

AI Sweden & Three Cities

Case study

Name of initiative

Child-Centred AI: National and Municipal Capacity-Building Efforts

Implementing organization

AI Sweden & Three Cities

Initiative type

Artificial intelligence (AI) policy

About the initiative

AI Sweden, Lund University, aiRikr Innovation and Mobile Heights joined forces with the Swedish municipalities of Helsingborg, Lund and Malmö, to evaluate UNICEF's policy guidance against AI-related projects in these three cities. The results of this work shaped a pre-study to define the initial components required to set the foundation for a supportive national framework. Such a framework would provide public and private sector actors with the capacity, expertise and opportunity to promote and develop child-centred AI.

Alignment with UNICEF Policy Guidance on AI for Children

The initiative has aimed to:

- Empower governments and businesses with knowledge of AI and children's rights
- Create an enabling environment for child-centred AI
- Support children's development and well-being
- Ensure inclusion of and for children
- Prioritize fairness and non-discrimination for children

Location

Sweden

Launched

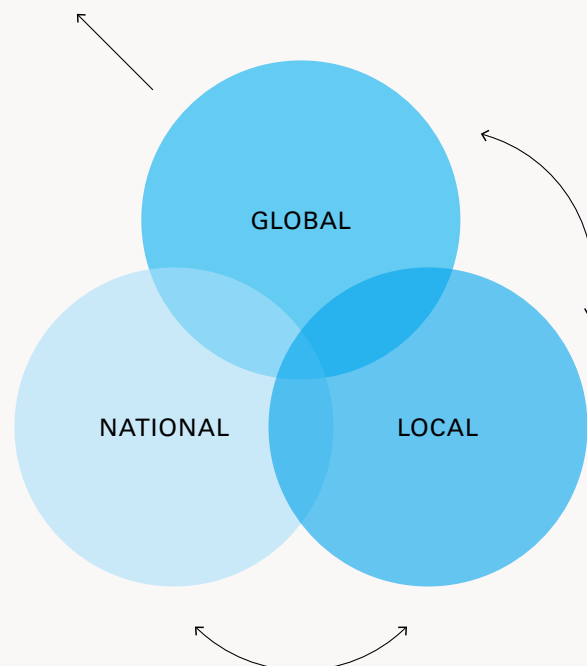
Launched in 2020

Overview

Since the [United Nations Convention on the Rights of the Child \(CRC\)](#) was incorporated into law in Sweden on 1 January 2020, Swedish municipalities have been working to ensure that the CRC is incorporated into their policies and processes. To date, 60 per cent of the municipalities have either incorporated the legislation fully or have developed a clear strategy for how to do so.¹ Yet, the complex integration of artificial intelligence (AI) into children's everyday lives from virtual assistants in schools, smart toys at home, to predictive models for city planning, confronts civil servants with new policy and normative challenges. Particularly, there is a growing need for the public sector to understand and envision how to implement child-centred AI in practice. In this context, the [UNICEF Policy Guidance on AI for Children](#) has become a catalyst to sustain a joint effort by national and municipal actors to conceive and help realize a national innovation environment for child-centred AI.

1. Data from [Children's Rights in Society \(BRIS\)](#)

FIGURE 1: SYNERGIES NEEDED FOR CHILD-CENTRED AI



Two types of initiatives or ‘tracks’ are being pursued in tandem to ensure that child-centred AI systems and digital technologies are fully considered in the implementation of the CRC at the national and municipal levels in Sweden.

The **city track**, also known as the **Three Cities Initiative**, is designed to be implemented locally in Malmö, Lund and Helsingborg. These three municipalities identified AI projects and are now studying how multiple stakeholders in cities collaborate and learn about the implications of AI for children’s well-being and rights through child-friendly AI policy.

The **national track** began with a [pre-study](#), based on the Three Cities Initiative. It was sponsored by the Swedish Innovation Agency, Vinnova, and created through a collaboration with AI Sweden, Mobile Heights, aiRikr Innovation and Lund University. The aim was to evaluate and define the components needed to build an initial framework for child-centred AI by examining real-world case studies from municipalities and private sector pilots.

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Context and project origins

The CRC enshrines in Swedish law that *“children shall be protected against all forms of discrimination, the best interest of the child shall be the primary concern in all actions concerning children.”* It also confirmed *“children’s inherent right to life, survival, and development; and children’s rights to express their views, and their rights to have their views given due weight in accordance with their age and maturity.”* In accordance with the CRC, UNICEF’s policy guidance became a meaningful tool for national and municipal actors in Sweden to begin considering and developing responsible AI for children. The Convention and the guidance provided a first set of thoughtful and measured policy insights concerning the specific intersection of AI, digital technology and children’s rights.

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Yet, existing approaches to adopting child rights legislation in practice, particularly in fast-evolving technological contexts, do not always adequately foster inclusion of children’s perspectives, needs and conditions. Meanwhile, because of the cross-cutting nature of AI and digital technologies, critical challenges remain in terms of interdisciplinarity, knowledge-sharing, and ownership of responsible technological development.

Sweden is one of the global leaders in innovation, ethics and security, an effort in which AI Sweden, the Swedish National Center for applied Artificial Intelligence, has a key role to play. The organization is supported by the Swedish Government, and has many public and private sector partners across the country. With offices in Stockholm, Gothenburg, Lund, Örebro, Luleå, Sundsvall, Skellefteå, Linköping and Karlskrona, this alliance of partners aims to accelerate AI technologies and innovation for societal benefits, competitiveness, and for the well-being of everyone living in Sweden. This alliance conducts collaborative projects of national interest, in areas such as information-driven health care, AI solutions for the Swedish language, data-driven journalism and AI to help tackle climate change. They also provide targeted training for their partners and the public.



For instance, the [Data Factory](#) enables an array of public and private sector partners to make available and make use of data capture technologies, computing power and data storage capacity in AI projects. This interdisciplinary coalition contributes to a culture of sharing, cooperation and action in the Swedish AI ecosystem.

However, despite this level of collaboration, public and private sector actors still face substantial policy and implementation challenges, particularly when it comes to child-centred AI. In Sweden, technological innovation and children's well-being are the responsibility of separate governmental institutions. For instance, digital technology, including AI, is under the purview of the Department of Infrastructure, whereas the Ministry of Health and Social Affairs manages children's rights. Simply put, there is no single organization with the explicit duty of implementing the application of child-centred AI requirements, as outlined by UNICEF and enshrined in law through the CRC.

To remedy this situation, AI Sweden launched a national pre-study to evaluate the components needed to create an initial framework to strengthen and accelerate the implementation and use of child-centred AI.



Application of child-centred requirements

While the National Track adheres to all of the child-centred requirements that align with the [UNICEF Policy Guidance on AI for Children](#), it specifically champions two requirements: to empower governments and businesses with knowledge of AI and children's rights, and to create an enabling environment for child-centred AI.

The pre-study first assessed the existing level of knowledge about AI and child rights within the government and business communities, and expanded this knowledge by focusing on four methods: 1) create awareness and deepen understanding, 2) educate, 3) promote networks and collaboration, and 4) design adequate policies and tools.

Create awareness and deepen understanding

Lund University and AI Sweden hosted a series of events between January and April 2021 to determine the public's base-level understanding of the implications of AI for children's rights and to supplement this knowledge with new and in-depth information. Participants in these events included non-governmental organizations (NGOs), public sector organizations, local and national authorities, and corporations.

Through these multi-stakeholder discussions, it was quickly gleaned that most institutions and organizations lack the policy capacity to manage the child-centric requirements when it comes to AI. This is because such policies are developed in siloes, directed within sectoral boundaries, as opposed to being guided by a unified, institution-wide policy. Most AI policy development is therefore ad hoc, sporadic and localized. However, the multi-stakeholder engagement revealed that public sector officials, civil servants and other dedicated actors potentially share a great interest in developing a robust set of policies and strategies for child-centred AI. Critically, the cross-functional and cross-sectoral nature of children's rights and AI development remains a major impediment to progress at the organizational level – as it does at the national level.



Educate

When it comes to education, AI Sweden and Lund University quickly found that the intersection of children's rights and AI development was poorly understood by the public and decision-makers who would ultimately be responsible for implementing the CRC requirements. To properly establish this initial framework, both child advocates and AI developers would need to become well versed in each other's disciplines. This means that child advocates would have to gain a functional understanding of AI, and AI developers would need to be properly versed in children's rights.

Providing clear and consistent education on these topics will advance AI readiness at the national and organizational level.

To create more efficient benchmarks, the pre-study is translating findings from municipal applications into training programmes that will be rolled out to the public and private sectors. One ongoing effort is Lund University's international online curriculum focused on AI, Business and the Future of Work, with a special section on AI and Child Rights. Lund University is also integrating insights and learning from the pre-study into professional competence development activities, exploring how to bridge the fields of AI and child rights for the emerging area of professional education in child-centred AI. Efforts to expand awareness and communication about these activities to municipalities and organizations have provoked rising interest from multiple stakeholders on the topic.

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Promote networks and collaboration

AI Sweden spoke to several NGOs, private and public organizations and governmental organizations that have developed or are interested in developing child-centric AI applications. On the national level, all stakeholders were interested in building a national innovation environment to strengthen and accelerate child-centred AI through collaboration around common challenges and projects. NGOs, such as the Childhood Foundation and Save the Children, have started to apply AI for child-centred purposes and are actively looking for partners and investments to improve and expand their processes and projects.

For instance, Project Stella Polaris by the Childhood Foundation is using AI to identify victims and perpetrators of sexual abuse online to facilitate victim assistance and support the criminal justice system. Save the Children is





developing a '[Digital Night Patrol](#)' to warn children and protect them from online predators and harassment, particularly in the gaming world. Together with the gaming industry, they have developed a digital field assistant that uses AI to identify and prevent online violence against children and young people. A representative from the organization is a member of AI Sweden's National AI Ethics Lab, a group that brings together expertise from sociology, law and theology as well as the public and private sector. The representative shares their knowledge of AI ethics, including children's safety and development with the aim to help move AI ethics in Sweden from guidelines to application.

Design adequate policies and tools

In this regard, the pre-study examined how AI Sweden can help challenge traditional policy-setting methodologies which do not usually keep up with technological progress, in favour of an approach that reflects rapidly shifting AI development. In practical terms, AI Sweden is encouraging the use of scenario planning and other foresight methods to help anticipate potential policy challenges and address future implications and concerns before they arise. Such proactive policymaking could be considered a cornerstone of any national framework for child-centred AI development.

Results and findings

The results of the pre-study were twofold: first, there was a recognition that governmental actors and NGOs were already pushing to study the intersection of AI development and children's rights. Second, it became clear that public sector organizations faced many roadblocks to effective strategy implementation at a national level. These roadblocks resulted from a lack of cross-functionality between child development advocates and AI development teams, a dearth of deep technological knowledge, and the absence of a unified set of policy methods and insights on the conditions for scaling and data collaboration between units and institutions on both regional and national levels.



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Lessons learned and future challenges

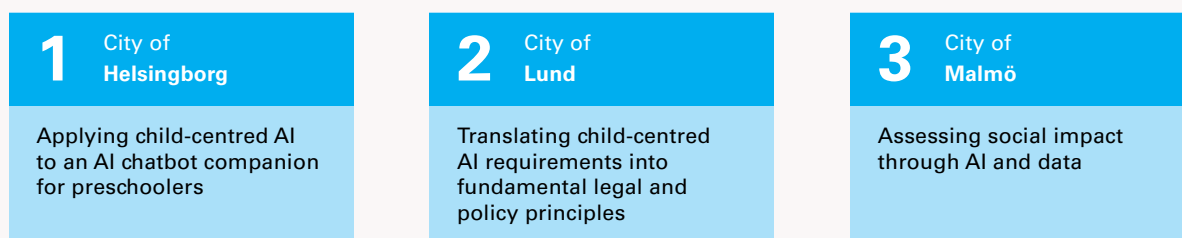
As the pre-study is still ongoing, data are still being collected and analysed to formulate recommendations for the eventual creation of a national child-centric AI innovation plan. Even at this early stage, it is obvious that cross-pollination between child advocates and AI developers, along with the implementation of proactive policies, represent two big opportunities for the advancement of child-centric AI development. The enthusiasm exists; however, the challenge is to transition ad hoc development into a unified, national approach.

For the pre-study, concrete next steps include building a dedicated national innovation environment (planned for 2022) to allow a diverse group of stakeholders to collaborate, share knowledge, and build a common view of the challenges they face in developing AI policy and implementation of solutions. The multi-stakeholder teams will also continue to build awareness through webinars, conferences and dedicated events to drive the conversation forward and move AI development from theory to practice.

City track: Municipal applications of child-centric AI in three cities

The cities of Helsingborg, Lund and Malmö each initiated an AI system or AI policy pilot with the goal of learning how to adopt a child-centric approach to city development that is reliant on AI and data collection.

FIGURE 2: MUNICIPAL APPLICATIONS OF CHILD-CENTRIC AI IN THREE CITIES



Helsingborg: LAlban, the AI-based pre-school Assistant

Helsingborg chose to focus on LAlban, an AI chatbot that is designed to answer common questions that children tend to ask throughout the day (for example, what's for lunch?, what should I wear today?, what time is it?). That chatbot is accessible through a tablet, mounted in the cloakroom of preschools in Helsingborg, empowering children to inquire, learn, play, and even offer feedback to LAlban itself. The chatbot understands and can formulate responses in Swedish, Arabic, English, French, Russian, Turkish, Spanish, Mandarin, Japanese, Danish and Finnish. Originally rolled out as a case study in just 17 preschools, LAlban will now be rolled out to all 80 public preschools in Helsingborg, due to positive responses. The Helsingborg pilot focused on examining how well LAlban adhered to three requirements that align with the UNICEF Policy Guidance on AI for Children, described below.

Firstly, to *support children's development and well-being*, LAlban offers guidance and information on several levels – ranging from daily help to long-term learning. The chatbot provides information on everyday activities, weather, lunches – things that children actively wish to know. On a more advanced level, LAlban offers lessons and games that teach children about waste and sustainability, helping them understand how they can contribute positively to making the world a healthier, more sustainable place. LAlban is now also connected to a municipal-wide initiative called Matsvinn, which helps reduce food waste in municipal canteens and cafeterias. As children reduce their amount of waste, they are awarded diplomas, which incentivizes them to act more sustainably.

Secondly, to *ensure inclusion of and for children*, children have been directly included in the design process for LAlban's applications and updates. For instance, children often ask the AI chatbot new questions and offer suggestions on additional features, enabling designers to update LAlban with abilities and insights that are useful for the primary users. LAlban also uses up-to-date data on the demographics of its users to help provide answers in a variety of languages so that no child risks being excluded.

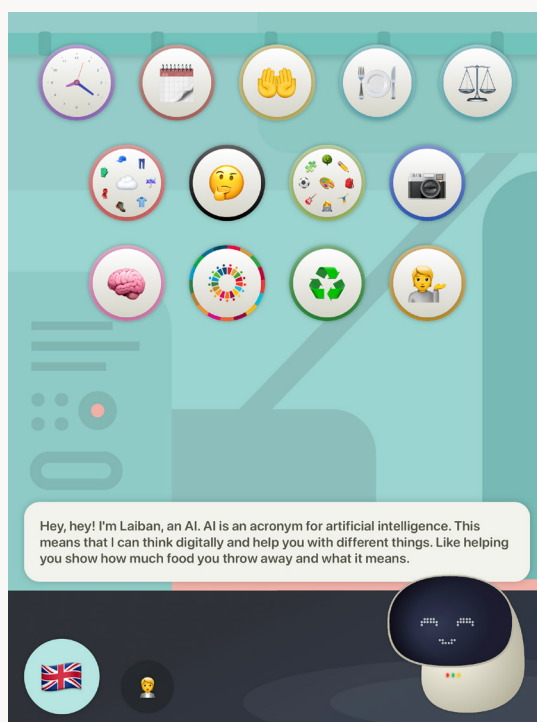
Lastly, to *provide transparency, explainability, and accountability for children*, LAlban is programmed to explain to children what an AI chatbot is. In the future, the developers would like to improve this process to better align with the UNICEF guidelines, but it currently offers the simple explanation that it is an AI assistant or 'helper'. LAlban can tell children how it comes up with its answers and how the chatbot works.

LAlban offers lessons and games that teach children about waste and sustainability, helping them understand how they can contribute positively to making the world a healthier, more sustainable place.

The city of Helsingborg is beginning a preliminary investigation to see if LAlban can be expanded in scope to serve students throughout the primary and secondary school levels. Since there is no governing process in place for AI development with regard to children's rights, the municipality was left to independently assess LAlban's progress and adherence to the UNICEF guidelines. After completing the pilot, civil servants have concluded that the next steps would be to increase dialogue and cooperation between the municipal departments that work with and for children and those that work with digital technologies and AI. Secondly, there must be an effort to increase awareness of existing AI tools and proactively consider children's rights in AI decision-making processes. Crucially, there must be greater transparency when it comes to data collected through AI systems, to ensure that discrimination does not occur, and that children's privacy is protected.

While some lessons are unique to Helsingborg, it is clear that there is significant overlap with the findings from the national track – particularly when it comes to the absence of a national strategy on AI, the gap between child development experts and AI designers, and a general lack of expertise and long-term understanding of AI's implications on children's rights. Therefore, these findings reinforce the national track's results.

FIGURE 3: HOW LAIBAN WORKS



Lund: 'Barnets Bästa', tailoring policies to child-centric AI

Barnets Bästa, meaning 'best for the child', is a policy launched in 2012 based on eight basic principles to strengthen the well-being and development of children. The city of Lund chose to review Barnets Bästa against the UNICEF policy guidance to see where improvements could be made.

In 2021, the team identified four key legal principles to update the existing policy and bring it in line with the applications for child-centred requirements. These principles suggested that updates integrate specific language that address the rights of children when interacting with AI systems, as well as in physical and digital spaces. For instance, renewed emphasis was put on children's safety, their inclusion, and the sensitivity of their data, stressing that AI and digital systems must be transparent and explainable to young users. The revised Barnets Bästa plans to mention that children may comprehend digital environments differently than adults and may therefore require particular safeguards. The updated policy also adds that young users should receive adequate training about their digital rights and that AI systems should be continuously monitored and audited to detect unforeseen impacts on children.

The suggested additions to the Lund Barnets Bästa were submitted at a council meeting in May 2021. The next step is for any municipal body to present comments to the committee by October 2021. After this, the additions will be ratified and applicable for all initiatives and projects initiated by the municipality of Lund.

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Malmö: assessing social impact through AI and data

The third city, Malmö, chose to focus its effort on a social impact assessment. The municipal team combined several departments' socioeconomic data for children up to 17 years old to create a map of Malmö that showed the status of different neighbourhoods throughout the town, allowing urban planners to see where they need to deploy social resources. While this was not carried out with an AI product per se, it was a complex programme that integrated different data sources and represented an intersection of digital technology, data collection and childhood development. The city is currently working on identifying the necessary legal and statistical resources needed to realize the full impact of this digital and technological assessment.



The Malmö team identified several challenges to move their social impact assessment forward. The first was legal: the team needed a municipal-wide legal strategy, and more resources to support this form of data collection and analysis. Beyond this, serious impediments remained when it came to pooling the data from multiple municipal bodies consistently and securely. Interestingly, the Malmö team also faced a pervasive tension between on one hand, managing real-time and present concerns about children's privacy and sensitive data collection; and using AI and data capture technologies and innovation to support children's well-being in the long term. Lastly, as with the national track, questions remained over ownership of a project that tries to balance the complex aspects of developing cutting-edge AI innovation while also designing ethical, responsible AI that respects children's rights. The team is currently working on building data analysis capacity and developing expertise to fill the remaining knowledge gaps about AI at the municipal level.

The team at Malmö is continuing its work on a social impact assessment, having learned from the implementation of the UNICEF guidelines that if children's data are separated from those of the adult population, a far more nuanced and accurate picture of resource needs can be developed.



National versus city tracks: Overlapping challenges

Both the National Track and the Three Cities Initiative examined the feasibility of implementing the UNICEF guidelines as they pertain to the CRC. At national and municipal levels, capacity-building efforts highlighted several major impediments – namely a lack of a national strategy, lack of clarity over project ownership, and a limited understanding of AI as a concept. Based on this shared diagnosis and challenge mapping, further cross-level and collaborative efforts have already identified concrete next steps to build on.

The findings from the pre-study provide the basis to strengthen responsible innovation, ethical and security frameworks and show multilevel normative leadership towards child-centred AI.

First, there is a need to secure long-term, sustainable ownership and processes for developing both a library of case study analyses and a network of stakeholders that can use strategies and toolkits to unlock the value of applied child-centred AI. Second, multidisciplinary and cross-sector groups would benefit from sharing expertise and insights collected from real-life cases with the common goal to effectively translate child-centred AI approaches from theory to practice. Finally, future capacity-building efforts in AI and data analysis could learn from the type of ‘match-making’ of skills, expertise and resources that began with the national pre-study.

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About this case study

This case study is part of [UNICEF's Artificial Intelligence for Children project](#), which aims to better understand how AI-powered technologies can protect, provide for and empower children. Through a partnership with the Government of Finland, the project developed a draft [Policy Guidance on AI for Children](#), which contains practical recommendations and principles for governments and industry to create child-centred AI policies and systems. In order to inform and improve future versions of the guidance and inspire others, organizations were selected to pilot the guidance and share their diverse experiences to illustrate how AI-based initiatives could be designed to be more child-centred. The approaches taken, lessons learned and insights gathered will be one contribution to the global effort towards AI policies and systems that support children's development. View all of the case studies on our [website](#).

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