rights, and, thus, of children's rights, can be affected by "*the way in which digital technologies are designed, developed and deployed*", and, therefore it is important to embed human rights in all the stages of the innovation process, "*from research and development to deployment*", and across "*a continuum of policy options, from dedicated regulation through collaborative governance efforts at the global level, soft law instruments, to codes of conduct*" (p.53, [2]).

## 2. Methodology

In this work, we intend to briefly present considerations on the Italian debate, framed as well in the international context, on AI systems and regulatory sandboxes for children's special needs and rights. Therefore, we are going to concisely dive into the regulatory base of this discussion, i.e. the European Union AI Act, and into some useful definitions for the scope of this paper. Our work addresses the following **Research Questions (RQs)**:

- **RQ1:** What is the nature of the discussion in Italy regarding the design, development, and deployment of AI systems that comply with children's rights standards and obligations, and which specific topics does it address?
- **RQ2:** What initiatives exist in Italy aimed at establishing a regulatory sandbox?

We will present some main directions that are being undertaken at the national level to see where we are going, and where we should go, in order to both design, develop and deploy AI systems and establish national regulatory sandboxes that take into account children's rights and special needs.

Accordingly, we will divide **Section 4** into two subsections: one aiming at highlighting the existing discussion, at the national level, on how to design, develop and deploy AI systems in compliance with children's rights standards and obligations, and one highlighting the initiatives for establishing a national regulatory sandbox comprehensive of a children's rights point of view. Each subsection will briefly present both the international discussions, to the extent it is part of the frame that can shape the Italian debate on such issues, and the Italian debate on the topic, from which final considerations and possible future developments will be drawn.

In particular, to analyze the Italian debate on this topic, we consulted the web pages <sup>1</sup> of the following relevant entities:

1. **National Cybersecurity Agency (ACN)**, the agency responsible for safeguarding national interests, security and resilience in cyberspace [7];
2. **Agency for the Italia Digitale (AgID)**, the technical agency that ensures the achievement of the objectives of the *Italian Digital Agenda*, and also contributes to the diffusion of information and communication technologies and promotes digital skills [8];
3. **The Italian Data Protection Authority (Garante Privacy)**, the independent administrative and supervisory authority responsible for monitoring the application of the General Data Protection Regulation (GDPR) [9];
4. **Italian Authority for Childhood and Adolescence**, the national entity aiming at promoting the implementation of the United Nations Convention on the Rights of the Child (UNCRC) and other international instruments on the subject [10]; and

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<sup>1</sup>The web pages were consulted in a time frame ranging from December 6 to December 13, 2024;

5. **Non-Governmental and Non-Profit Organizations** operating on children's rights at the national level, such as *Save the Children Italia* [11] and *Telefono Azzurro* [12].

Given also the indication provided by the EU AI Act of creating at least one national regulatory sandbox by August 2026 (Art.57, [13]), the main contribution of this work is to lay the foundations for a discussion, at least at the Italian level, on how to start thinking about the development of sandboxes (regulatory and non-regulatory) that take into account the specific needs and characteristics of children. The Italian scientific community is called by the *Italian Strategy for AI* [1] to join forces and promote and develop interdisciplinary research projects for social well-being. Accordingly, **this paper would like to be a call to not miss the opportunity to frame, from the very beginning, the national sandbox so as to be in compliance with children's rights standards and obligations.**

### 3. Background and Context

On March 2024, the United Nations General Assembly adopted a resolution, *"Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development"*, emphasizing that *"human rights and fundamental freedoms must be respected, protected and promoted throughout the life cycle of artificial intelligence systems"*, and calling on the Member States and stakeholders to *"refrain from or cease the use of artificial intelligence systems that are impossible to operate in compliance with international human rights law or that pose undue risks to the enjoyment of human rights, especially of those who are in vulnerable situations"*, and to facilitate *"the development and implementation of effective, internationally interoperable frameworks, practices and standards for training and testing artificial intelligence systems (...) to help protect individuals (...) throughout the life cycle of artificial intelligence systems"* (par. 5 and 6 letter h, pp.5-6 [14]).

A few months later, in August 2024, the first legal framework on AI, the EU AI Act [15], entered into force with the purpose of improving *"the functioning of the internal market"* and promoting *"the uptake of human-centric and trustworthy artificial intelligence (AI), while ensuring a high level of protection of health, safety, fundamental rights enshrined in the Charter, including democracy, the rule of law and environmental protection, against the harmful effects of AI systems in the Union and supporting innovation"* (Article 1(1), [13]).

The Act addresses AI-related risks by dividing them into four levels: *"minimal risk"*, *"limited risk"*, *"high risk"*, and *"unacceptable risk"* [15]. Chapter III of the AI Act is dedicated to *"high-risk AI systems"*. Indeed, the extent of the adverse impact on fundamental rights is of particular relevance when classifying an AI system as such level of risk [13], and, therefore, they are subject to strict obligations before they can be put on the market [15].

Article 57, for example, establishes the creation of at least one national regulatory sandbox to be operational by August 2026 [13] (the definition of *"regulatory sandbox"*, as defined by the AI Act in Article 3(55) and adopted in this paper, can be accessed in the Appendix 6). AI regulatory sandboxes, established by competent authorities or the European Data Protection Supervisor, provide controlled environments for developing, testing, and validating innovative AI systems before market release. These sandboxes operate under strict supervision to ensure compliance with applicable EU and national regulations. When personal data or other regulated areas are involved, national data protection authorities and relevant entities are included in the sandbox's operations. The basic idea of the regulatory sandbox is to provide exploratory, dialogue-based guidance to selected projects in exchange for full openness about the assessments that are made. It provides a safe environment for the testing of innovations and regulations in market conditions to improve legal certainty [16].

About a year before the AI Act came into force, on June 2023, during the time of the inter-institutional negotiations, over 2000 children's rights, parents' and mental-health stakeholder organizations, through a coalition, called on negotiators not to miss the occasion of the AI Act to protect children, and urged to recognize their specific rights, needs and vulnerabilities, to ensure safer AI for children [17].

Accordingly, recognizing and highlighting that children have specific rights as enshrined in the United Nations Convention on the Rights of the Child (UNCRC) and as further implemented by the

UN General Comment No.25 on the application of these rights in relation to the digital environment, the AI Act foresees a *"Fundamental rights impact assessment for high-risk AI systems"* in its Article 27 [13]. Moreover, it prohibits *"the placing on the market, the putting into service or the use of an AI system that exploits any of the vulnerabilities of a natural person or a specific group of persons due to their age"* (Article 5(b) [13]).

These are important steps toward ensuring more responsible and safe AI systems for children. Nevertheless, the discourse concerning children and AI should not be limited to their safety and protection, nor solely to the development and pre-deployment phase of an AI system designed for, accessed by or impacting children.

On 5 September 2024, the Council of Europe opens for signature its *"Framework Convention on Artificial Intelligence and human rights, democracy and the rule of law"*, the first international legally binding instrument, aiming to *"ensure that activities within the lifecycle of artificial intelligence systems are fully consistent with human rights, democracy and the rule of law"* (Art.1(1), [18]). Mindful of the UNCRC, the Council's Framework Convention requires State Parties to *"take due account of any specific needs and vulnerabilities in relation to respect for the rights of persons with disabilities and of children"* (Art.18, [18]).

Therefore, the debate should also revolve around how to consider, include, promote and uphold children's rights, and how to do that from the beginning of an AI system's lifecycle. This is essential also to avoid difficult, expensive and time-consuming attempts to retrofit AI systems already developed by trying to make them in compliance with children's rights and international human rights laws. Moreover, it will make it easier, for the different stakeholders involved, to identify, report and address risks and challenges from the very beginning of the system's existence. Accordingly, similarly to the concept of *"security-by-design"* and *"privacy-by-design"*, this paper advocates for a children's rights-by-design approach from the first to the last phase of the life of an AI system (for the concept's definition, please refer to the Appendix 6). Indeed, the *"by-design thinking"* (p.4, [19]), has traditionally been applied in the area of privacy, data protection, and security, but it has begun to spread also throughout the legal system [19].

Keeping in mind this whole context, in the following Section we will provide a brief overview of the International and Italian debate on applying these concepts during all the phases of an AI system's lifecycle and on the creation of a regulatory sandbox that considers and is compliant with children's rights standards and obligations.

## **4. Towards AI systems compliant with children's rights standards and obligations. The Italian contest.**

According to the AI Act, the regulatory sandboxes offer an environment to *"develop, train, validate and test"* [13] an innovative AI system. Nevertheless, we believe that considerations of children's special needs and rights should be made and taken into account from the first phase of an AI system's lifecycle.

Accordingly, since this paper would like to be a call to start a national discussion on how to achieve this goal, and on how to create and make operational a regulatory sandbox that not only identifies and assesses risks but also considers children's specific rights and needs, **in this Section** we will provide a brief overview of the existing debates, at the international and national level, on both a children's rights approach to AI systems and on regulatory sandbox (supposed to be created by 2026).

### **4.1. On a comprehensive children's rights approach to AI systems**

The relationship between children and AI is not easy. UNICEF [20] acknowledges that the interaction between children and AI systems is not limited only to those systems *used* or *designed for* children, but also to those systems not meant for them but with which they may *interact*, or systems that can directly or indirectly *affect* them [20]. However, considering and including children's rights during the whole phases of a system's lifecycle is a challenging and delicate task.

Nevertheless, there have been some **policy initiatives**, at the International and European level, on AI systems children's rights.

In 2024, the Council of Europe released a study *"on the rights of the child and artificial intelligence, mapping recent legal frameworks that address AI in the context of children's rights"* [21]. In this overview, are also reported some frameworks that *"do not specifically focus on AI and children's rights but are still relevant to consider as they relate to the protection and empowerment of children in today's digital world"* [21].

Among all these initiatives, the ones from UNICEF [20], World Economic Forum (WEF) [22], and the Institute of Electrical and Electronics Engineers Standards Association (IEEE SA) [23] are those that explicitly consider providing practitioners and developers, working on AI systems for, accessed by and/or impacting children, with guidance on how to take into account and operationalized, during their daily work's duties, children's rights in all the phases of a system's lifecycle.

Indeed, **UNICEF Policy Guidance on AI for Children** [20], is an attempt to connect government policies with the private sector's practices. Therefore, the document provides nine requirements for child-centered AI, and, to support their implementation, a list of online resources and a set of practical implementation tools for both policymakers and developers [20]. The **WEF's Artificial Intelligence for Children Toolkit** [22], with its *FIRST approach* (Fair, Inclusive, Responsible, Safe, and Transparent), is also addressed to members of a product team. It aims to help *"make sure that AI respects the rights of children and has a positive impact in their lives"* [22]. Finally, the contribution from **IEEE SA on the Age Appropriate Digital Services Framework Based on the 5Rights Principles for Children** [23], although not specific on AI, establishes a set of processes by which organisations seek to make their services age appropriate. This Framework [23], based on the work of the 5Rights Foundation, has been recognised in 2023 to serve as the foundation for a new Workshop Agreement with the European Committee for Standardization (CEN) and European Electrotechnical Committee for Standardization (CENELEC) [24]. For a more in-depth and multidimensional analysis of these three documents, please refer to [25], while, for an overview and brief description of all the international available guidelines highlighted by the Council of Europe, please refer to **Table 1** available in the Appendix.

To map any existing similar discussion at the Italian level, and to answer the first research question (*RQ1: What is the nature of the discussion in Italy regarding the design, development, and deployment of AI systems that comply with children's rights standards and obligations, and which specific topics does it address?*), the websites of the most important national agencies, authorities, and non-governmental and non-profit organizations were checked to find any information publically available on how to design, develop and deploy AI systems in line with children's rights standards and obligations.

The **National Cybersecurity Agency (ACN)**, as the agency responsible for safeguarding national interests, security and resilience in cyberspace, has joined the *"Guidelines for secure AI system development"* [26], promoted by the National CyberSecurity Centre of the United Kingdom and published in November 2023. The Guidelines are intended for *"providers of any systems that use artificial intelligence (AI), whether those systems have been created from scratch or built on top of tools and services provided by others"* [26], and are divided into four key areas (*"secure design, secure development, secure deployment, and secure operation and maintenance"*) to set security as *"core requirement"* throughout all the system's life cycle [26]. Although these guidelines are intended to be read and followed by different stakeholders, from developers to managers and decision-makers, they do not offer any further specific considerations for AI systems intended for, accessed by or impacting children.

Nevertheless, in the *"Cybersecurity Research and Innovation Agenda (2023-2026)"* [27], the ACN, on the research areas No.5 *"Societal Aspects"*, calls for an interdisciplinary approach to topics such as *"redefinition of boundaries of human-computer interaction and related security risks"* (topic 5.1.1, p.23 [27]), or *"rules and ethical principles on safe cyberspace"* (topic 5.3.1., p. 25 [27]). Moreover, the *"National Cybersecurity Strategy (2022-2026)"* [28] suggests, in the context of the fight against cybercrime, to also focus on the protection of minors [28]. And in the Strategy's *"Implementation plan"* [29], with Measure No.73, the ACN foresees to *"prepare and implement an autonomous national strategy, with a related action plan, dedicated to the online protection of minors from cybercrime (...)"* (p.20, [29]).

From the **Agency for the Italia Digitale (AgID)**'s website, searching under the *Artificial Intel-*

ligence's area of intervention, it is possible to access <sup>2</sup> the *"Italian Strategy for Artificial Intelligence 2024-2026"* [1]. The Strategy is targeting four sectors: research, public administration, enterprises and training. Under the first sector, it is defined the strategic action *R.4 - Synergies: interdisciplinary projects for social wellbeing* (p.19, [1]) which, as previously stated, is a call to reaserch and academia to join forces and promote and develop interdisciplinary research projects for social well-being (which is one of the macro-objectives of the Strategy) [1]. The training sector, although is mainly targeting education, it does not suggest any actions for professionals working on AI for students (minors included). Instead, it suggests, for example, *"Pathways to Introduce AI at School Level"* or *"Education on the Use of AI Tools"* (p.29, [1]).

On the other hand, the **Italian Data Protection Authority**, as an independent authority entitled to the protection of fundamental rights and freedom relating to the processing of personal data [30], provides an information web page on children, new technology and data protection, and provides people (including children and youth) with various vademecum, such as on advice to adults for children's safe use of new technologies [31] and smart toys [32].

In the context of minors, new technology and data protection, the Authority also recalls the *"Guidelines on Transparency under Regulation 2016/679"* [33], which provide *"practical guidance and interpretative assistance (...) on the new obligation of transparency concerning the processing of personal data under the General Data Protection Regulation"* [33]. In particular, the document defines specific guidance when providing information to children (p.10, [33]). When a *"data controller is targeting children"*, for example, should be aware that *"their goods/services are particularly utilised by children (...), it should ensure that the vocabulary, tone and style of the language used is appropriate to and resonates with children (...)"*, and provide an example of a child-centred language that can be used alternatively to the original legal one [33]. Therefore, these guidelines, providing practical guidance and interpretative assistance, can give, not only to *"data controller"* but also to developers, more detailed ideas of children's special needs, how to translate and incorporate them into their work, and how to practically address issues that may rise.

In October 2024, the Italian Data Protection Authority, in a roundtable with the Data Protection and Privacy Authorities of the States belonging to the G7, agreed on a statement on *AI and children* [34]. The involved authorities highlighted concerns about *"potential violations of privacy and data protection linked to the use of AI systems which could have serious implications for children and young people"* [34]. Accordingly, the authorities recognised the need for *"AI systems' developers and users to account for specific age-appropriate measures to allow children and young people to safely use AI-enabled technologies"* [34]. Such measures should ensure, among other things, a design that supports children's best interests and adopt a privacy-by-design principle.

The **Italian Authority for Childhood and Adolescence** also focuses on children, digital space and AI. In its *"Report to the Parliament 2023"* [35], the Authority also refers to media, digital space and children's rights and the related activities conducted in 2023, from a project culminating with a *"Children's Manifesto on Rights in the Digital Environment"*, where children identify 10 principles to take into account when minors deal with digital space, to a training day during the *Safer Internet Day* on topics such as children's safety and security online and AI [35]. Moreover, over the years, it has also worked on various publications on such topics through comics (see [36]) and translation (also in a child-friendly format) of international relevant documents (see [37]).

In addition, the Authority established a Memorandum of Understanding with both *Save the Children Italia* and *Fondazione SOS Telefono Azzurro*. Indeed, **Save the Children** is also active in this topic through projects and reports. Such as *DIG4Future - Digital competencies, Inclusion and Growth for Future Generations* [38], which aims to foster youth's digital competencies and promote responsible use of technology by training teachers and co-creating instruments and inclusive educational paths about AI, and the *Atlante dell'infanzia (a rishio) in Italia 2023: Tempi Digitali* [39], which analyses new scenarios, situations, risks and opportunities, about children, their needs and desires, coming from the technology and its spread.

**Telefono Azzurro** has also been active on the topic through many dossiers. The 2020 investigation

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<sup>2</sup>Last access online: 11.12.2024.

*Together for a Better Internet* [40], conducted together with *DoxaKids*, for example, provides an overview of risks and children's needs in relation to the web and highlights the contribution that AI can bring to achieve a more safe and secure web for children (*i.e.*: the *hashing* technology to help identify and takedown from the web images of sexual abuses and exploitation of children) [40]. Moreover, the dossier is making a "*call to action*" that encompasses investing in "*multi-sector research*" on risks and opportunities to achieve a greater understanding and develop concrete actions, and involving technology companies and leaders to really implement solutions for a more secure and child-centred web (p.42, [40]).

#### 4.2. Thinking of a *Regulatory Sandbox* with a children's rights point of view

Several European states include the use of sandboxes as a means to build a comprehensive legal framework for artificial intelligence. This trend is supported by the EU, which views regulatory sandboxes as facilitators of innovation and recognizes them as an important tool in future regulatory activities concerning AI. A regulatory intervention for the definition of this tool was provided by the **AI Act**, definitively approved on May 21st 2024, which gives a definition of AI sandboxes in **Article 57** [13]. In a recent work by Charisi and Dignum [41], the approach proposed to make operational sandboxes for child-focused AI systems aims to bring relevant authorities closer to companies developing AI and to define best practices that will guide the implementation of child-centered AI systems. The analysis presented in this research suggests that the use of regulatory sandboxes could be a positive means to experiment and test regulatory frameworks and AI applications for children, enabling policymakers, providers, and developers to evaluate AI applications for their impact on children's rights, safety, and well-being. Once the objectives of the sandbox have been defined, the procedures for utilizing it can be determined. In essence, Charisi and Dignum [41] identify four stages in the system development process that can benefit from experimentation within the sandbox: Analysis, Design, Implementation, and Evaluation.

- *Analysis.* Understanding the impact of AI on children within national and regional contexts. The sandbox applies relevant policies, incorporates children's inputs, and fosters co-design with stakeholders to address the social, technological, and cultural aspects of AI's impact.
- *Design.* Testing strategies for integrating child-centered AI policies into products and services. Ensuring transparency through open evaluation and public scrutiny of projects.
- *Implementation.* Support iterative testing and adaptation of designs while aligning implementation decisions with legal and policy guidelines.
- *Evaluation.* Verify compliance with child-centered AI requirements, monitor impacts using metrics, and refine policies and strategies based on data-driven insights.

The proposed analysis is very interesting as it involves various subjects (both institutional and non-institutional) and each of them has an important role in evaluating and determining what impact an artificial intelligence system can have on minors.

Among the institutional subjects that should be involved in the implementation of a regulatory sandbox for minors in Italy, there is the **Italian Authority for Childhood and Adolescence**, which recently has expressed its opinion regarding the worthy legislative bills no. 1136, 1160 and 1166 (Protection of minors in the digital dimension) [42]. The analysis of the information published on the webpages of the competent Italian bodies, as listed in the *Methodology* Section, has highlighted how the issue of regulatory sandboxes for minors in Italy has not yet been properly addressed and taken into consideration by the current legislation nor by any of the above-mentioned bodies.

At first glance, to answer RQ2 (*What initiatives exist in Italy aimed at establishing a regulatory sandbox?*) we can highlight some important interventions in this field. First of all, there is a **draft of law (DDL 1066)** [43] which, in its article 4, provides for the establishment of experimentation spaces relating to the use of artificial intelligence systems aimed at pursuing the innovation of services and products in various sectors including education, where children are more involved. New rules for minors' access to dangerous content on the web have been introduced in Italy by the **Autorità per le Garanzie nelle**

**Comunicazioni (AGCOM)** with **Resolution 9/23/Cons** [44] in force since November 21st, 2023. This measure requires telephone operators to implement a control system on SIM cards registered to minors, which automatically blocks access to inappropriate content. For adults, the filter is activated only manually. The Italian Communications Authority regulates and supervises the sectors of electronic, audiovisual, editorial, postal communications and more recently also online platforms, as specified on its website. The aim of this measure is to limit the risks deriving from the indiscriminate use of the web by young people, restricting the possibility of browsing without control. Even though many telephone companies already offer parental control systems, these are often associated with paid services. The AGCOM resolution mandates that these controls be provided free of charge. Operators must implement automatic filtering for eight categories of high-risk content, including adult material, gambling, weapons promotion, incitement to violence or self-harm, hatred or discrimination, harmful health practices, sect-related content, and tools for untraceable online activity. This list was determined through a public consultation that involved trade associations in the communications sector, consumer associations and individual operators. However, the categories are generic, and it will be up to the telephone operators to identify and communicate the precise list of sites prohibited for minors. In March 2024, a bill [43] regarding "Regulations for the development and adoption of artificial intelligence technologies" was presented to the Senate of the Italian Republic. The text emphasizes that artificial intelligence opens new opportunities, such as increased productivity, which could result in greater value-added production within the same amount of time or a reduction in working hours while maintaining the same value, thereby improving workers' quality of life. However, AI also presents ethical and social risks. For innovation to become a driver of progress, responsible development is crucial. Transparency in data management, the reliability of technologies, the protection and privacy of systems, the impartiality of outputs, and the accessibility of services are all fundamental aspects of the implementation of ethical AI.

## 5. Conclusion and Final Considerations

Up to now, the discussion on children's rights and AI systems, from a policy point of view, has mainly been focused on the principle of protection, by fostering safety measures, risks and impact assessments and a privacy-by-design approach. This is particularly true at the International and European levels, even if some initiatives aimed at closing the distance between policy guidelines on children and AI and the technical side of innovation have been attempted by suggesting guidelines or frameworks addressed to developers on how to design, develop and deploy AI systems compliant with children's rights (see, for example, [20] and [23]).

In Italy, this discussion, on providing practitioners working on AI systems with guidelines to follow so as to adopt a children's rights approach to the design, development and deployment of AI systems for, accessed by and/or impacting children, is still in its infancy. Consequently, the risk is that the AI systems developed and tested, in the regulatory sandbox that has to be established by 2026, are likely not to be fully compliant with children's rights standards and obligations so as to protect children while also ensuring their provision and participation rights.

Adopting a *children's rights-by-design* approach that, similar to the idea behind concepts like "privacy by design" and "security by design", would mean giving due weight and including children's rights consideration in every phase of the life of an AI system, particularly but not solely for those systems targeting or accessed by children. This approach could lead to fewer risks assessed and verified during the "*fundamental rights impact assessment*", since the system is designed to be compliant from the beginning of its development, and in the regulatory sandboxes in the pre-deployment phase, since risks assessment and mitigation strategy were already identified and addressed during the previous phases of the AI system life cycle.

We believe that this will not only be less time-consuming and fasten the process, but will also be less expensive for companies. Moreover, it will make it easier for stakeholders and experts to identify all risks and properly address them during the process, instead of leaving them to manage everything in

the last phases, risking leaving some threats or challenges unseen.

The Italian scientific community is called by the *Italian Strategy for AI* [1] to join forces and promote and develop interdisciplinary research projects for social well-being. Accordingly, we hope that debate on these topics can effectively and efficiently involve different stakeholders. Indeed, we believe that innovation and research should serve social good. Therefore, this debate should be guided by children's special needs and desires before other competitive interests, such as those that could come from the market or private sector. Accordingly, children themselves, parents, caregivers, teachers, educators, children's rights advocates and relevant experts on children's rights and development should be the first people to be listened to and involved to set the ground for this debate. Nevertheless, to close the distance between the policy and technical side of innovation, developers and people working on AI systems for children should be involved so as to catch their difficulties and needs and avoid providing other policy initiatives not useful or applicable to those who daily work on those systems. From all these contributions and experiences the research community should set the ground for future research on the relation among children, their rights, and AI.

Article 57 of the AI Act establishes that each Member State must establish at least one regulatory testing space for AI at the national level and that this space must be operational by August 2026 [13]. In this context, systems are promoted that do not exclude human intervention in decision-making and the creation of content derived from the use of these tools (the concept of "human in the loop" or "human on the loop"). A balance between innovation and the protection of individual and collective rights requires an open dialogue between governments, businesses, and civil society, enabling AI to thrive in an environment that enhances well-being and progress without compromising fundamental values. The introduction of regulatory sandboxes represents a fundamental step towards a future in which innovation in the field of Artificial Intelligence can develop in a sustainable and responsible way.

## 6. Appendix

### A. Definitions

- **Children's Rights-by-Design.** The concept was already presented by the *Digital Futures Commission* and *5 Rights Foundation* in a Report published in 2023 [45]. Acknowledging that designing for children's rights is not easy, but that retrofitting design to respect them after a product has already been developed can be both difficult and expensive, the report provides 11 principles grounded in the UN Convention on the Rights of the Child (UNCRC) ("*equity and diversity*", "*best interest*", "*consultation*", "*age appropriate*", "*responsible*", "*participation*", "*privacy*", "*safety*", "*wellbeing*", "*development*", and "*agency*") to "*help realise children's rights when designing digital products and services*", and to be applied in all phases of an innovation process (that they divide in *discover*, *define*, *develop*, and *deliver*) [45]. Adopting a **children's rights-by-design** approach would mean giving due weight and including children's rights considerations in every phase of the life of an AI system, particularly but not solely for those systems targeting or accessed by children. This approach, which should be comprehensive in terms of both privacy and security by design approach, should also be applied together with an ethical and societal evaluation;
- **Regulatory Sandboxes.** **Article 3(55) AI Act** [13]: "*a controlled framework set up by a competent authority which offers providers or prospective providers of AI systems the possibility to develop, train, validate and test, where appropriate in real-world conditions, an innovative AI system, pursuant to a sandbox plan for a limited time under regulatory supervision*" with the aim to identifying risks, in particular related to fundamental rights [13].

The term regulatory sandbox covers a wide variety of programs run by national financial regulators in order to allow for controlled testing by private firms of innovative financial products and services. In general, sandboxes provide a 'safe space' for fintechs and financial firms to offer real products to real customers with the benefit of a waiver, or a significant relaxation of otherwise applicable regulations [46]. They are typically justified as a means of supporting

consumer-benefitting financial innovation, facilitating financial inclusion, improving the efficiency and competitiveness of domestic financial institutions, and advancing regulators' own understanding of the emerging innovative technologies [47]. While described as a "laboratory environment", its primary function is to test innovations within an existing regulatory framework through a collaborative process involving both the regulator and participating businesses. Like its technological counterpart, the regulatory sandbox aims to mitigate risks. However, the type of risk involved differs significantly from that of computer systems, requiring a distinct and adaptive approach to designing different sandboxes based on the involved participants [48].

## B. Table 1: Relevant International Guidelines

**Table 1**

An overview and a brief description of relevant international guidelines relating to AI and children's rights, as highlighted by the Council of Europe (2024) (in [21]).

Name of the Organization, Association, or Union	Title of the Document	Year	Brief Description	Reference
United Nations (UN)	UN General Comment No.25 on children's rights in relation to the digital environment	2021	On the implementation of the UN Convention of the Rights of the Child in relation to the digital environment	[49]
	UN Human Rights Council' Special Rapporteur on Privacy's Report	2021	Report on Artificial intelligence and privacy, and children's privacy	[50]
	UNICEF Policy Guidance on AI for Children	2021	Nine requirements for child-centered AI	[20]
World Economic Forum (WEF)	Artificial Intelligence for Children. Toolkit	2022	FIRST approach (Fair, Inclusive, Responsible, Safe, and Transparent) to make sure that AI respects children's rights and has a positive impacts	[22]
Institute of Electrical and Electronics Engineers Standard Association (IEEE SA)	Age Appropriate Digital Services Framework Based on the 5Rights Principles for Children	2021	A set of processes by which organizations seek to make their services age appropriate	[23]
Council of Europe	Convention on Cybercrime, on Data Protection (Convention 108+) and Lanzarote Convention (protection of children against sexual exploitation and sexual abuse)	2001, 1981 and 2007	Although non specific on AI and children's rights, they are still relevant to consider as they relate to the protection and empowerment of children in today's digital world"	[51], [51], [52]
	Recommendation CM/Rec(2018)7	2018	On Guidelines to respect, protect and fulfil the rights of the child in the digital environment	[53]
	Recommendation CM/Rec(2019)10	2019	On developing and promoting digital citizenship education	[54]
	Handbook for Policymakers on the Rights of the Child in the Digital Environment	2020	Insights and recommendations to guide policymakers in the implementation of CM/Rec(2018)7	[55]
	Declaration by the Committee of Ministers on the need to protect children's privacy in the digital environment	2021	"Underscores the importance of protecting children's privacy in today's digital world and addresses the growing concerns related to children's data protection and online privacy"	[56]
	Children's data protection in an education setting - Guidelines	2021	Aim at supporting organisations and individuals in the context of education to respect, protect and fulfil the data protection rights of the child in the digital environment	[57]
	Strategy for the Rights of the Child (2022-2027)	2022	Section 2.3 on "Access to and safe use of technologies for all children". One of the challenges cited is about digital services or products not designed "to meet the needs or uphold the best interest" of the child	[58]
European Union (EU)	General Data Protection Regulation (GDPR)	2016	Art.1(1) "rules relating to the protection of natural persons with regard to the processing of personal data and rules relating to the free movement of personal data"	[59]
	Joint Research Centre (JRC)'s "Artificial Intelligence and the Rights of the Child - Young people's views and perspectives"	2022	Presents the views and perspectives of young people on AI and its impact on children's rights	[60]

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## Declaration on Generative AI

The authors have not employed any Generative AI tools.

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