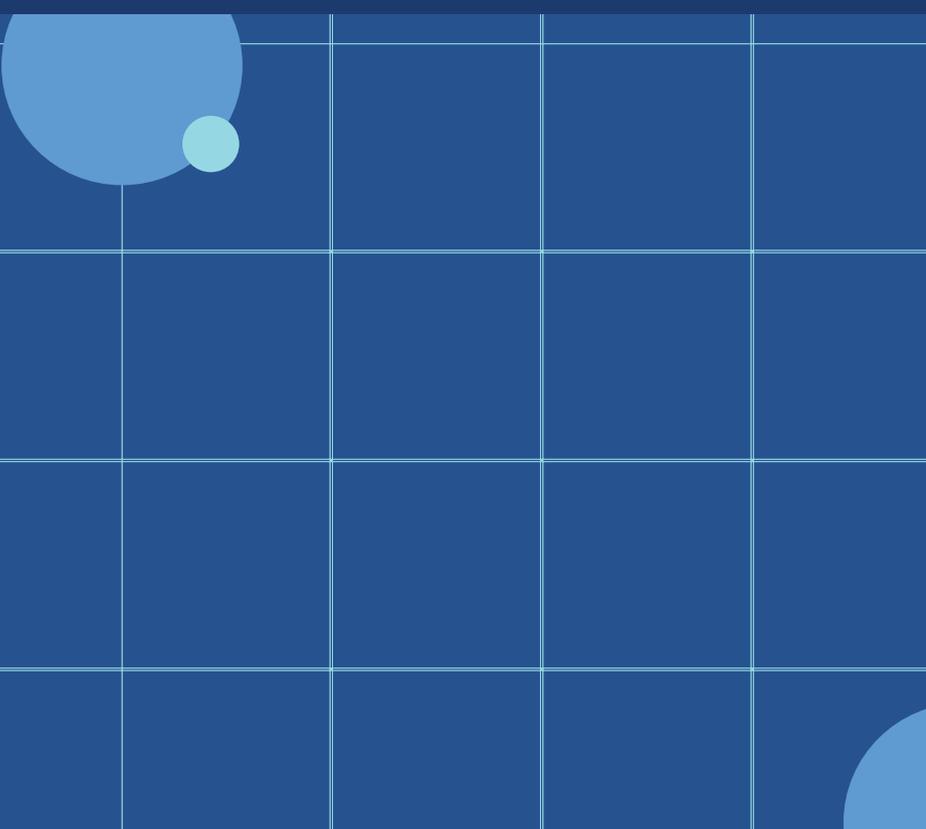


SURVEILLANCE TECHNOLOGIES AND EDUCATION:

**mapping facial recognition
policies in Brazilian
public schools**

Diagnosis and Recommendations nº 8

INTERNETLAB



TECHNICAL FILE

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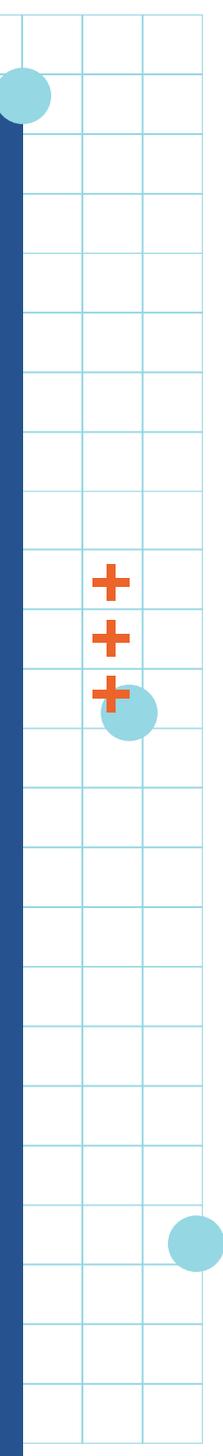
EXECUTIVE SUMMARY

This report seeks to contribute to the debate around the use of surveillance technologies in educational settings, taking into consideration if the right to privacy and non-discrimination is guaranteed in the context of public policies for children and adolescents, focusing on projects implementing facial recognition in public schools. We seek to identify the implementation of facial recognition projects in part of Brazilian public schools. To this end, **we make a mapping of the degree of expansion, forms of use and practices adopted in the use of these technologies in different regions of the country.** Fifteen cases were identified through search engines and news portals:

- i. Tocantins;
- ii. Mata de São João (BA);
- iii. Fortaleza (CE);
- iv. Jaboatão dos Guararapes (PE);
- v. Águas Lindas (GO);
- vi. Goiânia (GO);
- vii. Morrinhos (GO);
- viii. Betim (MG);
- ix. Rio de Janeiro (RJ);
- x. Angra dos Reis (RJ);
- xi. Itanhaém (SP);
- xii. Potirendaba (SP);
- xiii. Santos (SP);
- xiv. Porto Alegre (RS);
- xv. Xaxim (SC).

To understand how the policies were being developed in these fifteen cases identified, we made **requests based on the Access to Information Law, searches on transparency portals and on official websites of the secretariats of education** of each one of them. In addition to the documental data collection, we conducted **in-depth semi-structured interviews** with public administrators responsible for the implementation of the technologies and with specialists who work with education related- issues, digital rights and the protection of children and adolescents' rights. Through the case analysis, we explore the Public Authorities' motivations, as well as the main practices and justifications used to implement facial recognition and we highlight the risks related to the adoption of these technologies. Below are the main conclusions of the report:

- In the case collection, we noticed that, with the exception of the state of Tocantins, **facial recognition has been adopted mainly at the municipal level, through public contracts signed with national companies that offer technology services.** In most of the cases identified, the **implementation of the technology is still in the initial and testing phase, not covering the entire municipal or state education network.** Only in 3 municipalities has the technology been fully implemented: in Betim (MG), Jaboatão dos Guararapes (PE) and Goiânia (GO).



● **None of the municipalities or states reported conducting human rights risk impact studies or analysis on the potential discrimination resulting from facial recognition software prior to the implementation of the project.** The places that have made some progress in implementing facial recognition have stated that the technology has a high accuracy rate. The statement, however, coexists with the report of one of the municipalities that in the test phase, pointed out that there were cases in which the system generated infrequency in a day that the student attended school. In some cases, civil society organizations and public authorities from the Legislative and Judiciary branches **have questioned the use of facial recognition technologies in school units.**

● The case study also sought to understand how the data collected, stored and used by the facial recognition system is handled. Although we received varied responses from each location, we found that, in general, the facial recognition equipment collects the student's biometric data, stores it in the system's own database, and uses it to record attendance. As one of the purposes mentioned among the municipalities for implementing facial recognition is to prevent school dropouts, the data is shared, in some cases, with the Guardianship Council (*Conselho Tutelar*) in situations where the student's absence from the school unit becomes frequent. Finally, we were also informed about the sharing of data among educational managers and with the public administration for a better execution of public policies focused on education.

● The purposes listed by the local authorities for the implementation of the technology fall within three categories:

- i. optimizing the management of the school environment, in which facial recognition would allow saving teachers' class time, managing school absences, and for managing school meal and school supplies;
- ii. fighting school evasion, to prevent undue changes in the attendance register, to notify the Guardianship Council, and to manage social programs in case of non-attendance; and
- iii. for security purposes, to prevent students from leaving without authorization and to safeguard school assets.

● These goals are part of the diagnosis of the problems and challenges that beset Brazilian public education: overcrowded classrooms, lack of funds for school meals, school evasion, and violence. If, on one hand, the purposes are legitimate; analysis over the cases that had some kind of questioning by public authorities or civil society and interviews with specialists show that facial recognition doesn't seem to be able to efficiently address these issues and challenges that affect Brazilian public schools. The reasons that

lead to the current scenario of overcrowded classrooms, for example, are related to structural problems of the national basic education, which can hardly be solved with the implementation of technologies. The same is valid for school evasion, an issue that is related to multiple dynamics, such as lack of public transporte, violence against children and teenagers, child labor and hunger.

Facial recognition has been presented by companies and schools as an education technology with pedagogical purposes. In other fields of study, however, facial recognition is considered as a surveillance technology. Surveillance technologies are those that use devices such as cameras and electronic monitoring and identification systems to control places, spaces, time periods, networks, systems and categories of people (Bonamigo, 2013). It is interesting to think, thus, about the disarticulation between the organizations and technology specialists working with these issues and specialists in public and educational management. From our point of view, differences between the use of information and communication technologies (ICT) in the classroom - which can be beneficial for pedagogical practices - and technologies that, even if employed with the aim of improving school problems, can have serious effects on the privacy and data protection of children and teenagers must be considered. Given this, we understand the use of facial recognition in Brazilian public schools as inadequate. We highlight the dangers of implementing this kind of technology.

Considering that educational technologies, which would not include facial recognition, can be adopted as a way to help the development of students in the school environment, we point out that the responsible and human rights-oriented use of new technologies, such as ethical, regulatory and protective issues regarding the rights of children and teenagers, should be taken into consideration by school agents. Thus, in the adoption of technologies in the school environment, we recommend that the public authorities take the following issues into consideration:

1. Education technologies and surveillance technologies: training public managers to differentiate between the different types of technological tools
2. Context Analysis: production of prior analysis and reports on the impact on data protection and human rights, with an emphasis on the discriminatory potentials that may be contained in the use of specific technologies;
3. Participation and Democratic Management: cooperation between different sectors of society, with participation of the faculty and students;
4. Improvement of transparency mechanisms: prompt and complete answers to Access to Information Law requests, disclosure of Privacy Policy.
5. Use of free software;
6. Training and digital and technological literacy for public administrators and educators

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INTRODUCTION



Among criticisms, movements for regulation and defenses of bans, the use of facial and biometric recognition technologies has been expanding in several areas of Brazilian society. Regarding specifically the public sector, such technologies have been adopted in public safety, transportation, customs control, identity validation and in the field of education, as pointed out on the report “*Vigilância automatizada: uso de reconhecimento facial pela Administração Pública no Brasil*” (“Automated surveillance: use of facial recognition by the Public Administration in Brazil”), published by Lapin in 2021.¹

If the use of facial recognition in public safety is subject of analyses², articles,³ reports⁴ and proposals for regulation,⁵ the same cannot be seen when these technologies are used in the field of education. Through a bibliographic research conducted specifically about surveillance policies in schools, we identified a gap in studies focusing on the establishment of policies for implementing facial recognition in Brazilian education. The monitoring and analysis of these policies are restricted to a few civil society initiatives⁶ and to sparse newspaper reports. The latter point out that the executive powers of different regions have invested in policies for introducing facial recognition technologies in municipal and state educational institutions.

It is important to note, however, that the movement of introducing facial recognition technology in schools is not restricted to the Brazilian context. According to the National Center for Education Statistics, an agency that is part of the U.S. Department of Education, in 2017, 80% of U.S. schools had artificial intelligence cameras. In the early 2000s, this percentage was 19%.⁷ According to Andrejevic and Selwyn (2020), opinion polls conducted in Australia indicate a high level of acceptability to the use of facial recognition systems in schools. The authors argue that schools are part of a favorable context for introducing this kind of technology, because

1 Available at: <https://lapin.org.br/2021/07/07/vigilancia-automatizada-uso-de-reconhecimento-facial-pela-administracao-publica-no-brasil/>

2 Disponível em: Available at:

3 Available at: <https://www.ufsm.br/app/uploads/sites/563/2019/09/5.23.pdf>

4 Available at: <https://lapin.org.br/2021/07/07/vigilancia-automatizada-uso-de-reconhecimento-facial-pela-administracao-publica-no-brasil/>

5 Available at: <https://www12.senado.leg.br/noticias/materias/2022/05/18/debates-apontam-para-fim-do-reconhecimento-facial-na-seguranca-publica>

6 INSTITUTO IGARAPÉ. Reconhecimento facial no Brasil. Available at: <https://igarape.org.br/infografico-reconhecimento-facial-no-brasil/>

7 Musu-Gillette, L., Zhang, A., Wang, K., Zhang, J., Kemp, J., Diliberti, M., and Oudekerk, B.A. (2018). Indicators of School Crime and Safety: 2017 (NCES 2018-036/NCJ 251413). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S./ Department of Justice. Washington, DC.

- i. there is a pre-existing infrastructure that facilitates the introduction of new technologies;
- ii. these are environments in which there is a consistent practice of collecting and maintaining photographic records of students' faces, which allows an appropriation of these records for facial recognition purposes; and
- iii. these are institutions with relatively stable populations, in which the same people circulate, that facilitates the biometric identification of these individuals.⁸

We would also add that schools have been historically constituted as spaces with responsibility over student's safety, a concern that has increased in recent years due to cases related to violent attacks in educational environments⁹. This kind of attack increases the need to come up with alternatives that make the school environment safer. This expansion, however, does not occur without disputes and objections. In 2019, a Swedish school was fined €19,000 by the Swedish Data Protection Authority (DPA) for using facial recognition technologies to monitor student attendance¹⁰. According to the authority, the technology infringed the General Data Protection Regulation (GDPR), violating the privacy of students.

The DPA claimed that, in the case in question, consent would not be a sufficient legal basis for processing students' biometric data, and stated that school attendance control could be done in less invasive ways, rather than through facial recognition. Regarding this case, Wojciech Wiewiórowski, the European Data Protection Supervisor, raised the question: "Is there any evidence yet that we need the technology at all? Are there really no other less intrusive means to achieve the same goal? Obviously, 'efficiency' and 'convenience' could not stand as sufficient".¹¹

Facing this scenario, on this report we intend to map the Brazilian context related to the use of facial recognition in education. Our goal is to understand **how facial recognition technologies have been implemented in Brazilian public schools, analyzing the justifications presented by the Public Power for its introduction: its degree of expansion, its motivations, the main practices and the main risks related to the adoption of these technologies aimed at children and adolescents.** We also seek to understand **whether there are disputes over the implementation of facial recognition in Brazilian public schools and how they take place**, aiming at identifying the main social actors involved, the strategies adopted to discuss the implementation of these technologies in schools and the mobilized arguments. We, thus, intend to contribute to the debate about the use of technologies in education, especially the use of facial recognition technologies for children and adolescents, and about the right to privacy and non-discrimination in the context of datified schools, taking into account the specificities of the realities of Brazilian children and adolescents and of Brazilian public education.

8 Mark Andrejevic & Neil Selwyn (2020) Facial recognition technology in schools: critical questions and concerns, *Learning, Media and Technology*, 45:2, 115-128, DOI: 10.1080/17439884.2020.1686014). Available at: <https://www.tandfonline.com/doi/full/10.1080/17439884.2020.1686014?scroll=top&needAccess=true>

9 FOLHA DE SÃO PAULO (2022). "Podcast: neonazismo nas escolas brasileiras e os caminhos para impedir atentados". Available at: <https://www1.folha.uol.com.br/podcasts/2022/12/podcast-neonazismo-nas-escolas-brasileiras-e-os-caminhos-para-impedir-atentados.shtml>

10 INTERNETLAB. [Suécia] Reconhecimento facial nas escolas levou a primeira multa sobre proteção de dados. Available at: <https://internetlab.org.br/pt/semanario/27-08-2019/#9618>.

11 EUROPEAN DATA PROTECTION SUPERVISOR. Facial recognition: A solution in search of a problem?. Available at: https://edps.europa.eu/press-publications/press-news/blog/facial-recognition-solution-search-problem_en

METHODOLOGY

2

What is the current stage of implementation of facial recognition technologies in Brazilian schools? Which regions of the country have introduced this kind of technology? Which rules and laws regulate the introduction of facial recognition systems? What risk assessment measures for implementing the technology are there? What measures to mitigate privacy and discrimination risks have been implemented? How are these technologies acquired by schools? What are the risks to students by implementing facial recognition technologies in schools? Are there movements of civil society and public authorities questioning the use of facial recognition in education? These are some of the questions that guided the development of this research.

In order to answer these questions, we adopted a multi-method approach, which involved:

- i. data collection through a “purposive sampling”¹² methodology;
- ii. content analysis;
- iii. semi-structured interviews with public managers responsible for implementing the technologies, with specialists and Civil Society Organizations (CSOs) that work with digital rights and protection of rights of children and adolescents in Brazil.

The methodology was chosen based on the need to explore the way in which the implementation of facial recognition in schools has been designed and what challenges are generated in the fields of education, privacy and digital rights in Brazil. On account of the short period for researching and of the fact that national policies are decentralized – since they are implemented mainly at the municipal and state levels –, this is not an exhaustive research, but rather a first analysis that invites to new developments and to further research.

We initiated the data collection by “purposive sampling”, which was done through searches on Google, Yahoo and Bing engines. In order to do so, we used a set of relevant keywords, such as “facial recognition”, “biometric recognition”, “facial biometrics”, “public education” and “public school”. The collection was carried out up to the fourth webpage of each search engine, with the objective of obtaining an initial overview of information about Brazilian public schools

¹² Jupp, Victor. 2006. *The SAGE Dictionary of Social Research Methods*. Sage.

that have implemented - or are in the process of implementing - facial recognition technologies. Simultaneously, by using the same set of keywords, we carried out a search on some of the main Brazilian news portals, such as G1, Folha de S.Paulo, Estadão, Valor and Crusoé.

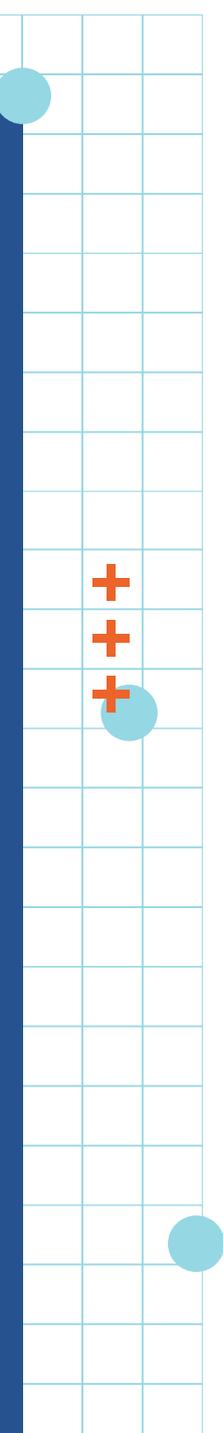
Based on the gathering of the data collected on search engines and on news portals of national range, **we identified fifteen cases of implementation of facial recognition technologies in public schools, in states from all Brazilian regions.**

| BRAZILIAN CASES | | |
|-----------------|-------------------|-------------------------|
| Region | State | Municipality |
| North | Tocantins | Palmas |
| Northeast | Bahia | Mata de São João |
| | Ceará | Fortaleza |
| | Pernambuco | Jaboatão dos Guararapes |
| Center-West | Goiás | Águas Lindas |
| | | Goiânia |
| | | Morrinhos |
| Southeast | Minas Gerais | Betim |
| | Rio de Janeiro | Angra dos Reis |
| | | Rio de Janeiro |
| | São Paulo | Itanhaém |
| | | Potirendaba |
| | | Santos |
| South | Rio Grande do Sul | Porto Alegre |
| | Santa Catarina | Xaxim |

After this first identification, we sought to validate the collected data and to find concrete information about the cases that would be part of our analysis. For this, we conducted a new search, this time:

- i. on the main news portals of each of the identified states, using the same set of keywords;
- ii. on official websites of City Halls and Departments of Education; and
- iii. on Transparency Portals of the Federal Government, of states and municipalities.

Requests for access to information through the Law on Access to Information (LAI) were also sent to the public agencies responsible for implementing the technologies in schools. Requests through LAI focused on seven main themes:

- 
- i. the implementation stage of the policy;
 - ii. the production of risk impact analyses to human rights and personal data protection impact reports;
 - iii. the process of hiring companies to supply facial recognition technology;
 - iv. data protection practices;
 - v. the existence of local regulations on the use of facial recognition technologies;
 - vi. evaluation of the practical results of the policy (e.g. the percentage of accuracy of the technology used and errors after the implementation of the policy); and
 - vii. the existence of questionings by any other institution, such as the Public Prosecutor's Office, the Public Defender's Office or the Court of Auditors, in the implementation of facial recognition in schools.

Finally, by using the same set of keywords, we conducted a survey on research reports, academic articles, theses and dissertations on the academic portals Catálogo de Teses e Dissertações CAPES, Biblioteca Digital Brasileira de Teses e Dissertações (BDTD), Scielo and Google Scholar.

Our intention, in this first phase of the research, was to build a database of documentary sources about facial recognition policies in schools, including:

- i. national, state and municipal laws on innovation and use of technologies in education;
- ii. news articles and scientific papers;
- iii. bidding and purchase contracts;
- iv. pilot projects;
- v. policy regulations;
- vi. institutional publicity materials;
- vii. documents and studies that supported the implementation of technology in schools; and
- viii. objections to the policy, in cases where legislative, judicial or administrative questionings have been identified.

Through this documentary database, we intended to reconstruct “the factual context, of time and space, involving the creation, justification, alteration, application and production of effects”¹³ of the analyzed phenomenon.

13 PAULA, Felipe de; PAIVA, Luiz Guilherme. “A pesquisa legislativa: fontes, cautelas e alternativas à abordagem tradicional”. In: Metodologia da Pesquisa em Direito - Técnicas e abordagens para elaboração de monografias, dissertações e teses. São Paulo: Editora Saraiva, 2019, p. 134.

The documentary database also provided us with elements for a preliminary exam of the main challenges for the implementation of these technologies in Brazilian public schools and for structuring the second phase of the research, which consisted of semi-structured interviews with public managers responsible for the implementation of the technologies and with Civil Society Organizations that act with digital rights and protection of the rights of children and adolescents in Brazil. The semi-structured interviews were carried out through online meetings and conducted by our research team, and sought to understand, in a greater depth, the dynamics involved in the construction of educational policies related to facial recognition.

Based on the database, composed both of collected documents and of interviews, we described the analyzed regulations, reconstructing the elaboration context of the policies, the mobilized discourses, the legal grounds, the actors involved and the justifications raised for the implementation of these technologies in public schools. **Based on the different empirical corpuses surveyed, we, thus, sought to describe how the Brazilian Public Power, in its different spheres, has introduced facial recognition technology in schools, identifying vulnerabilities, gaps and points of attention to privacy and to students' right to non-discrimination.**

ELABORATION AND IMPLEMENTATION OF FACIAL RECOGNITION POLICIES IN BRAZILIAN SCHOOLS



The use of facial recognition in Brazilian schools is a phenomenon found from North to South of the country. In all regions, at least one local public policy for this purpose has been found. Among the analyzed cases, the majority of the initiatives for adopting this technology come from the municipal executive power. Of the 15 policies identified, only one is a state policy, from the state of Tocantins. No policy aimed at federal elementary schools has been found.

On this section, we present the trends, similarities and differences identified in each of the 15 analyzed cases. We describe:

- The stage of implementation of facial recognition policies;
- The production of impact studies on human rights, discrimination potentials and civil society participation;
- Practices of hiring and purchasing facial recognition technologies;
- Data protection practices adopted by municipal and state administrations for implementing the policies.

On the [appendix of this report](#), descriptive tables of each analyzed case may be found, with detailed information and links to references.

3.1. FACTUAL, ADMINISTRATIVE AND LEGAL CONTEXTS

3.1.1 IMPLEMENTATION STAGE

The responses provided by municipalities and by the state of Tocantins show that the projects for adopting facial recognition technologies are in different stages of implementation. Among the 15 cases studied, five were discontinued: Potirendaba (SP), Rio de Janeiro (RJ), Porto Alegre (RS), Santos (SP), and Fortaleza (CE). There were different reasons leading to the discontinuity of the policies: **Potirendaba** (in the State of São Paulo), considered the pioneer city for having adopted this type of technology in education in 2015, had its policy discontinued in 2017 - a moment of transition of the municipal administration. According to the new administration, the reason for the suspension was the way in which data was stored: the cloud of a hired company was used, therefore, the municipal administration did not count on an internal database. The City Hall understood that there was an incompatibility with the way of storing the databases, which would not be under the custody of the municipality.

In the cases of the cities of **Rio de Janeiro** and **Fortaleza**, the suspension of facial recognition policies occurred due to **contestations presented by public agencies and civil society**. In Rio de Janeiro, the Municipal Court of Auditors, after an analysis of the bidding process for hiring a company to supply the technology, suspended the bidding, on the grounds of lack of justification for the acquisition of the 368 biometric devices.¹⁴ In Fortaleza, the decision for suspension came from the City Hall, following questionings from the Center for the Defense of Children and Adolescents of Ceará (Cedeca) and Intervezes, who questioned the absence of a report on the impact to personal data and human rights, and of an analysis about discrimination potentials.¹⁵

In the cities of **Santos** and **Porto Alegre**, we were informed by the Departments responsible for the project that the policies for implementing facial recognition had been discontinued. In neither case was the reason of the suspension explained. The Department of Planning and Innovation of the Municipality of Santos, through a response to the request for Access to Information, reported that tests and a proof-of-concept were carried out, but there was no contracting because the project did not proceed. In an interview with public managers of the Department of Education of the city of Porto Alegre, we were informed that, with the transition of the municipal government administration, **there was no data informing about the project situation and whether it was continued by the previous administration**.

In the state of **Tocantins**, the facial recognition policy, which is expected to reach all of the state schools, is on testing phase. In the municipalities of **Xaxim** (SC) and **Morrinhos** (GO), facial recognition technologies are already operating. In Xaxim, the technology was implemented in only one school unit, and in Morrinhos, two schools already use the system.

14 Available at: https://www.tcm.rj.gov.br/Noticias/14491/040_101454_2020%20-%20P024.pdf

15 Available at: <https://www.opovo.com.br/noticias/fortaleza/2020/12/17/prefeitura-suspende-projeto-de-reconhecimento-facial-em-escolas-de-fortaleza.html>

Neither have yet concluded their adequacy processes. **Thus, in 3 of the 15 cases, facial recognition technology is still on an initial phase of implementation.**

Only in three of the analyzed cases the technology has been fully implemented: in the municipalities of Betim (MG), Jaboatão dos Guararapes (PE) and Goiânia (GO). According to the municipality of Betim, all of the 69 elementary school units in the city have facial recognition technology. In Goiânia, the facial recognition system is already in full use in municipal educational units, but technical adjustments are still needed to integrate the facial recognition system into the school management system. According to the Municipal Department of Education and the Agency of Innovation and Educational Technology, 336 school units have the infrastructure and access to the school management system of facial recognition. In Jaboatão dos Guararapes, 125 municipal elementary schools (from 1st to 9th grade) already have the facial biometrics system.

The municipalities of Angra dos Reis (RJ), Águas Lindas (GO), Itanhaém (SP) and Mata de São João (BA) did not provide any information or did not respond to the requests for access to information about the implementation of the technology in schools. Publicly available data on transparency portals and on municipal administration sites do not inform about the stage of implementation of these policies. In the cases of Itanhaém (SP) and Mata de São João (BA), in response to a request for access to information, the municipalities only informed that the bidding had been formalized. **In four cases, therefore, we did not obtain sufficient information to assess the stage of implementation of facial recognition policies.**

3.1.2. STUDIES ABOUT IMPACTS TO HUMAN RIGHTS, DISCRIMINATION POTENTIALS AND CIVIL SOCIETY PARTICIPATION

According to information obtained through LAI, through interviews with public managers and through publicly accessible data, **it was not possible to identify any municipality or state that has conducted studies of risk of impacts to human rights.** We highlight, in this context, that administrators at the municipality of Jaboatão dos Guararapes (PE) claimed that no previous study had been conducted, since “there is no possibility of violation of human rights”. Regarding the production of data protection, the state of Tocantins affirmed that it conducted a preliminary technical study related to the compatibility of facial recognition with the General Data Protection Law (GDPL). The absence of previous studies, however, was a cause for the suspension of policies in only two cases: Fortaleza and Rio de Janeiro.

Regarding the participation of civil society in the implementation of facial recognition projects, **only two municipalities, Itanhaém (SP) and Jaboatão dos Guararapes (PE), had some level of society participation on the development of projects.** According to the municipal administration of Itanhaém, managers and the school community took part on the discussion period of the “Municipal Multiannual Plan”. At the time, one of the demands raised was the “modernization of school services”. In Jaboatão dos Guararapes, the Department of Education reported that, in the implementation of the online Class Diary, which includes,

among other technologies, facial recognition, meetings were held involving School Boards and Child Protection Agencies.

In response to requests for Access to Information, the municipal administrations of Goiânia and Betim claimed that the use of facial recognition technologies has been demanded by the local community, without identifying which organizations or representatives were engaged in the process, or the forms of communication between municipal management and the population about the introduction of the technology. In this sense, the municipality of Goiânia reported that facial recognition “was already an old demand of the municipal educational community”. The municipality of Betim, in its turn, observed that “the participation of the school community in the implementation of the system occurs continuously, because there is an everyday interaction between the community and the FaceSchool¹⁶ platform, allowing the user to contribute with suggestions and evaluations for its improvement”.

No municipality mentioned having performed analyses on the potential for discrimination resulting from facial recognition software. Regarding the adaptation of the technologies to children and adolescents with disabilities, among the municipalities that reported the existence of a potential or effective implementation of facial recognition in school units, only the municipality of Mata de São João did not provide any information about this questioning. The municipalities of Goiânia, Morrinhos, Itanhaém, Betim, Xaxim, Jaboatão dos Guararapes and the state of Tocantins reported that facial recognition is adapted for children and adolescents who use wheelchairs, with the allocation of the facial recognition camera at a height compatible with wheelchair users. The municipality of Morrinhos also mentioned that there is an adaptation for autistic children and adolescents, in which the teacher in charge accompanies the student at the time of camera identification.

3.1.3. HIRING AND PURCHASING FACIAL RECOGNITION TECHNOLOGIES

On the analyzed cases, biddings were the main means of hiring and purchasing facial recognition technology. The following localities registered this form of hiring: Tocantins, Mata de São João, Itanhaém, Águas Lindas, Jaboatão dos Guararapes, Goiânia and Xaxim. In Tocantins, Mata de São João and Itanhaém, the bidding process took place through public notice; in Águas Lindas, through invitation letter; in the cases of Goiânia and Angra dos Reis, the hiring took place through a contract.

Regarding the duration of the contract, **all sites signed publicly accessible contracts with the winning companies for a period of 12 months.** Among the winning companies, **J.B.C.M. Equipamentos e Sistemas Ltda., chosen by seven locations** (Tocantins, Mata de São João, Jaboatão dos Guararapes, Águas Lindas, Goiânia, Angra dos Reis and Potirendaba) stands out. The other three companies mentioned were MultFácil (Itanhaém), BiomTech (Betim and Morrinhos) and Betha Sistemas (Xaxim).¹⁷

¹⁶ FaceSchool is an application, managed by the company BiomTech (see section 5), that gathers notifications about days of meetings, tests and classroom tasks, besides data about student's attendance.

¹⁷ On section 5, there is detailed information about each company.

Regarding the value of contracts, there has been a significant variation among locations. **The contract of the state of Tocantins was the most expensive one (R\$19,064,600.00), which may be related to the fact that the implementation will take place in all its municipalities. When comparing the municipal contracts, we found a variation from R\$ 9,379,305.00, in the municipality of Goiânia, to R\$ 55,680.00, in the municipality of Xaxim.** In the case of Fortaleza, that discontinued the policy, the value estimated in the bidding, which was not finalized, was R\$ 21,153,396.31.

3.1.4. PERSONAL DATA PROTECTION

The collection, storage and use of data by facial recognition technology are similar in the places that responded to the requests for access to information. According to the state of Tocantins and the municipalities of Mata de São João, Jaboatão dos Guararapes, Morrinhos, Itanhaém and Betim, **the facial recognition equipment collects the student's biometric data, stores them in the system database and uses them to record school attendance.** The municipality of Morrinhos also stated that the company responsible for managing facial recognition has access to the following data from students:

- i. full name;
- ii. address;
- iii. e-mail and
- iv. CPF (Individual Taxpayer Registration).

The municipality of Goiânia reported that student data were gathered from an existing database used for “school management” at the Department of Education. The municipality of Xaxim indicated that facial recognition data are collected in the moment of enrolment, which is done through the same system of biometric technology.

As for the treatment given to data after the departure of the students from educational institutions, the municipalities of Jaboatão dos Guararapes, Goiânia, Morrinhos, Betim and Xaxim stated that **the data remain stored at the department of education.** The state of Tocantins and the municipality of Itanhaém reported that facial identification data **are excluded from the database.**

Regarding the sharing of data with other treatment agents, five locations (Tocantins, Mata de São João, Jaboatão dos Guararapes, Betim and Xaxim) either reported that there is no sharing, or did not provide an answer to the question. The municipality of Goiânia indicated that there is data sharing among educational managers and with the public administration in cases of improvement of public services aimed at education. The municipality of Morrinhos reported that the data are stored both in the school management system, and in the server system that provides the facial recognition service, and that **student data are shared with the Child Protection Agency when absenteeism becomes frequent.** Finally, the municipality of Itanhaém stated that there is data sharing among educational managers.

The places have different security practices: some (Tocantins and Morrinhos) reported that the technology is compatible with the General Data Protection Law, but did not provide further information. The municipalities of Goiânia and Xaxim stated that data processing is organized by those responsible for Information Technology and Security at their departments. **The municipalities of Itanhaém and Betim reported the existence of end-to-end encryption in the technology database.** The municipality of Jaboaão dos Guararapes mentioned the practice of backing up the data recorded by the system. Finally, **the municipality of Mata de São João indicated the existence of a specific information security policy issued by the administration in August 2015, which would be applied to facial recognition technology.**

Regarding the percentage of accuracy of the technology, 4 sites (Tocantins, Goiânia, Morrinhos and Xaxim) did not inform about the percentage of accuracy, stating that the facial recognition system has either not been implemented (Tocantins) yet, or is still in implementation phase (Goiânia, Morrinhos and Xaxim). These municipalities also reported that facial recognition technology is not an impediment for the student to attend the school unit, and that, in case of system error, the attendance will be manually inserted by the manager. We highlight that **the municipality of Xaxim stated that there were cases in which the system generated an absence on a day the student had, in fact, attended the school.**

Finally, the municipalities of Mata de São João, Jaboaão dos Guararapes and Betim stated that **facial recognition technology has a high accuracy rate**, and also reported that, in any case, the system will not be an impediment for the student to access the school unit.

We draw attention to inconsistent data provided by the municipality of Jaboaão dos Guararapes. According to the municipality, the accuracy would be of 100%, which diverges from the information about the error rates of this kind of technology. Research on facial recognition indicate that there are error rates in these tools, and that the accuracy of these systems is significantly lower for black women, when compared to white men.¹⁸

Furthermore, the municipal administration of Jaboaão dos Guararapes reported that the facial recognition system is used solely for checking student attendance and it is not a tool for granting access to the school unit. The municipality, however, also reported that “there were cases of students coming from other teaching units, and even people who do not study, who were prevented from entering the school facility because they were not part of it”.

18 B. F. Klare, M. J. Burge, J. C. Klontz, R. W. Vorder Bruegge and A. K. Jain, “Face Recognition Performance: Role of Demographic Information,” in *IEEE Transactions on Information Forensics and Security*, vol. 7, no. 6, pp. 1789-1801, Dec. 2012, doi: 10.1109/TIFS.2012.2214212.

3.2. REGULATION AND THE DEBATE OVER LEGALITY OF FACIAL RECOGNITION IN EDUCATION

In 2016, a Bill was presented in the Federal Chamber with the objective of **making “mandatory the implementation of a system to control student attendance in public schools - Digital School Attendance”¹⁹, through facial recognition**. According to its proposer, Marcelo Aguiar (DEM/SP), who was then a Federal Deputy, **the Bill No. 4413** would:

- “improve the monitoring of students who actually attend schools and, thus, combat the problem of school dropout, in addition to ensuring more safety for parents or caretakers”;
- allow a “better administration and efficient monitoring of the frequency of students, as well as employees, assisting in the management, security and democratization of information for all levels of the administrative hierarchy, since the system may serve as support for controlling the access of unauthorized persons to the school environment”; and
- facilitate “the integration between the local social action and the Child Protection Agency, facilitating the automated transmission of information about student attendance to these agencies, so that relevant social measures are taken”.

The Bill was rejected and filed in the following year, after receiving contrary opinion from the Education Committee of the Federal Chamber due to obstacles “of constitutional and legal nature”. According to the rapporteur of the Bill in the Commission²⁰, the Federal Deputy Átila Lira (PSB/PI), despite the relevance of the matter contemplated, “the absence, in most education systems, of adequate technological structure to implement this measure” could constitute a hindrance to law enforcement, especially by municipalities, “which concentrate a large part of the basic education vacancies”. According to the rapporteur, “another aspect to consider is the volume of financial resources required for implementing the proposed measure, when education systems often do not have budgets to ensure minimal infrastructure, such as the construction of libraries or the renovation of restrooms”. Furthermore, the deputy demonstrated that the Union could not create an obligation that would demand funds from other levels of the federation without the provision of federal transfer of the necessary resources, which could only be done through appropriate legislation. **Despite the contrary opinion, the rapporteur concluded by stating that “there is no legal impediment for education systems to implement digital attendance control, provided that, in each sphere of competence, they consider it adequate and present compatible technological and financial conditions”.**

¹⁹ Available at: <https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=2077399>

²⁰ Available at: https://www.camara.leg.br/proposicoesWeb/prop_mostrarintegra?codteor=1595634&filename=Tramitacao-PL%204413/2016

After the filing, Federal Deputy Hildo Rocha (MDB/MA) presented the **Bill No. 9176/2017**²¹. The proposal, inspired by Bill No. 4413/2016, also aimed at making mandatory the “digital control of attendance of students in public schools of basic education”, without specifying that digital control would take place through facial recognition or through other forms of biometric recognition. According to Deputy Hildo Rocha, “the Bill no 4.413/2016 (already filed), which contained a similar proposal, suffered objections when it was processed, in the sense that most education systems, especially municipal ones, lack the adequate technological structure to implement the measure - and the amount of financial resources required for its implementation is not small. So, we propose that **the implementation be gradual.**” After a process of filing, unfiled and alterations in the rapporteurship, in 2021, the opinion of the rapporteur²², Deputy Diego Garcia (Republicanos/PR) was presented, also in favor of the rejection and of filing the proposal.

Although, according to the rapporteur of the first proposal, Átila Lira, there is no legal impediment for it, until the moment of this research there has been no specific legislation in Brazil, whether federal, state or municipal, that regulates the use of facial recognition or biometric recognition technologies in public or private school units. However, we list some federal legislations on rights of children and adolescents, and on technology and education, which should be observed when implementing surveillance technologies, such as facial and biometric recognition technologies in schools, especially by the Public Administration:

| FEDERAL LAWS |
|--|
| <i>Constituição da República Federativa do Brasil de 1988 – Constitution of the Federative Republic of Brazil (FC)</i> ²³ |
| <i>Estatuto da Criança e do Adolescente – Statute of the Child and Adolescent (Law nº 8.069, jul. 13, 1990)</i> ²⁴ |
| <i>Plano Nacional de Educação – National Education Plan (Law nº 13.005, jun. 25, 2014)</i> ²⁵ |
| <i>Programa de Inovação Educação Conectada – Innovation Program for Connected Education (Ordinance nº 1.602, dec. 28, 2017)</i> ²⁶ |
| <i>Sistema Nacional para a Transformação Digital – National System for Digital Transformation (Decree nº 9.319, mar. 21, 2018)</i> ²⁷ |
| <i>Lei Geral de Proteção de Dados Pessoais – General Data Protection Law (Law nº 13.709, aug. 14, 2018)</i> ²⁸ |
| <i>Política de Inovação Educação Conectada – Innovation Policy for Connected Education (Law nº 14.180, jul. 1, 2021)</i> ²⁹ |
| <i>Política Nacional de Educação Digital – National Policy for Digital Education (Law nº 14.533, jan. 11, 2023)</i> ³⁰ |

Despite the enactment of specific legislation in 1990, children and adolescents had their fundamental rights guaranteed years earlier through the **Constitution of the Federative**

21 Available at: <https://www.camara.leg.br/propostas-legislativas/2163259>

22 Available at: https://www.camara.leg.br/proposicoesWeb/prop_mostrarintegra?codteor=2007727

23 Available at: https://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm

24 Available at: https://www.planalto.gov.br/ccivil_03/leis/l8069.htm

25 Available at: http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2014/lei/l13005.htm

26 Available at: https://educacaoconectada.mec.gov.br/images/pdf/portaria_1602_28122017.pdf

27 Available at: https://www.planalto.gov.br/ccivil_03/_Ato2015-2018/2018/Decreto/D9319.htm

28 Available at: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.htm

29 Available at: <https://www.in.gov.br/en/web/dou/-/lei-n-14.180-de-1-de-julho-de-2021-329472130>

30 Available at: http://www.planalto.gov.br/ccivil_03/_Ato2023-2026/2023/Lei/L14533.htm

Republic of Brazil of 1988 (FC), of which we highlight the arts. 5th and 227th. The first provides that all persons are equal before the law, without distinction of any nature, ensuring the **inviolability of their intimacy, private life, honor and image** and the right to compensation for material or moral damage caused by their violation. In 2022, the right to **protection of personal data** was also guaranteed by the Article 5³¹ of the FC, thus expanding the list of fundamental rights and guarantees.

Regarding Art. 227, the Federal Constitution provides that it is the duty of the family, society and the State to ensure that the child, adolescent and young person, with absolute priority, have the right to dignity, respect and freedom, among others, and guarantee that they are safe from all forms of discrimination, exploitation and violence. The FC provisions are ratified by the **Statute of the Child and Adolescent (SCA)**, which provides for full protection of children and adolescents, and for the right to freedom, respect and dignity – among which are the preservation of image and identity, and the participation in community life without discrimination. Such postulates are inspired by the principle of the best interests of the child, enshrined in Article 3, paragraph 1, of the 1989 United Nations Convention on the Rights of the Child³². The best interests of the child are a dynamic concept and should always override any other concern, including - especially - commercial interests.

Thus, when there are different interests involved in a decision concerning a child, a group of children or children in general, the right to assess their best interests must be taken as the primary consideration. This logic should apply not only with regard to the decision itself, but also with regard to the rule on which it is based and under the procedure that is adopted. That is, if a rule is open to more than one interpretation, the one that best serves the best interests of the child should be chosen and, during the decision-making procedure, an assessment of the possible impact, whether positive or negative, of the decision on the child or children concerned should be present.

In this sense, **the General Law for the Protection of Personal Data (GDPL)** also stands out as federal legislation for protecting rights of children and adolescents influenced by this principle. According to Art. 14 of the GDPL, **the processing of personal data of children and adolescents should be carried out in their best interest, with specific and explicit consent of at least one parent or legal guardian**. Information about the kind of data collected should be published “in a simple, clear and accessible way” both to the understanding of parents and guardians, and to the understanding of children and adolescents.³³

We emphasize that, in relation to data protection, there is also a Bill currently being processed in the Federal Chamber that provides for the use of facial recognition technologies in the public and private sectors. **The Bill No. 2392/2022** ³⁴, proposed by Federal Deputy

31 Available at: <https://internetlab.org.br/pt/semanario/11-02-2022/#18524>

32 OHCHR, CRC, 1989. “Artigo 3: 1. in all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration”.

33 Regarding the interpretation of this instrument, InternetLab sent a contribution to the National Authority for Data Protection in 2022, in which is presented a proposal of interpretation that includes the child’s best interest, legal hypotheses for personal data treatment and the consideration of children’s rights by design. Available at: <https://internetlab.org.br/pt/noticias/internetlab-envia-contribuicao-a-an-pd-sobre-tratamento-de-dados-pessoais-de-criancas-e-adolescentes/>

34 Available at: <https://www.camara.leg.br/propostas-legislativas/2334803>

Guiga Peixoto (PSC/SP), seeks to **prohibit “the use of facial recognition technologies for identification purposes in the public and private sectors without a prior report of impact on people’s privacy”**. According to the deputy, “in view of the high rates of errors for certain race and gender groups, the Administration has to ensure that everyone is equal before the Law and have the same rights as citizens”. Furthermore, “borrowing the concept of the Privacy Impact Report contained in the GDPL, we determine that every company that uses these tools will have to document its process of data treatment and storage, making the process safer and auditable by the National Authority for Data Protection”.

Within this context, it should be noted that there are already arguments among civil society organizations in the area of personal data protection, to the effect that the absence of legislation on facial recognition does not necessarily mean that its use is legalized, especially in the field of education. The Constitution, by enshrining a series of guarantees, such as the principle of non-discrimination (art. 5, caput), the fundamental right to protection of personal data (art. 5, LXXIX) and the principle of legality (art. 5, II), creates a duty of protection for the State. Since facial recognition technologies capture, identify and store personal images and data, it is evident that the inviolability of image and privacy and non-discrimination are issues directly involved in their use. In turn, the General Data Protection Act only tangents the use of facial recognition in devices that can be applied, such as the use of biometric and sensitive data. In this sense, there are articulations that question the use of these technologies for different purposes, including in school units - as we will see in section 7.

3.2.1. THE NORMATIVE VACUUM AT THE LOCAL LEVEL: MUNICIPAL LEGISLATIVE ACTIVITY

The legislative vacuum and lack of regulation on the use of facial recognition at the federal level is also identified at the local level. Of the fifteen cases analyzed, only the municipality of Mata de São João (BA), through its response to the Access to Information request, stated that it has guidelines on the adoption of the technology, through municipal laws that govern the treatment of personal data and the security of municipal information. Although the municipality has informed that, in integration with federal legislation, these rules guide the use of facial recognition technologies in municipal schools, it should be noted, once again, that there is still no legislation in Brazil, at any federal level, related to the regulation of facial recognition, especially when focused on education.

As in the federal sphere, the budget forecasts and the regulations related to data protection must be interpreted in light of the best interests of the child, the principle of non-discrimination (CF, art. 5, caput), the fundamental right to the protection of personal data (CF, art. 5, LXXIX) and the principle of legality (CF, art. 5, II).

Below are the municipal legislations that - according to local public managers’ argument - would discipline the use of facial recognition.

| MATA DE SÃO JOÃO (BA) |
|---|
| Legislation |
| Municipal Decree n° 162, Apr. 1st, 2022 ³⁵ |
| Municipal Policy for Information Security ³⁶ |
| Multiannual Plan – PPA 2022-2025 ³⁷ |
| Annual Budget Law – LOA 2023 ³⁸ |

The first document presented by the municipality was the **Municipal Decree No. 162**, which provides for the protection of personal data and appoints the Data Protection Officer, in addition to having established the Data Protection Management Committee (DPMC) of the municipality of Mata de São João. According to the legal text, the DPMC is an advisory and deliberative collegiate body that must exercise “attributions related to Transparency, access to information and protection of personal data”. Some of its duties are:

- i. to recommend, evaluate and monitor the mechanisms and instruments for data protection treatment, in addition to proposing normative and strategic policies aimed at establishing compliance of the municipal executive power with the provisions of the GDPL;
- ii. to provide guidance on the processing and protection of personal data, with regard to public transparency, access to information and data protection;
- iii. to formulate principles and guidelines for the management of personal data, public transparency and to propose their regulation;
- iv. to promote the exchange of information about the protection of personal data with other agencies; and
- v. to coordinate Work Groups composed of specialists whenever the analysis of specific subjects, demanding technical opinion, is needed.

The second document presented was the certification term of existence of the **Municipal Information Security Policy**. According to the municipality, the Policy is in force since August 17th, 2015 (despite having been published only on February 1st, 2019), and it “presents a set of instructions and procedures to standardize and improve the vision and performance of Information Security of the Municipality of Mata de São João, which was based on the ABNT Standard 21:204.01-010”. The Policy, however, was not made available and could not be found in the Transparency Portal of the City Hall. According to the certification term, its publication was not carried out in full “because, as usual in the IT area, the procedures and actions exceptionally adopted in this theme are not ‘publicly’ exhibited”.

³⁵ Available at: <https://internetlab.org.br/wp-content/uploads/2023/01/DDC1CDDE-4AAA-6CBD-2B7B-87BCAEDAB4C7-1.pdf>

³⁶ The municipality presented the certificate of existence of the security policy, not the text of the policy. Available at: <https://sai.io.org.br/Handler.ashx?f=diario&query=2949&c=505&m=0> (p. 72).

³⁷ Available at: https://sapl.matadesaojoao.ba.leg.br/media/sapl/public/normajuridica/2021/44/lei_840.2021_-_ppa.pdf

³⁸ Available at: https://sapl.matadesaojoao.ba.leg.br/media/sapl/public/normajuridica/2021/45/lei_848.2021_-_loa.pdf

It is noteworthy that, despite the information provided about data protection and information security, the municipality did not comment about having carried out studies – either prior to or at the moment of implementation and use of facial recognition technology in schools – which could inform about the impact on the exercise of rights, especially the right to protection of personal data from students, professionals and other users. We were informed that “the facial biometrics of the students is encrypted and is located exclusively off-line, in the memory of the equipment, for security reasons, not being accessed or transmitted, because it is for exclusive use of the equipment”

BUDGET LAWS

The **Multiannual Plan**³⁹ (MP) 2022-2025 and the **Annual Budget Law**⁴⁰ (ABL) 2023 were also included through our data collection by “purposive sampling”. The objective was to identify and analyze municipal investments for hiring and maintaining this or other technologies for education. Regarding the MP 2022-2025 of the municipality of Mata de São João, we identified the development of the Program “100% Full-time, Creative, Innovative and Technological Education”, by the Municipal Department of Education. The goal is to “prioritize excellence in teaching, raising the quality and learning skills with new digital technologies, providing an advanced education for students from the municipal system”. The Program is also part of ABL 2023, with 18 (eighteen) actions – among them, improvement and expansion of the basic education system infrastructure, qualification of facilities and educational management. The total investment of the program is R\$ 142,273,923.00.

The MPs and ABLs of the remaining Brazilian municipalities studied in this research were also analyzed. Not all of them count on specific programs or actions for developing, contracting or maintaining educational technologies. In spite of that, **we highlight some initiatives:**

39 MP is a Public Administration instrument for medium term budget planning (four years) provided by the Federal Constitution. It defines guidelines, goals and targets, contemplating, among others, public policies and its investments.

40 A LOA is a Public Administration budget planning based on MP, that estimates public revenues and spendings for a one-year period, based on the total value collected through taxes.

Fortaleza (CE)

Although we did not identify specific programs and actions for implementing technologies in education on MP 2022-2025 and on ABL 2023, “Fortaleza 2040 Plan”⁴¹ was launched in 2016, which consists of a “development plan for the city of Fortaleza with strategies to be implemented in the short, medium and long terms (with the scenario of 2040)”. On “Axis III - Public Education”, the Plan provides for “actions, projects, subprojects and/or programs related to the use and implementation of new technologies in municipal educational institutions”. Also on Axis III, on “Science, Technology and Innovation (STI)”, the Plan proposes, on goals and objectives, the expansion of the infrastructure of STI in education.

Goiânia (GO)

In response to the request for Access to Information, the Municipal Department of Education informed that on its MP 2022-2025⁴², on the “**Program 0147 - Goiânia em Nova Ação**”, there is a plan to “**purchase and use of technologies for school management at the municipal level**”. The Program aims to coordinate and articulate “joint programs and actions among the organs/entities of the public administration based on development of technology and innovation aiming at improving life quality of the population”.

Rio de Janeiro (RJ)

Among the analyzed municipalities, Rio de Janeiro, through MP 2022-2025⁴³, was the only one in which an initiative for implementing “**monitoring systems**” in teaching units was identified. The initiative is planned on the “Transversal Theme 0001 - Equality and Equity”, in the scope of development of “Program 0316 - Improvement of the Quality of Education in Rio de Janeiro”, which main objective is “to ensure a standard of excellence for public education in the City of Rio de Janeiro, using new technologies to benefit the learning process, so that the student concludes elementary education with a life project for the future”.

In this sense, one of the actions to achieve this goal is “**Action 8917 - Implementation of Monitoring for Reducing School Dropout**”, which has the specific objective of “implementing a system for monitoring student dropout on municipal education units, promoting greater control over the movements of students, allowing the school system to detect whether they were relocated in other school units, or whether there was, in fact, a dropout.” There are no data informing whether this system includes facial recognition technologies, but we note that, after the decision of the Court of Auditors at the Municipality of Rio de Janeiro, the hiring did not take place and, so far, the municipality has not adopted the technology in schools. We discuss this decision on section 7.

41 Available at: <https://fortaleza2040.fortaleza.ce.gov.br/site/>

42 Available at: <https://www.goiania.go.gov.br/wp-content/uploads/2021/10/plano-plurianual.pdf>

43 Available at: <http://www2.rio.rj.gov.br/smf/banco/pdforc/ppa/2022-2025/lei7234anexos.pdf>

Santos (SP)

In the section “Demands and Opportunities” of MP 2022-2025⁴⁴, the municipality of Santos suggests: (i) the expansion of “investments in digital technology and connectivity (wi-fi) to improve teaching and learning in schools, also considering the need for the hybrid modality of teaching, linked to the availability of resources and/or partnerships”; and (ii) the “conjoint work of the Information Technology Department and the Department of Education for the implementation and expansion of technological resources in the educational system (interactive boards, tablets, classrooms equipped with computers, etc.)”.

On the other hand, as a “Retrospective Analysis”, **the municipality identified as problems, insufficiencies or absences the “decentralized actions and investments in technology by the various municipal sectors, such as the purchase of drones, computer equipment and others, without the technical approval of the information technology department”**. In response to the request for Access to Information, when asked about facial recognition technologies, the municipality reported that “there is no standard that regulates it, except for GDPL”. We also note that, according to the Department of Planning and Innovation, the project for implementing facial recognition technologies in the municipal schools of Santos has been discontinued.

Porto Alegre (RS)

In its MP 2022-2025⁴⁵, the Municipality of Porto Alegre proposed “Action 3760 - Technologies for Digital Transformation”. The purpose is to “provide technological and human resources to enable remote teaching and the construction of knowledge through digital environments”, through the “acquisition of fixed devices (used in schools) for all EMEFs, EMEEFs and EMEM of the public education system, and mobile devices (remote education) for all students”. One of the expected results is to expand the “digital fluency of the actors involved in the process (teachers, managers, students and servers)”.

44 Available at: <https://www.santos.sp.gov.br/?q=legislacao/plano-plurianual-ppa>

45 Available at: http://proweb.procempa.com.br/pmpa/prefpoa/smpeo/usu_doc/ppa_2022-2025-primeira_revisao_atualizada.pdf

TECHNOLOGIES OF EDUCATION OR TECHNOLOGIES OF SURVEILLANCE IN EDUCATION?



According to Venturini (2020), the Latin American school environment underwent a series of reforms in the 1990s, under the argument of a crisis of its format due to budgetary and institutional inefficiencies, as well as the absence of a pedagogical project that could deal with the heterogeneity of the population incorporated into the school from the massification that occurred in previous years. One of the main results of this historical context was the adoption of proposals for the insertion of information and communication technologies in educational systems.

In Brazil, starting in 2003, an initiative by the federal government can be noticed, after the influence of free software and free culture movements, the construction of policies and projects of digital inclusion and the development and incorporation of free software in the public sphere. These policies, Venturi argues, **expanded “the possibility of a more democratic education, based on collaborative and authorial practices”**⁴⁶.

The policies of the early 2000s, in relation to the modernization of education, focused on educational technologies, that is, technologies for pedagogical purposes, whose goal is to improve the supply of complementary materials to students through digital tools, introduce themes of digital literacy and the use of ICTs in the school curriculum, among others. These technologies, however, are not to be confused with the so-called surveillance technologies, which are those that use devices such as cameras and electronic monitoring and identification systems to control places and spaces, time periods, networks, systems, and categories of people (Bonamigo, 2013).⁴⁷

In the cases analyzed, it is noted that in the implementation of facial recognition, these technologies have been understood as an educational technology and with pedagogical purpose. However, facial recognition can be better framed as a surveillance technology, in that it does not present pedagogical purposes, and whose main purpose is related to security and control of environments.

46 PRETTO et al. Plataformização da educação em tempos de pandemia. In: EDUCAÇÃO E TECNOLOGIAS DIGITAIS: desafios e estratégias para a continuidade da aprendizagem em tempos de COVID-19. Núcleo de Informação e Coordenação do Ponto BR. -- 1. ed. -- São Paulo, SP : Comitê Gestor da Internet no Brasil, 2021.

47 Bonamigo, I. S.. (2013). Novas tecnologias de vigilância e a gestão de violências. *Fractal: Revista De Psicologia*, 25(Fractal, Rev. Psicol., 2013 25(3)). <https://doi.org/10.1590/S1984-02922013000300015>

This differentiation is fundamental because it avoids a confusion that can be made when discussing the subject. The intention is not to deny the insertion of any and all technologies in the school environment, but to clarify the different debates, concerns, regulations, and gaps of each specific type of technology, which need to be taken into consideration both in the public debate and in the construction of education policies.

The policies and regulation of educational technologies

The Legislative and Executive Powers have presented proposals and enacted laws that aim at computerizing education. This is the case of the **National Education Plan (NEP)**. Valid from 2014 to 2024, NEP determines the guidelines, goals and strategies for Brazilian educational policies, among which we highlight **the institutionalization and development of innovative programs, technologies and pedagogical practices** “for flow correction, for individualized pedagogical monitoring and for recovery and partial progression, as well as for prioritizing students with poor school performance”, among others. NEP also encourages the use of free software and open educational resources, as well as the monitoring of results of the use of these technologies in the education systems in which they were implemented.

In this context, the Ministry of Education (MEC) developed, in 2017, the **Connected Education Innovation Program**, with the objective of carrying out NEP provisions and gathering efforts of agencies and entities of the Union, states, Federal District, municipalities, schools, the business sector and civil society to “support the universalization of high-speed internet access and foster the pedagogical use of digital technologies in Basic Education”. Among the actions developed by the Program, we highlight the ones referring to infrastructure, in order to support the “acquisition and contracting of the services and equipment needed for the use of the technology in public schools”. The Program was transformed into a national policy – the **Innovation Policy for Connected Education** – four years after its establishment.

Another federal initiative for the computerizing of education is the **National Policy for Digital Education (NPDE)**. Sanctioned in 2023, the Policy “aims to ensure the insertion of digital education in school environments, in all levels and modalities, by stimulating digital and informational literacy and learning computing, programming, robotics and other digital skills, encompassing” computational thinking, the digital world, digital culture, digital rights and assistive technology.

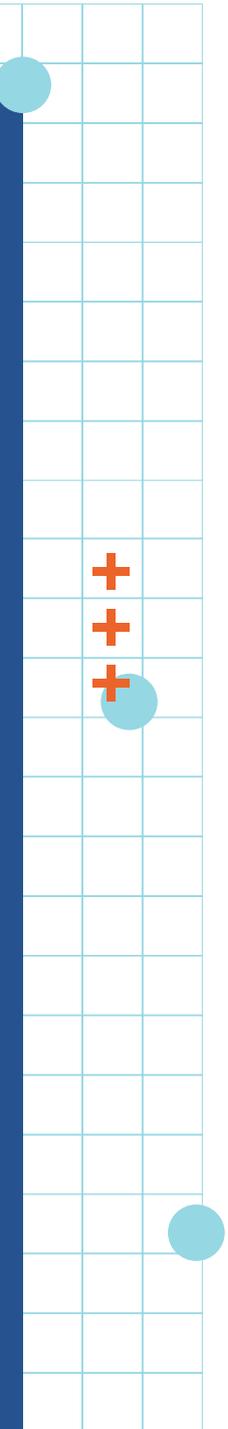
Finally, although it is not a specific legislation for the educational sector, we highlight the **National System for Digital Transformation** as a norm that relates to the adoption of technologies in schools. The System is composed by the Brazilian Strategy for Digital Transformation (E-Digital)⁴⁸, its thematic axes and its governance structure. Among the thematic axes, number 4 (“Education and professional training”) is evidenced, which establishes that “in the educational field, it is necessary to promote broad access to quality teaching resources for students and teachers and to enable innovative pedagogical practices, through the dissemination of high-speed internet access in public schools”. In this context, some of the objectives are:

- i. connecting urban and rural public schools, with broadband access, and providing equipment for accessing digital technologies;

48 Available at: <https://www.gov.br/governodigital/pt-br/estrategia-de-governanca-digital/eDigital.pdf>

- ii. incorporating digital technologies into school practices, with the development of computational thinking among the students' competencies; and
- iii. promoting the improvement of initial and continued training of teachers for the use of technology in the classroom.

The policies and regulations currently present at the federal government level are aimed at the acquisition and maintenance of technologies that aim to insert digital education in school environments, in order to stimulate pedagogical activities such as digital and informational literacy and learning about computing and programming. In this sense, these standards are the basis for the purchase and implementation of technologies such as facial recognition, whose purpose is different from pedagogical technologies.



WHAT ARE THE JUSTIFICATIONS FOR IMPLEMENTING FACIAL RECOGNITION IN SCHOOLS?



5.1. PURPOSES FOR IMPLEMENTING FACIAL RECOGNITION POLICIES

The policies for using facial recognition technologies in education are part of a project to “modernize” and automate the school environment. In all analyzed cases – both the ones in which the projects for introducing the technology are in a more advanced stage, and those in which the policy was discontinued – the common motivation for the introduction of facial recognition is the automated record of student attendance. School attendance was the form established by the policies for collecting and building up the biometric database of students, which supports other justifications for the use of this technology.

In addition to recording school attendance, three large groups of justifications for the introduction of facial biometric recognition policies were identified:

- i. optimization of school environment management;
- ii. combating school dropout; and
- iii. for security purposes.

In two of the analyzed cases, in the municipalities of Porto Alegre and Fortaleza, the facial recognition project was based on coping with the Covid-19 pandemic, for temperature control and mask use. Both projects, however, were discontinued: in the case of Porto Alegre, in an interview with public managers, we were informed that the project has never been implemented, despite the publicity about the plan for introducing the technology; in Fortaleza, the policy has been discontinued due to questionings about the absence of studies and data security practices (see section 7).

OPTIMIZING THE MANAGEMENT OF THE SCHOOL ENVIRONMENT

Municipalities and States affirm that facial recognition technologies in schools are a way to modernize and optimize the management of school environments and of students. The attendance record was a unanimous purpose for the 15 cases identified, on the grounds that this would be a way to

- i. save class time for teachers, who would not need to do roll-calls during classes;
- ii. warn those responsible for the children and adolescents in case of absence⁴⁹; and
- iii. create attendance reports and identify deviations in student attendance rates, as well as the causes of school absences.⁵⁰

According to public administrators, the automated attendance recording through facial recognition would serve not only for the management of students, but also for the management of school space and resources. Municipalities such as Mata de São João, Morrinhos and Betim stated that attendance control allows there to be a management of school meals, with prior control of the number of meals to be produced based on the number of students who are at the school, which would reduce food waste.

In addition to meals, public managers argue that the use of facial recognition would also impact the management of school materials. In this sense, the municipalities of Mata de São João, Morrinhos, Betim and Potirendaba state that the technology would also be used to reduce the use of paper, as well as to guide the purchase and use of materials and services for educational activities.

Also in relation to school management, in some cases⁵¹, the automated attendance recording is part of a process of platformization, centralization and digitization of information, communications and student data. Regarding this aspect, the municipality of Morrinhos, in Goiás, stands out. According to municipal managers, school attendance - in the cases of the two schools that already have the technology - is available in the FaceSchool application, which is the main form of access to the student's data and school history by the student's caretakers and teachers. The app, managed by BiomTech (see section 5), focuses on notifications about meeting days, test days, classroom tasks and student attendance data.

COMBATING SCHOOL DROPOUT

The second group of arguments mobilized by public authorities to justify the use of facial recognition in public schools is related to **combating school dropout**. This was one of the reasons listed by the municipalities of Fortaleza, Potirendaba, Rio de Janeiro, Morrinhos, Mata de São João and Goiânia.

49 Purpose listed by the municipalities of Morrinhos, Betim, Xaxim, Águas Lindas

50 Purpose listed by the municipalities of Mata de São João

51 Purpose listed by the municipalities of Morrinhos and Betim.

According to public managers, the use of facial recognition would prevent families and caretakers from trying to negotiate with schools the reduction of students' excess absences when they did not reach a sufficient attendance.

In addition to preventing caretakers from altering the attendance record of students, the municipalities also argued that automated registration is used for monitoring the attendance of students by the Child Protection Agency. Reports on student attendance are prepared and periodically shared with the Child Protection Agency, which is responsible for the active search of absent students. According to an interview with public managers, the name, class and year of the student, as well as their absences, are the minimum information shared with the Agency. In an interview with public education managers, the possibility that school units also share the address of students was raised.

Automated attendance data is also used for managing social programs data, such as Bolsa Família Program (BFP)⁵². The income transfer program has as conditionality the minimum school attendance of 85% for children and adolescents between 6 and 15 years of age. Thus, **facial recognition policies would also have the purpose of sharing school data with municipal public managers for the payment of BFP⁵³.**

SECURITY PURPOSES

Finally, facial recognition policies are also justified for security purposes, both for the security of students and teachers, and for school property, according to the municipalities of Mata de São João, Itanhaém, Potirendaba, Porto Alegre, Fortaleza, Águas Lindas, Betim and Xaxim.

The technologies would be used to

- i. ensure that students are within the school unit and do not leave without proper authorization;
- ii. prevent unauthorized third parties from entering schools; and
- iii. safeguard school property in order to avoid damages to materials and school facilities.⁵⁴

52 Purpose listed by the municipalities of Mata de São João and Morrinhos

53 VALENTE, M. G., NERIS, N., & FRAGOSO, N. (2021). PRESA NA REDE DE PROTEÇÃO SOCIAL: Privacidade, gênero e justiça de dados no Programa Bolsa Família. *Novos Estudos CEBRAP*, 40(Novos estudos. CEBRAP, 2021 40(1)). Available at: <https://doi.org/10.25091/s01013300202100010001>

54 The concern with safety in schools is also related to the increase in cases of massacres in school units. According to the Sou da Paz Institute, Brazil has recorded 12 attacks on schools in the last 20 years. Available in: <https://g1.globo.com/es/espírito-santo/noticia/2022/11/25/brasil-registrou-12-ataques-em-escolas-nos-ultimos-20-anos-aponta-levantamento.ghtml>

5.2. STRUCTURAL PROBLEMS, TECHNOLOGICAL SOLUTIONS?

The purposes listed by the municipal and state governments are part of diagnoses about problems and challenges crossing Brazilian public education: overcrowding of classes, lack of funds for school meals, school dropout and violence. If these problems are a part of the concerns of public managers and need to be addressed, is facial recognition the best strategy for facing these challenges?

In interviews with representatives from civil society, from organizations that work with issues related to education, data protection, and the rights of children and adolescents, and with female teachers in the field of education, limitations were identified in the use of technological solutions to address the structural problems of Brazilian public education, especially the ones referring to inherent risks to the use of invasive technologies, such as facial recognition.

According to Professor Catarina de Almeida Santos, from the Faculty of Education at the University of Brasília (UnB), **the use of facial recognition for automated school attendance registration is not able to address the structural problems of the city and of schools.** In an interview, the professor and researcher pointed out that teachers spend a long time to perform roll-call, however, the use of technologies does not solve the root of the problem: the overcrowding of classes. The large number of students per class under the responsibility of a teacher makes roll-call take a long period of the lesson. **When adopting facial recognition technologies, the main problem is not addressed.**

“We need to think about how, in our cities, children waste more time with other structural issues in the city [than with roll-calls]. [There are] traffic issues, lack of teachers, lack of school infrastructure, floods, power outages. So, we have issues of lack of security in a structural way, issues of child labor, of young people working longer and not being able to study. There are issues that take lifetime away from children, which have nothing to do with school roll-calls. So, this is a completely unnecessary, anti-pedagogical element. The idea of not being able to call them, the children [not being able to] identify themselves, to discuss the history of their names. The set of elements you can do with this is definitely not a waste of time. A waste of time, by the way, that no one cares about, is overcrowded classes. It even prevents the teacher-student relationship [from happening], the relationship with classmates, the [group] organization and the formation of space for debating. This idea of time optimization, actually, has to do with loss of childhood and adolescence time”

Catarina de Almeida Santos,
professor of the Faculty of Education at the University of Brasília (UnB)

Santos also pointed out that the use of automated attendance records can negatively impact teacher-student – and even student-student – relationships. The professor argues that roll-call is a moment in which teachers can get to know students, and students can get to know each other. It is also a moment for students to discuss the story of their names, to discuss identities, to enable children and adolescents to know the stories carried by their names.

Regarding the use of facial recognition to control meals, it is pointed out that, once more, we are facing a structural problem in Brazilian public schools: the lack of funds. It has been five years since the government last adjusted the figures passed on to school meals.⁵⁵ According to a news article by Jornal Nacional, in 2022, on average, the amount passed on by the federal government to state and municipal schools was R\$ 0.36 per day for each elementary and high school student; R\$ 0.53 per day for preschool students; and R\$ 1.07 for students in day care centers or in full-time education.⁵⁶ **The concern with the destination of school meals and the combat against food waste in this context is legitimate. However, the use of facial recognition for this purpose is not able to produce long-term effects to ensure sufficient and quality meals in schools.**

According to Priscila Gonsales, founder of Educadigital Institute, public managers and educators tend to see the introduction of facial recognition technologies as a simplified solution to school problems, considering only the benefits presented. However, these agents do not consider the risks involved in the use of these systems. Also according to Gonsales, the risks related to the use of biometric technologies are not part of the repertoire and qualification of teachers and public managers, who have not yet received sufficient training about data economy, since the theme has not yet been properly included in the curriculum of teachers. **In this sense, the public management of education tends to focus its efforts only on the usability of new technologies, without considering the technological ecosystem that enables them, such as data hosting, the role of the private sector and data treatment.**

Among the interviewed,⁵⁷ there was a consensus that, on the one hand, the listed purposes justifying the introduction of facial recognition technologies in schools were legitimate and are part of diagnoses from teachers and public agents about aspects of school life and school environment management that need improvement. On the other hand, the strategy adopted by the government, based on the use of facial recognition, do not take into account the risks and impacts targeting children and adolescents and, at the same time, represent technological solutions that do not face the complexities of the education system, based only on a supposed innovation and modernization of schools.

55 JORNAL NACIONAL. "Governo veta reajuste, e valor da merenda de creches e escolas públicas fica igual pelo 5º ano seguido". Available at: <https://g1.globo.com/jornal-nacional/noticia/2022/09/01/governo-veta-reajuste-e-valor-da-merenda-de-creches-e-escolas-publicas-fi-ca-igual-pelo-5o-ano-seguido.ghtml>

56 *Ibidem*.

57 Were interviewed Maria Mello, Thaís Rugolo, Priscila Gonsales e Catarina Almeida.

WHICH COMPANIES PROVIDE FACIAL RECOGNITION SYSTEMS?



Based on a research on publicly accessible data, on interviews and on requests for access to information sent to departments of education, it was possible to map the following companies participating of in facial recognition projects:

| COMPANIES | | |
|-------------|------------------------------|---|
| Region | Municipality/State | Company |
| North | Tocantins | J.B.C.M. Equipamentos e Sistemas Ltda |
| Northeast | Fortaleza (CE) | Not applicable |
| | Mata de São João (BA) | J.B.C.M. Equipamentos e Sistemas Ltda |
| | Jaboatão dos Guararapes (PE) | J.B.C.M. Equipamentos e Sistemas Ltda |
| Center-West | Águas Lindas (GO) | J.B.C.M. Equipamentos e Sistemas Ltda |
| | Goiânia (GO) | J.B.C.M. Equipamentos e Sistemas Ltda |
| | Center-West | BiomTech |
| Southeast | Betim (MG) | BiomTech |
| | Angra dos Reis (RJ) | J.B.C.M. Equipamentos e Sistemas Ltda |
| | Rio de Janeiro (RJ) | Not applicable |
| | Itanhaém (SP) | MultFácil |
| | Potirendaba (SP) | J.B.C.M. Equipamentos e Sistemas Ltda |
| | Southeast | Not applicable |
| South | Porto Alegre (RS) | Not applicable |
| | Xaxim (SC) | Betha Sistemas |

J.B.C.M. EQUIPAMENTOS LTDA.

J.B.C.M. Equipamentos Ltda., whose commercial name is “PONTO ID”, was the winning company in bidding processes for implementing facial recognition technology in several municipalities and in the state of Tocantins.

PONTO ID is a national company established in 2005 and its headquarter is located in Goiânia. According to the company’s website, it is “specialized in the development and commercialization of innovative technological solutions” and “complete in technology products and services with ability to [...] provide support for [...] access control, presence control and school management, in public and private spheres.” Since 2016, the company has also been operating in the United States, in Florida.

On the [products section](#) of the company’s website, as part of the “solutions for schools” category, there is a “digital facial school attendance” system. According to the description given by the company, the system allows the “attendance control of students without the need to do roll-calls”, in addition to reducing school dropout, reducing the use of paper, efficiently controlling meals, providing centralized information and “offering peace of mind to parents”.

BIOMTECH

BioMTech is a company located in Belo Horizonte “focused on the development of facial biometric products and solutions”. Among the products offered, there is FaceSchool, an application for mobile devices whose objective is “to perform access control in educational institutions in general, in addition to records of student attendance in educational units by Facial Biometrics”. The goal of the technology, as declared by the company, would be “to provide more and more security for people and educational centers, allowing the access to institutions only to authorized persons.”

According to a [presentation](#) about the application provided by the company, the operation of facial recognition occurs as follows: upon arriving at school, students walk to one of the devices to undergo facial recognition and their attendance is automatically recorded. Then, in real time, the system sends a presence notification to the application of the caretaker. After that, the presence information generates reports of the number of present students.

The company indicates the following benefits of using the application: greater efficiency in school management and increased teaching time during class; more tranquility and security; school dropout control; effective communication among departments of education, schools and caretakers; it prevents waste of meals, saving funds and assisting in the accountability of the resources received by the National Fund for Development of Education; it facilitates the collection of statistical-educational data to be sent to INEP, and it issues attendance reports to be sent to municipal Social Assistance Centers for accessing Bolsa Família Program.

The FaceSchool application is available for free download on IOS and Android mobile devices. When searching for it, both on Google and Apple marketplaces, two apps appeared: (i) [FaceSchool Upnote](#) and (ii) [FaceSchool Class](#). Although Apple Store and Google Store

indicate the existence of a privacy policy on the applications, when clicking on “see your privacy policy”, the user is directed to a non-existent page. The application’s website does not provide its privacy policy.

Both applications were developed by the same company, Prime Technology Solutions LLC. The company is originally from the United States and it has offices in Brazil (in Belo Horizonte) and Canada. According to the website, “PrimeTS is an information technology company focused on Enterprise Information Management (EIM) and SAP solutions, working in the modalities of Consulting and Services, Development of Enterprise Solutions for Mobility and Software Factory.”

MULTFÁCIL

The company’s website presents, on its homepage, the product “educafácil”, a 100% online platform focused on school management. The system has

- i. an administrative module, in which it would be possible to carry out “the full management of schools, employees, inventories (products and meals), transportation, notifications, libraries and students”;
- ii. a pedagogical module, with access for students and teachers, that would allow “the management and monitoring of the student, by teachers and parents and/or caretakers”, in addition to providing a digital library, mock tests, among other resources; and
- iii. the EDUCACENSO module, with “tools that allow the student to interact with virtual books and tests that help to expand the student’s growth”.

The platform would also have an integration with the Data Processing Company of the State of São Paulo (PRODESP)⁵⁸, which would allow “agility and convenience in obtaining and sending data from students to the government”.

The platform would, thus, offer to departments of education and schools the control of access, notifications, stocks and meals, human resources, document management, logistics in transport, reports and statistics. For parents, caretakers and students, through a mobile phone application, it would offer access to attendance control, grades, remedial classes, learning assessment and interactive virtual collection. For the public, the company’s service also offers a portal with updates about “everything that happens in relation to Education in your municipality through graphs, reports and various other tools”. The company also highlights that “all information is kept in a cloud, facilitating access from anywhere, keeping information protected and with daily backups.”

Because the company’s homepage only presents information about the product “educafácil”, it was not possible to gather information about the company. The end of the page indicates, however, that it is located in São José dos Campos.

58 PRODESP is a governmental company from the State of São Paulo which initially aimed at data processing. Currently, it is also a major provider of technical solutions for the Government of the State of São Paulo and for its structures. Available at <<https://www.saopaulo.sp.gov.br/orgaos-e-entidades/empresas/prodesp/>>.

BETHA SISTEMAS

Betha Sistemas was established in 1985 with the aim of offering data hosting services. In the beginning, the company focused on retail activities and on the development of software for the accounting field. In 2017, they started working in the field of education, with the implementation of the cloud system “Education” in the municipality of São João do Sul (Santa Catarina). Currently, Betha serves only the public sector - such as municipalities, courts of auditors, municipal councils, agencies responsible for water treatment, among others.

For educational managers, Betha offers the “Education” program. According to the company’s website, “the solution presents a school management system that facilitates and streamlines the administration of a municipal education system”, making possible “the control of courses, curricular matrices and activities offered in this system” anytime and anywhere, due to its cloud technology. The main objectives of the service are: to combat dropout and failure by using artificial intelligence resources that would indicate “students prone to dropout or failure”; to control vacancies efficiently; to integrate schools and the department of education and to facilitate the planning of the school calendar by automatically performing the calculations of school days. The site also indicates that the technology “enables the school to identify students by facial recognition”, so that the school has more control over the presence and absence of students.

For teachers, Betha also offers a mobile application, called “APP Teacher”, available on Google and Apple Store. It provides access to classroom information in all school communities.

“APP Teacher” privacy policy

According to the application’s privacy policy, the data collected by Betha are: full name, identification documents such as CPF and CNH, date and place of birth, marital status, full address, e-mail address and professional information. As for the processing of data of children and adolescents, Betha states that it treats data from minors as operators, “to the extent that this information is indispensable for the proper provision of our services to Customers”. The personal information of children and adolescents are collected “in the best interest of minors and solely in compliance with legal obligations to the execution of public policies or, at least, with specific and explicit consent of parents or guardians.” In this sense, in case of identification of an improper collection of personal data of children and adolescents by Betha, the procedure applied is the immediate exclusion of the information.

The collected data are shared with employees, suppliers and third parties to enable the provision of services; with service recruitment platforms; for execution of contracts; in the cases provided for by law and for compliance with judicial requirements; for security purposes; and with the consent of the data subject.

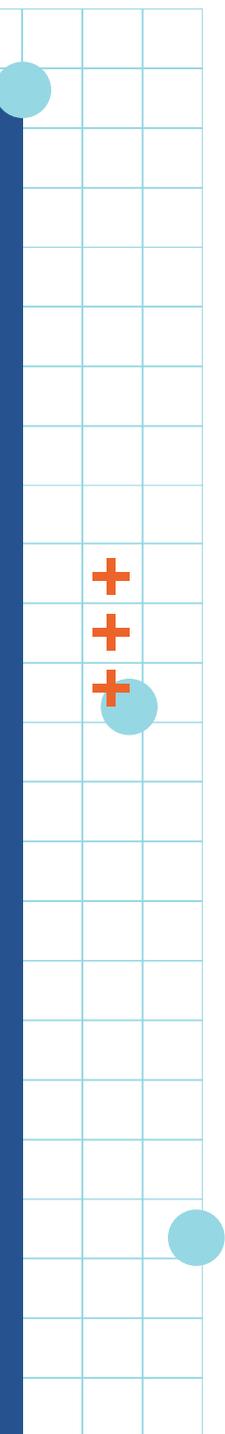
In the case of Betha services being used by public entities, the user of the product “will be subject to the policies of the entity”, in accordance with Article 5, VI, of the GDPR. Thus, in the case of questionings about privacy, including requests to exercise data protection rights, they will be directed to the entity’s data protection officer. Betha’s products process users’ personal data only “within the contractual limits established between the entity and Betha, for the execution of contracts and other legal bases associated to the Public Administration”.

Regarding storage, Betha clarifies that the data “will be kept for as long as necessary for the purposes of its collection, as long as there is a legal basis for their processing”.

Finally, regarding security practices, Betha states that it takes the following measures to keep its data safe:

- i. hosting data in clouds with recognized security certificates;
- ii. the collected information is sent using an encrypted communication protocol and is stored using encryption;
- iii. adoption of confidentiality terms with collaborators and third parties; and
- iv. regularly updating procedures and contracts to comply with GDPL.

Betha also offers “a communication portal for parents, students, teachers and schools”, with data about performance, attendance, school reports and student routines.



RISKS OF USING FACIAL RECOGNITION AND SURVEILLANCE TECHNOLOGIES IN SCHOOLS



So far, this report aimed at describing how Brazilian public schools have invested on facial recognition technologies to meet the most varied demands - attendance record, counting students to offer meals, security, among others. There is yet another point to be explored: **facial recognition technologies are not immune to significant errors and failures.** On the contrary, these tools have been criticized around the world for having limitations that question whether they can, in fact, be beneficial or appropriate for these situations.

Professor Roberto Hirata, from IME/USP, points out different reasons that can lead a facial recognition tool to err. The first relates to the image resolution itself: a low-resolution record makes it difficult to capture the different points of the face that allow the technology to identify someone, which also increases the chances of failure in these cases. The second reason is related to people's age, since a person's face undergoes natural changes over time that can affect the tool's recognition ability. This effect, it is worth saying, is accentuated for children and adolescents, who suffer greater changes in their physical characteristics in a shorter period.⁵⁹

Another pressing issue is the possibility of discrimination of historically minorized groups, such as women, black people and LGBTQIA+. There are several studies that point out how facial recognition technologies are less accurate when the tool's target public are non-male or non-white people, since the tools are trained through weak databases in terms of gender diversity, race, and cultural records. Thus, there is a reproduction of discriminatory biases that can lead to persistent errors in the operation of the technology, such as false negatives and/or false positives. In addition, there is the possibility of discriminatory inferences when facial recognition seeks not only to verify or identify a certain person, but also to attribute physical or behavioral characteristics to them, such as their race, gender, mood, body temperature, among other possibilities.

⁵⁹ Hirata, p. 46-48.

In the case of using facial recognition in schools, we were drawn to the fact that some companies indicate that they offer services to predict when a student is more likely to fail. It was not clear what kind of student data is used to make this sort of measurement. However, even if the data are not read through a discriminatory bias of gender or race, the idea of treating students as unchanging beings raises concern – cannot educational changes, for example, stimulate a student to return to school?

In addition to aspects related to system accuracy, there are other points of concern. Biometric data is irreplaceable and, therefore, require compatible measures with the degree of sensitivity of the information collected and stored. Security incidents such as undue access to stored data, theft, loss, or misuse of the database are not unlikely to happen. **There has already been an incident involving the theft of a facial recognition device in a school in the municipality of Governador Valadares⁶⁰.** Cases like this may become more frequent if the tool is disseminated in a larger number of schools. In this sense, strict technical procedures must be implemented in order to ensure the minimum safety for managing this information.

In practice, security measures should take into account: **the definition of system access credentials, as well as access levels among users, how the database is stored, how data access might occur, the application of measures such as encryption for the database and authentication mechanisms.**

Another point of concern that arises when we think about the possibilities of sharing this information is: which institutions and people would have access to the databases? If there were a request for access to data, for example, by a public administration agency, would this request be approved or denied, and under what justifications? What limits would be set to access these data?

In the case of the municipality of Morrinhos, student attendance records are shared with the Child Protection Agency of the city to ensure the measurement of school dropout. Thus, **it is possible to think of other cases in which data are shared with different agencies, which would put in the mire the entire school environment and the children and adolescents who attend it - including the risk of access to this data by criminal investigation authorities, for example.**

All these issues add up to the lack of transparency related to the use of facial recognition. If algorithmic analysis tools are opaque by nature, since they consist of systems and formulas that are not understandable to lay people, the problem is accentuated when there is no concern by the public authorities to publicly disclose how the technology will operate. **The absence of response from some municipalities to requests for access to information sent during the research, and/or the offer of incomplete answers, reveal lack of consideration in this sense.** Besides, in many cases, there is an absence of clear and accessible privacy policies that inform about the practices guiding the collection and treatment of student data.

⁶⁰ Aparelho de reconhecimento facial é furtado de escola em Governador Valadares | Globoplay

With little clarity about the limits to the use of technology, it is difficult to envision a scenario in which, at least in the school environment, technology will be adequate and proportional to its purposes. There is no legislation in force in Brazil dedicated to the theme of protecting personal data in the school environment, nor to the use of data of children and adolescents. The National Data Protection Authority, newly established in Brazil, has not approved any regulation in this regard so far. Nor is there enough literacy of teachers and public managers about the adoption of this technology, its impacts and risks. Priscila Gonsales, from EducaDigital, stressed this point in her interview: **the risks are not considered because the problems related to the use of these technologies are not part of the repertoire of these professionals. So far, there has not been any training for teachers and public managers to deal with relevant issues of data economy, such as biases and algorithmic racism.**

Facing a scenario of gaps in the legal framework to prevent the risks posed to the integrity of information of children and adolescents, **there do not seem to be potential benefits that balance and justify the risks and negative aspects of using the tool. There are both technical problems, related to system failures, and ethical problems, related to impacts to fundamental rights of children and adolescents.** What we notice is that public managers have seen the use of the tool through lenses that only consider its possible benefits, but not the adverse effects that may result from its massive use. Civil society organizations, on the other hand, have begun to draw attention to the debate and even to pressure for initiatives like these to be discontinued.

ARTICULATIONS FOR QUESTIONING THE USE OF FACIAL RECOGNITION IN EDUCATION



Time for commuting and traffic, lack of teachers, outdated evaluation processes, lack of infrastructure, floods, energy outages, absence of basic sanitation, child labor, famine and extreme poverty, in addition to young students who need to organize their routine between studies, work, household tasks and family care... According to Professor Catarina de Almeida Santos (UNB), there are more complex issues “that waste time from children’s lives” and generate insecurities of all kinds, and that do not necessarily relate to the issue of school roll-calls, nor will be solved by the adoption of facial recognition technologies.

Although the optimization of class time, pedagogical processes and increased safety are some of the justifications pointed out by the municipalities to acquire facial recognition technologies for education (see sections 3 and 4), several institutions, researchers, specialists and representatives of the Public Power have shared the views of Santos and stressed their adverse impacts. Such authors have joined forces - judicially or in other spaces of representation - to question the process of hiring such technologies.

“When you want to automate the world, you start by justifying that it is [done] to buy time. Technology has not guaranteed more time for living, it ends up causing an exacerbation of more working time and less living time. Let us think that, before, there was a commute to work, and that this displacement also meant talking to other people, interacting, looking at the city, this whole thing... And, then, in the pandemic, we were confined in front of the screen. We now return to schools with a very serious bad legacy of that time. Of illnesses, of difficulty of resocialization... And do we see automation as a solution? No! We have to find balance in this process. To see technology with the benefits it brings, but not to leave people aside. Not to stop looking at the individual, because technology was made to improve the life quality of individuals, and not the other way around.”

Catarina de Almeida Santos,
professor at the Faculty of Education at the University of Brasília (UnB).

What is the actual problem that public managers intend to solve with the use of facial recognition? Are there studies on the effectiveness of this resource for improving roll-calls? How was the demand, from parents and caretakers, for rapid information about student attendance at school identified? What will ensure that, after facial identification (which attests the recording of their presence), the student is effectively inside the classroom and/or does not leave the school? In case parents or caretakers do not consent to data collection for facial recognition, will the decision make it impossible for the child or adolescent to enter school, or will it bring other consequences to the student? How will their attendance be computed? Is this an essential investment? These are some of the questions raised by the aforementioned social actors, and are also part of the report **Monocratic Decision No. 10,000,713/2020 of the Court of Auditors of the Municipality of Rio de Janeiro (TCMRJ)**.

According to the topic 3.1.1., **the project for implementing facial recognition technology in the municipal school system of Rio de Janeiro (RJ) was discontinued after the Court's decision**, which suspended the bidding for the hiring of technology services. The decision, signed by Substitute Councilor Emil Leite Ibrahim, was taken on December 12th, 2020, and unanimously endorsed by the Court, amid the COVID-19 pandemic, days after the publication of the notice of bidding by the Municipal Department of Education, which took place on December 17th, 2020. According to the TCMRJ, **the real need for the acquisition of facial recognition devices has not been proven**, especially considering that the collection of data for facial recognition implies conflict with the Statute of the Child and Adolescent, which ensures the right to respect, to privacy and to image of students (see section 3), and additional monthly costs would be passed on to school units in “a time of absence of face-to-face classes and in a period of severe tax crisis.”

On its justification, the Court also cited that there was no schedule for the project development and that the figures presented by the municipality regarding the acquisition of the devices and future contracts needed review and better clarification. Thus, even before it was initiated, after the questioning carried out by TCMRJ, the contract was suspended and the municipality did not make new bids on the matter. In November 2022, in response to our request for Access to Information, the Municipal Department of Education confirmed that no municipal school unit in Rio de Janeiro used facial recognition technologies.

If it depends on the articulations between civil society and public representatives, this project may never really be implemented. This is because, in 2021, a group of state representatives from Rio de Janeiro presented **Bill No. 5240**⁶¹, which seeks to restrict, throughout the state, the use of facial recognition technologies by the government. The Bill was proposed under the #SaiDaMinhaCara⁶² campaign, which brought together members of civil society and more than 50 parliamentarians in different states of Brazil for the proposition of laws that provide for the restriction and ban of these technologies by the public sector,

61 Available at: http://www3.alerj.rj.gov.br/lotus_notes/default.asp?id=144&url=L3NjcHJvMTkyMy5uc2YvMThjMWRkNjhmOTZiZTNlNzg-zMjU2NmVjMDAxOGQ4MzZMvYTdkYTU1NGFiZWUzMTBhYTAzMjU4N2E1MDA1YmNmMDE%2FT3BibkRvY3VtZW50&s=09

62 <https://idec.org.br/release/parlamentares-de-todas-regioes-do-brasil-apresentam-projetos-de-lei-pelo-banimento-do>

especially for security purposes. A similar example of articulation is #TireMeuRostodaSuaMira⁶³ a campaign for “mobilization of civil society for the total ban of the use of digital facial recognition technologies for public security in Brazil”.

Legal challenges presented by public representatives about the use of these technologies in schools were also identified in other municipalities. In addition to Rio de Janeiro, out of 15 Brazilian cases under examination, disputes were reported by public agencies and/or representatives in two municipalities: Jaboaão dos Guararapes (PE) and Goiânia (GO).

In the case of **Jaboaão dos Guararapes (PE)**, the existence of a legal challenge was informed by the Municipality, in response to the request for Access to Information. According to the Municipal Department of Education, “there were questionings” from the Public Prosecutor’s Office and the Court of Auditors, “which were clarified and, therefore, judged regular by both instances”. No documents were made available, nor were informed what questionings had been made by the institutions and/or what clarifications had been provided by the Municipality. No data about this challenge were found on public online portals.

Goiânia (GO) also stated, through a response to the request for Access to Information, that there has been a questioning by public representatives. However, similarly to Jaboaão dos Guararapes (PE), the Municipal Department of Education stated that “the proceedings requested by the Public Prosecutor’s Office and the Court of Auditors of the Municipalities, both of the State of Goiás, were duly answered”. In an independent research⁶⁴, we identified that the representations were made by City Councilor Mauro Rubem (PT), on June 6th, 2022, through the State Public Prosecutor’s Office and the Municipal Court of Auditors, against the Municipality of Goiânia. The justification was that the municipal government administration had performed an irregular contracting of facial recognition technology, without bidding, through Minutes of Price Registration, which, according to the City Councilor, had become a recurrent practice to speed up the hiring in the municipality. The complaint, however, was filed (“Arquivamento de Notícia de Fato nº 053/2022”), because no irregularity or intentional conduct was found “in order to obtain illicit enrichment, cause loss to the public treasury or violate the constitutional principles governing the Public Administration”⁶⁵.

Finally, we mention the successful case of a questioning in **Fortaleza (CE)**, which did not involve the direct participation of public representatives, but rather of civil society. As mentioned on section 3, in December 2020, the Municipality of Fortaleza, through the Municipal Department of Education, decided to suspend and discontinue the project for implementing facial recognition technologies in teaching units. The decision came from the City Hall, but was encouraged by the Center for the Defense of Children and Adolescents of Ceará (Cedeca) and by Intervezes — Coletivo Brasil de Comunicação Social, which, through letters sent to the Department and Municipal Council of Education, to the Public Defender’s Office and to the Public Prosecutor’s Office, carried out a series of questionings. Among them:

63 <https://tiremeurostodasumira.org.br>

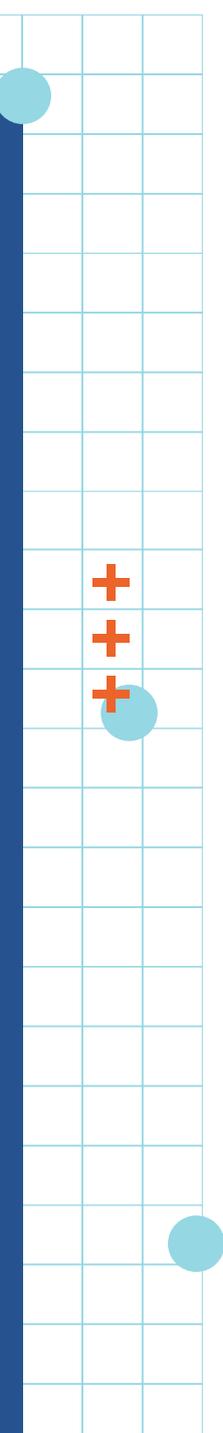
64 Available at: <https://www.goiania.go.leg.br/sala-de-imprensa/noticias/mauro-rubem-denuncia-ao-mp-go-e-ao-tcm-processos-de-compras-irregulares-da-prefeitura-de-goiania>

65 <https://internetlab.org.br/wp-content/uploads/2023/01/Arquivamento-Denuncia-Pg-106-em-diante-1.pdf>

(i) the justification and the problem that was intended to be solved by using the technology; and (ii) the development and availability of reports about impacts to human rights and personal data, with analyses of discrimination potentials, including race and gender.

We did not have access to detailed data about the questionings presented or about the development of the process of implementation of facial recognition technologies in the municipality. In response to our request for Access to Information, in November 2022, the Department of Education of the Municipality of Fortaleza stated that, according to technical information of the Legal Coordination (COJUR) and the Coordination of Information Technology (COTECI), contracts related to purchasing and implementing facial recognition technologies for the Municipal Education System are not available to society.

In light of the abovementioned, it is noted that, although very rare, **actions questioning the use of facial recognition technologies in education are being articulated by both CSOs and public authorities of the Legislative and Judicial Powers. Such articulations are very important when it comes to invasive technologies, with great potential for violation of rights, as is the case of facial recognition technologies.**



POINTS OF ATTENTION FOR THE ADOPTION OF TECHNOLOGIES IN EDUCATION



The mapping of the use of facial recognition in Brazilian public schools reveals a **tendency, on the part of the government and of managers in the field of education, to invest in surveillance technologies to try to address the challenges of public education.** However, issues such as privacy, possible algorithmic biases and, consequently, discrimination against children and adolescents **do not seem to have been highlighted in the development of the policies analyzed with regard to the implementation of facial recognition technology.**

It should be noted, however, that technologies can be allied to education, as long as they are specifically designed to meet certain demands. In other words, non-intrusive strategies that take into account the multiple challenges and inequalities faced by children and adolescents in Brazil can be implemented to achieve goals similar to those listed when it comes to the use of facial recognition, but also other purposes, such as the use of technologies to assist students with learning difficulties or disabilities.

We have listed below some points of attention for public administrators and faculty in the adoption of new technologies in schools:

1

EDUCATION TECHNOLOGIES AND SURVEILLANCE TECHNOLOGIES

training public managers to differentiate between the different types of technological tools

The differentiation between different types of technologies, their different impacts, objectives, and potential benefits and problems is essential for the construction of public policies. This understanding of the differences between multiple technologies is important both for the practical application, and for **the regulation and analysis of what norms justify the investment of public money in these projects.**

In this sense, it is necessary that the school community is able to understand the differences between surveillance technologies - which are linked to the control of space and, in general, to the debates around public security - and education technologies, which concern pedagogical practices and have educational purposes, related to communication, digital literacy, etc.

The absence of training on what differentiates these two types of technology can lead to distortions regarding the legal basis that justifies the purchase of technological apparatus, what types of technology can be purchased with education funds, and what extent of use is authorized by the national legal system.

Given this scenario, it is necessary that public managers and educators are able to understand what are surveillance technologies and what are education technologies for better development and application of education policies.

2

CONTEXT ANALYSIS

producing prior analysis and reports of impact to data protection, human rights, emphasizing the discriminatory potentials that may be embodied in the use of specific technologies.

Before the application of any tool capable of extracting and storing student data, it is necessary to reflect beforehand on the **purpose** that the technology will serve and whether it would be the most appropriate means of meeting the concrete needs of the school environment. It is worth asking: **would there be another less invasive means to students' privacy that could generate similar or satisfactory results?** The standardization of spaces through technology is a movement that should be observed with caution, especially in school settings, since the individuals present in this environment are essentially diverse. In the implementation of any and all new technology - especially those involving the handling of sensitive data of children and adolescents, there are several other factors involved beyond mere innovation. **It must be analyzed if all students in their diversity, in fact, will be able to enjoy the innovation and if there is any possibility that the technology will increase exclusions and discriminations in relation to certain groups.**

Such questions should be part of a **prior assessment of the risks and impacts that a particular technology can offer both to the protection of personal data and the privacy of students, taking into account possible discriminatory effects as well.** Thus, it is recommended that **impact assessments be prepared and recorded prior to the adoption of any surveillance technologies in schools.** Such reports on the potential risks, biases, possible discrimination, and impacts on the protection of personal data and human rights should be subject to **scrutiny by the competent authorities and civil society, with the aim of safeguarding the rights of children and adolescents.** The idea is that the best interests of the child are always present in the evaluations, overriding any other interest involved in the development and implementation of public policies on technology in education.

It is noteworthy that the recommendation to conduct evaluations and preliminary studies does not aim to create “one more step” to be accomplished by public administrators. What is intended with this suggestion is not the instrumentalization of an impact evaluation, but rather to make more transparent and accessible the process of developing public policies on technology for education, so that they can be scrutinized by interested third parties.

3 PARTICIPATION AND DEMOCRATIC MANAGEMENT **cooperation between different sectors of society,** **with participation of the faculty and students**

The use of any technology for children and adolescents involves not only the public administrators who will carry out the acquisition and execution, and the private sector that will provide the service, but also fathers, mothers, legal guardians, children, adolescents, and educators who are often in vulnerable situations.

There is a great informational asymmetry between the commercial sector that offers the product, and therefore has knowledge about its technology, and those who will be subjected to it. The lack of explanation of the risks associated to the technology and the lack of awareness about the right to data protection can lead to several situations, ranging from algorithmic discrimination to the use of data for a purpose other than the one initially stated by the company. In this sense, cooperation between different sectors of society is essential in the development of projects that involve technology. **The contribution of different viewpoints in a public educational policy allows for the creation of solutions that are designed by and for educators and that take into consideration the various challenges currently present for a high-quality education,** such as food, lack of infrastructure, overcrowded classrooms, lack of teachers, and child labor, among others. Without this participation and democratic management, we run the risk of adopting solutions that do not effectively deal with the structures of the educational problems, but only mask them for a brief period.

4

IMPROVEMENT OF TRANSPARENCY MECHANISMS

prompt and complete responses to Access to Information Law requests, APIs, Privacy Policy

The lack of in-depth and qualified information about how surveillance technologies have been incorporated into public education was a fact that caught our attention while carrying out this research. Data about purchases, projects, and details about implementation are not easily accessible on transparency portals or on the websites of local and federal governments. **Furthermore, when requests for access to information were addressed to the competent public authorities, there were cases in which, contrary to what is established in the Access to Information Law, we did not get any return.** Even in those cases where Access to Information Law requests were answered, information regarding certain questions was often not provided, nor were documents made available regarding the process of contracting the facial recognition technologies. In addition, in the instances where it was possible to identify the company and technology contracted by the municipality or state for the execution of the facial recognition project, it was difficult to find and analyze the privacy policies of the services offered.

Technologies that involve the public sector reach thousands of citizens, which demands transparency from all social actors and actresses involved. On the one hand, the public authorities have a duty to make available to the public all the information regarding the contracting process of this technology. On the other hand, the private sector contractor must not only comply with the General Data Protection Law, but also make privacy policies public, so that individuals can be aware of their rights when using the products offered. **Thus, an improvement in the transparency mechanisms of the municipal and state governments is recommended, such as, for example (i) making available in the appropriate channels the contracts for the acquisition of technologies, the projects on how that technology will be implemented, prior studies on the impacts of the tool, etc. and (ii) enhancement of the measures for access to information, especially at the municipal level, with the sharing of data and faster response to Access to Information Law requests.**

5

USE OF FREE SOFTWARE

In public educational policies involving the purchase and contracting of technologies, it is essential that municipalities, states, and the federal government also pay attention to the technical aspects of these tools: what type of software is used? Who are the people and companies responsible for the development, maintenance and improvement of this software? What are the databases that feed this technology? Who has access to the source codes of the technologies employed? These questions allow a detailed evaluation of the technology to be contracted.

In this context, **prioritizing free software products is a recommended alternative for implementing new technologies in a more conscientious way.** Since free software is software that allows other developers to run, access and contribute to the improvement of the source code without the need to purchase a license, **there is not only much more**

transparency about the technology being used, but also the possibility to improve the technology in case of flaws. In this sense, it is recommended that, when hiring technologies for public education, public administrators give preference to those open source software platforms, thus allowing a more democratic management of the technologies used in public education. Also, from an economic point of view, **the use of free software is economically advantageous**, since it is significantly cheaper than proprietary software.

6 PROFESSIONAL TRAINING AND DIGITAL AND TECHNOLOGICAL literacy for public managers, educators and school community

The incorporation of new technologies in education is often based on the viewpoint of “innovation”, “modernization”, and the potential facilities that can result from their use. For educators, who experience work overload and the daily difficulties of school life, the new technologies are sold with the promise of solving the great school problems. For public administrators, technologies are often understood as a way to improve the quality of local education in the short term, without the need for structural reforms.

These perceptions about the use of educational technologies, both by faculty and public administration, are related to a lack of literacy and training about the digital economy and technology ecosystems.

Topics such as data protection, algorithmic discrimination, algorithmic bias, data economy and other subjects related to the digital age are not included in the training of administrators and educators. As Bonilla (2014) points out, the training of teachers for the use of digital technologies in Brazil happens mainly after they leave the university, since most of the academic courses do not include this area in their curricula.⁶⁶

Given the inevitability of an increasing presence of technologies in school facilities, it is **necessary that those who are in daily contact with the teaching environment are aware of the dichotomies, complexities, and adverse effects that these promises of modernization based on technological tools have**, instead of simply absorbing them without critical reflection. **Training educators and public administrators not only on data protection legislation, but also on bias and algorithmic racism is thus crucial in the scenario in which we find ourselves.** In this sense, it is necessary that undergraduate courses include in their curricula subjects, training and research on personal data, technologies, surveillance, digital protection of children and adolescents and related topics. In public administration, it is necessary that the municipal and state education departments offer continuous training courses for training and digital literacy so that administrators are able to evaluate the use of digital technologies beyond usability.

66 Silveira Bonilla, M. H. (2014). Software Livre e Educação: uma relação em construção. *Perspectiva*, 32(1), 205–234. <https://doi.org/10.5007/2175-795X.2014v32n1p205>

APPENDIX

10

10.1 REQUESTS FOR ACCESS TO INFORMATION

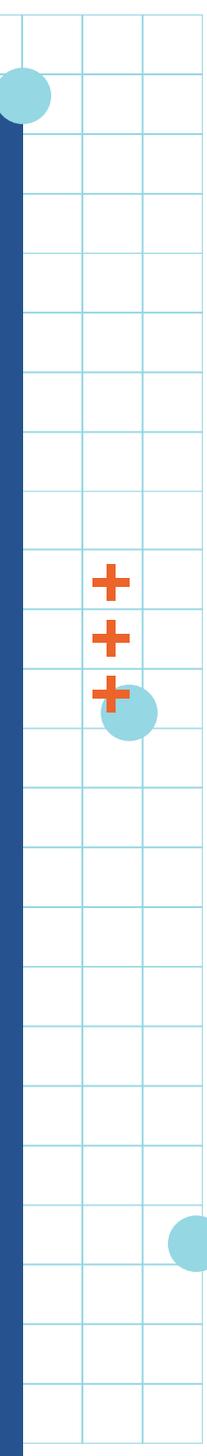
The first category of LAI requests aimed at obtaining information about

- i. the implementation phase of facial recognition in school units;
- ii. the number and name of the schools that already had the technology and;
- iii. whether the municipal and state departments had quantitative goals in relation to the technology.

The questions sent to information access platforms were:

- 1. What is the current stage of implementation of the facial recognition technologies in the schools managed by this Department?**
- 2. How many and which schools managed by this Department already have facial recognition technologies?**
- 3. Are there quantitative goals to be met through the implementation of these technologies?**

The second category of questions aimed at understanding, in general, whether there was any analysis of risks of implementing facial recognition prior to the bidding processes and the effective enforcement of public contracts signed with technology companies. The questions sent to information access platforms were:

- 
1. **For what purposes have facial recognition technologies been acquired in schools managed by this municipality (e.g. Attendance record)?**
 2. **Prior to the purchase and implementation of the technology, had any analysis on risks to impacts on human rights been carried out? If so, is the analysis publicly available?**
 3. **Has there been – or is there – any participation of society in the elaboration of projects for implementing facial recognition technologies in schools?**
 4. **Have any analysis been carried out about discrimination potentials that may result from facial recognition softwares? Are technologies adapted to children with disabilities, for example?**

The third category of questions is related to the hiring process employed by the municipalities and the state for the purchase of facial recognition technology. The questions sent to information access platforms were:

1. **What hiring process was carried out by the municipality to acquire these technologies, and what was the total value of the purchase?**
2. **Which company was hired and for how long?**

The fourth category of questions sought to know about data protection measures employed with the facial recognition system, such as data collection, storage, sharing and treatment, as well as other kinds of security practices provided. The questions sent to information access platforms were:

1. **How is the collection, storage and use of personal data carried out - especially data from children and adolescents who use these technologies?**
2. **How are data processed after the student's departure from the educational institution? Are they stored, or discarded? What are the hypotheses for deleting student's data?**
3. **Are data collected through facial recognition shared among different treatment agents? If so, among which agents? Does the school administration have access to this data?**

4. Are there safety practices in relation to the treatment of data collected by the facial recognition system? If so, which ones?

The fifth category of questions aimed at mapping the main legislation involved in facial recognition implementation projects, aside from the General Data Protection Law. In this sense, the questions regarded budget forecasts for the purchase and use of facial recognition technologies in the Annual Budget Laws and/or in the Multiannual Plans, as well as the existence of municipal and/or state facial recognition laws. The questions sent to information access platforms were:

- 1. Is the purchase and use of facial recognition technologies for school management provided for in the Annual Budget Law (LOA) or the Multiannual Plan (MP) for 2023 and the following years?**
- 2. Is there any ruling that regulates the use of facial recognition technology by the City/State in the context of use in schools?**

Finally, the last category of questions sought to understand the results presented by facial recognition systems, that is, the accuracy rate of the technologies used, as well as possible questionings by other institutions regarding the implementation of biometrics, such as the Court of Auditors and Public Prosecutor's Office. The following questions were sent to information access platforms:

- 1. What is the percentage of accuracy of the technology? After implementing the facial recognition system, was there any case of error? For example, children prevented from entering school due to non-recognition.**
- 2. Was there any questioning by any other institution, such as the Public Prosecutor's Office, the Public Defender's Office or the Court of Auditors, in the implementation of facial recognition in schools?**

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