Algorithmic Transparency in the Public Sector

A state-of-the-art report of algorithmic transparency instruments

May 2024

GPAI / THE GLOBAL PARTNERSHIP ON ARTIFICIAL INTELLIGENCE

This report was developed by Experts and Specialists involved in the Global Partnership on Artificial Intelligence's project on "Algorithmic Transparency in the Public Sector". The report reflects the personal opinions of the GPAI Experts and Specialists involved and does not necessarily reflect the views of the Experts' organisations, GPAI, or GPAI Members. GPAI is a separate entity from the OECD and accordingly, the opinions expressed and arguments employed therein do not reflect the views of the OECD or its Members.

Acknowledgements

This report was developed in the context of the project *"Algorithmic Transparency in the Public Sector"*, with the steering of the project Co-Leads and the guidance of the Project Advisory Group, supported by the GPAI Responsible AI and Data Governance Working Groups. The GPAI Responsible AI and Data Governance Working Groups agreed to declassify this report and make it publicly available.

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GPAI would also like to thank the following individuals for their support in reviewing and providing feedback: Bertrand Monthubert* (Conseil National de l'Information Géolocalisée), Avik Sarkar* (Indian School of Business) and Amir Banifatemi* (AI Commons).

Finally, GPAI would like to acknowledge the efforts of colleagues at the International Centre of Expertise in Montréal on Artificial Intelligence (CEIMIA). We are particularly grateful for the support of Camille Séguin and Arnaud Quenneville-Langis from CEIMIA, and for the dedication of the Working Groups Co-Chairs Amir Banifatemi (AI Commons), Francesca Rossi (IBM Research), Bertrand Monthubert (Conseil National de l'Information Géolocalisée) and Shameek Kundu (Truera).

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Citation

GPAI (2024). “Algorithmic Transparency in the Public Sector: A state-of-the-art report of algorithmic transparency instruments”. Report, May 2024, Global Partnership on Artificial Intelligence.

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Introduction

This report overviews algorithmic transparency instruments in the public sector and focuses on repositories or registers of public algorithms. It is a preliminary report of the "Algorithmic Transparency in the Public Sector" project developed by experts from the Global Partnership on Artificial Intelligence (GPAI). In the project's subsequent phases, additional reports will be produced based on three in-depth case studies of public algorithmic repositories. The case studies will include interviews with diverse stakeholders to evaluate this type of transparency instrument. GPAI experts from the Responsible AI and Data Governance Working Groups contribute to this project.

The project's objective is to study algorithmic transparency in the public sector with an emphasis on assessing transparency instruments, both reactive and proactive, that may allow governments to comply with algorithmic transparency principles, standards, and rules. The project will study the strengths and weaknesses of these instruments, the challenges of building them, their diverse usages and users, costs, how instruments complement each other, and their potential contributions to transparency and different goals (e.g., explainability, accountability).

The purpose of this report is to provide a 'state-of-art' foundation for the project by explaining the role and mapping the extent of repositories in algorithmic governance. It is divided into four sections. Section 1 explains algorithmic transparency's concept and components. Then, section 2 reviews the literature on the types of algorithmic transparency instruments adopted or proposed worldwide and describes diverse transparency instruments. Section 3 reports the findings of mapping existing repositories of public algorithms worldwide, including what type of information on automated and semi-automated decision-making (ADM) systems is disclosed by the repositories and the repositories' ancillary instruments (e.g., user manuals, survey forms, etc.). The final section presents preliminary conclusions. The report's annex has a glossary of key terms.

1. The concept of algorithmic transparency

1.1 Algorithmic transparency, government transparency, and fundamental rights

As a governance instrument, algorithmic transparency arises within the broader context of **public interest regulation.** The principle derives from the democratic right to know and access information. In this case, information about the algorithms that affect people directly and indirectly. It seeks **compliance with specific transparency principles, standards, or rules** (see section 1.2 of the report). Understanding algorithmic transparency in the context of a set of sometimes competing rights, such as privacy or intellectual property, is important in recognising tensions between competing regulatory instruments.

Algorithmic transparency is a **means for fulfilling fundamental rights** and other rights enshrined in public interest regulation. Applied to the public sector, for example, information on how state services are provided enables the population to access health and education

rights. Moreover, information about how the state makes certain decisions affecting people's lives and liberties is indispensable to protecting the right to due process.

Furthermore, transparency in the public sector is one of the **pillars of Open Government initiatives** that national and sub-national governments worldwide have pledged to promote to make them more accountable to their citizens. Given the expansion of government adoption of ADM systems, algorithmic transparency principles, standards, and rules have become central to the new generations of Open Government initiatives (Gutiérrez & Castellanos-Sánchez, 2023; OGP, 2022; Valderrama et al., 2023).

Additionally, as mentioned before, algorithmic transparency is associated with the **right of access to information**, supported by the Universal Declaration of Human Rights (article 19) and the International Covenant on Civil and Political Rights (article 19.2), allows people to access information of public interest, including information held by public bodies. According to UNESCO (2022, p. 3), 114 countries and territories "have constitutional, statutory and/or policy guarantees for Access to Information.[1]

Finally, algorithmic transparency **enables citizen oversight** over governmental activities and decisions associated with the adoption and implementation of ADM systems. For example, accessing meaningful information may allow civil society organizations to assess whether the use of ADM systems is compliant with the law and how public bodies allocate economic resources.

1.2 Meaning and components of algorithmic transparency

The "algorithmic transparency" concept lacks a universally accepted definition, much like the general concept of "transparency" (Porumbescu et al., 2022; Valderrama et al., 2023). This report will explain **algorithmic transparency as a multifaceted concept**. The report explores how algorithmic transparency may be framed as capacity, principle, standard, rule (establishing rights and obligations), and instrument. As described below, these dimensions are not mutually exclusive and, in some cases, are associated.

This report will explain algorithmic transparency as a multifaceted concept. It can be understood as a:

- Capacity
- Principle
- Standard
- Right
- Obligation and responsibility

Additionally, algorithmic transparency may be framed in relation to the instruments used to comply with specific transparency principles, standards, or rules.

[1] Darbishire (2010) argues that 2009 was a very relevant year for government transparency because governments and courts worldwide implemented proactive disclosure rules. For instance, on April 14, 2009, the "European Court of Human Rights confirms for the first time that there is a fundamental right of access to information linked to the right to freedom of expression and necessary for civil society to hold government bodies accountable and to create forums for public debate" (Darbishire, 2010, p. 6).

Algorithmic transparency can be understood as a capacity that concerns "the ability of actors internal or external to the development of an algorithm to obtain information, monitor, test, critique, or evaluate the logic, procedures, and performance of an algorithmic system in order to foster trust and increase accountability of the developers or controllers of the system" (Valderrama et al., 2023, p. 8). Furthermore, algorithmic transparency may be a stepping stone and enabler of other critical principles, such as explainability and accountability (Gutiérrez & Castellanos-Sánchez, 2023).

Conversely, **algorithmic transparency as a principle** guides the actions of governments or private organizations on how to make certain information about their algorithmic systems accessible or available. In this vein, "[t]ransparency is the availability of information about an organization or actor allowing external actors to monitor the internal workings or performance of that organization" (Porumbescu et al., 2022, pp. 10-11). Accessibility may refer to information about the system (source code, model, and data), its governance and life cycle, and even the possibility that independent experts can access the system for an audit (Grimmelikhuijsen, 2022).

Moreover, algorithmic transparency may entail another element: explainability. Explainability refers to whether "[t]he outcomes of an algorithm can be explained in a way a human can understand how or why an algorithmic decision was reached" (Grimmelikhuijsen, 2022, p. 243). For example, recital 58 of the General Data Protection Regulation (GDPR) establishes that the principle of transparency requires both accessibility and explainability:

> "The principle of transparency requires that any information addressed to the public or to the data subject be concise, easily accessible and easy to understand, and that clear and plain language and, additionally, where appropriate, visualisation be used. […] This is of particular relevance in situations where the proliferation of actors and the technological complexity of practice make it difficult for the data subject to know and understand whether, by whom and for what purpose personal data relating to him or her are being collected, such as in the case of online advertising."

While principles refer to broad guidelines for making decisions or acting, standards specify concrete instructions for conducting processes and achieving diverse results. Hence, when we understand **algorithmic transparency as a standard**, this refers to expected levels of accessibility of information and explainability of such information. In this vein, Diakopoulos (2020) argues that algorithmic transparency has gradations and is not a dichotomous (transparent/non-transparent) variable. He distinguishes between "transparency of the *outcomes* of a system (i.e., the what) versus transparency of the *processes* an algorithm enacts or that people enact in terms of governance applied during the design, development and operation of the system (i.e., the how)" (Diakopoulos, 2020, p. 199).

The standards may concern the quantity or quality of the disclosed information and how it is disclosed. For example, a stricter standard of "meaningful algorithmic transparency" refers "not only to a quantitative dimension of transparent information (e.g., how much and what type of information is available) but also to a qualitative dimension of the accessible information:

whether or not it allows to assess the performance of the organization or the tool used" (Gutiérrez & Castellanos-Sánchez, 2023, p. 9).[2]

Some governments have developed algorithmic transparency standards, such as the UK's Algorithmic Transparency Recording Standard (ATRS), that guide and support public sector bodies. Recently, the UK's Responsible Technology Adoption Unit (RTAU) announced: "that use of the ATRS will become a requirement for UK government departments, with an intent to extend to the broader public sector over time" (Adams & Greenwood, 2024). Furthermore, the International Organization for Standardization (ISO) is working on a document that "defines a taxonomy of information elements to assist AI stakeholders with identifying and addressing the needs for transparency of AI systems."

Algorithmic transparency may be enshrined in rules that create rights and obligations. Algorithmic transparency can be expressed in terms of the **obligation and responsibility** of states and, in certain circumstances, private parties, developers, and system users to disclose information such as the adoption, design, functioning, and potential impacts of their ADM systems.[3]

This report focuses on analyzing algorithmic transparency in the public sector. Due to the public interest nature of their activities, public bodies have a heightened obligation to be transparent.

[2] Lapostol and Hermosilla (2022) express a similar view, arguing that it is not only a matter of providing information, but also of ensuring that it is relevant.

[3] For example, the *Fairness and Transparency (P2B) regulation* and the *Guidelines on ranking transparency* of the European Union and the *Consumer Protection (E-commerce) Rules* of India include algorithmic transparency rules that private sector parties must comply with. These rules set disclosure obligations regarding the parameters of the algorithms used to rank products and services in online platforms (Ashok, 2024). Other regulations that create algorithmic transparency for private parties that participate in digital markets are the *Provisions on the Administration of Algorithmic Recommendation for Internet Information Services* in China, the *Algorithmic Accountability Act* in the United States, the *Digital Markets Act* and the *Digital Services Act* of the European Union (Ashok, 2024; Mazur, 2024).

A citizen's relationship with the state can involve exposure to multiple systems, either directly or indirectly, and often without the individual's full awareness.

Examples:

- Chile: A family with a school-aged child seeking enrollment in a pre-primary, primary, or secondary educational institution can access the "Asistente virtual Agencia de Calidad de la Educación" chatbot to find information “easily and effectively" about educational establishments. Subsequently, based on the "assignment algorithm in the Ministry of Education's (MINEDUC) school admission system", the student may be assigned a place in a specific educational institution. Once the student is in the education system, they may also benefit from the "early warning system of the Ministry of Education and the Ministry of Social Development and Family," which, as its name suggests, aims to "identify children and adolescents at greater risk of dropping out of school." Indirectly, the same family could benefit from the "Machine Learning Models for Supervision by Educational Establishment Programs" system, which seeks to guarantee quality education. Source: Universidad Adolfo Ibáñez (2024).

- Bogotá (Colombia): In April 2024, the Mayor’s Office of Bogotá decided to schedule water cuts due to the reduction of the city’s water reserves caused by the *El Niño* phenomenon. Bogotá’s city residents were able to contact "Chatico" (the Mayor's Office chatbot) to find out which day the water service would be suspended in their area.

When viewed through the lens of a **right**, algorithmic transparency refers to the idea that individuals should be able to access information about the algorithms that affect them directly and indirectly. For example, France’s Law N° 2016-1321 (“for a Digital Republic”) contains an article that establishes obligations akin to “algorithmic transparency”: article 4 of the law states that “any individual decision based on algorithmic processing must include an explicit statement informing the data subject”. Article 6 also establishes the obligation for certain public bodies to publish “the rules defining the main algorithmic processes used in the exercise of their functions when they are the basis for individual decisions.”

Algorithmic transparency is not an absolute principle, standard, or rule. It may be limited by other rights, such as data protection and intellectual property rights, and other government objectives, such as managing cybersecurity risks and maintaining the confidentiality of its defense activities (Ashok, 2022; Diakopoulos, 2020; Gutiérrez & Castellanos-Sánchez, 2023).

Finally, algorithmic transparency may also be framed in terms of the **instruments** used to comply with specific transparency principles, standards, or rules. In this report, we will understand algorithmic transparency instruments as mechanisms that “provide information about algorithmic systems to the general public (e.g., affected persons, media or civil society) so that individuals or groups can learn that these systems are in use, and demand answers and justifications related to such use” (Ada Lovelace Institute et al., 2021, p. 18). The following section will map diverse algorithmic transparency instruments adopted or proposed worldwide.

2. Types of algorithmic transparency instruments adopted or proposed worldwide

2.1 Review of the literature on types of algorithmic transparency instruments

Governments use a **range of means to comply with algorithmic transparency**, from responding to specific access to information requests to people ("passive transparency" or "reactive transparency") to using mechanisms of proactive provision of information ("active transparency" or "proactive transparency").[4] In the former, the government acts on demand upon requests for disclosure of information, while the latter consists of a routine disclosure of information by the government to external actors.

These mechanisms are not exclusive and usually can complement each other. Moreover, governments may select a combination of distinct transparency instruments to comply with their obligations. While each instrument may better fit specific informational purposes, proactive transparency approaches may avoid "the situation of citizens needing to request and authorities having to respond" (UNESCO, 2022, p. 10).

This section reviews three classifications of algorithmic transparency instruments proposed by Diakopoulos (2020), the Ada Lovelace Institute et al. (2021), and Valderrama et al. (2023). The section finalizes with a new taxonomy of algorithmic transparency instruments.

Diakopoulos (2020) classifies three forms of disclosing information about algorithms: 1) demand-driven disclosure (e.g., response to a request for information); 2) proactive disclosure (e.g., self-disclosure via a website); and 3) forced disclosure (e.g., information generated by an external audit).

The **Ada Lovelace Institute et al. (2021)** offer three examples of "transparency mechanisms": 1) public registries of algorithmic systems, which are aimed at civil society and citizens; 2) requirements for source code transparency, which apply to computational algorithmic systems; and, 3) explanations of algorithmic logics (purportedly allowing the public and policymakers to 'understand' how an algorithmic decision was reached).

Finally, **Valderrama et al. (2023)** classified algorithmic transparency mechanisms into three categories: 1) disclosure (information requests, model cards, source code, and Algorithm or Artificial Intelligence Registers), 2) explanation, and 3) evaluation (audits and impact assessments).[5] It should be clarified that registers of public algorithms can disclose information through different forms (from an Excel file to web pages) and is classified as a mechanism of "proactive" or "active transparency" (Valderrama et al., 2023, p. 16). Moreover, model sheets or model cards are sheets or formats used to document algorithmic systems. Model cards may include information such as: "how it was built, what assumptions were made during its development, what type of model behavior different cultural, demographic, or phenotypic

[4] Proactive transparency "refers to the routine disclosure of information by the government that is made available to external actors without them first having to explicitly request it" (Porumbescu et al., 2022, p. 11).
[5] OGP (2022) adopted the classification developed by the background paper prepared by Valderrama et al. (2023).

population groups may experience, and an evaluation of how well the model performs with respect to those groups" (Mitchell et al., 2019, p. 3).

2.2 New classification of algorithmic transparency instruments

Drawing from the authors reviewed in the previous section, we propose a **new classification of algorithmic transparency instruments** with two broad categories based on the source of the algorithmic transparency initiative: supply-driven transparency instruments and demand-driven transparency instruments. In this sub-section, we describe both categories and the types of instruments that may be classified as supply or demand-driven.

Figure 1 illustrates the new classification of algorithmic transparency instruments proposed in this document:

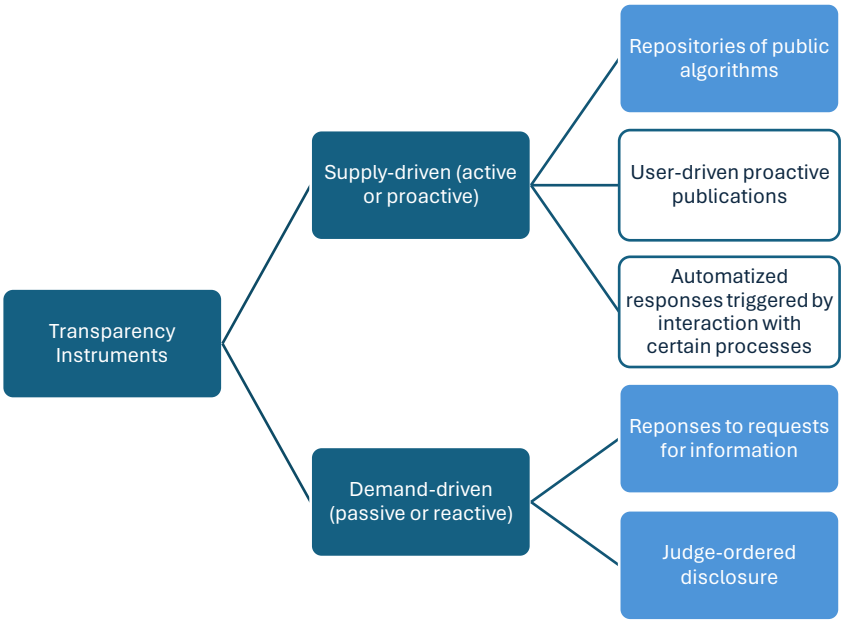


Figure 1: Classification of algorithmic transparency instruments.[6]

2.2.1 Supply-driven transparency instruments

With **supply-driven transparency instruments**, a government proactively provides information about the ADM systems used to inform decision-making processes or to make decisions. The government has the initiative of increasing transparency, and the disclosure of the information is not directly prompted by a specific request of an individual, organization, public official, or judge. In this sub-section, we first describe repositories of public algorithms, a supply-driven transparency instrument that is used in 10 countries and the European Union (see section 4 of this report), and then we explain two instruments that could potentially be used in the context of proactive algorithmic transparency initiatives.

[6] Our classification includes three instruments currently used as proactive and reactive algorithmic transparency approaches (the light blue rectangles that include online repositories of algorithms, responses to requests for information, and judge-ordered disclosures) and two instruments that could be used for algorithmic transparency purposes (the white rectangles that include user-driven proactive publications and automatized responses triggered by interactions with specific processes). Based on our review of the literature on governmental transparency, we believe that the latter could be adapted to serve algorithmic transparency purposes.

Online repositories of ADM systems, also called "registers" or "registries" (from now on, "**repositories of public algorithms"**), are a supply-driven transparency instrument that is gaining prominence among governments (Ada Lovelace Institute et al., 2021; OGP, 2022; Valderrama et al., 2023). "Registers are consolidated directories providing information about algorithmic systems used by public agencies in different jurisdictions" (Ada Lovelace Institute et al., 2021, p. 19).[7] These repositories are "windows" and "channels where individuals can find information to understand how ADM systems work, what type of data was used to train and operate the system, how decisions are taken with the support of the systems, and how to challenge such decisions, among others (Haataja et al., 2020).

Section 4 of this report maps 69 active repositories of public algorithms published by public bodies (supranational, national, and local level), universities and academics, and civil society organizations.

The objective or duty of creating these repositories of public algorithms has been included in AI policy documents, AI regulations, and AI bills.[8] For example, the report "AI Watch Road to the Adoption of Artificial Intelligence by the Public Sector" published by the European Commission, recommended: "Setting up a European registry of AI algorithms by federating and promoting the creation of national registries to monitor the development and market around AI and help in meeting the relevant criteria set down by EU regulations"; "Build an EU united AI registry based on national and local AI registries, adding (when available) the information and linking to the reusable parts involved: algorithms, models and datasets"; and, "Setting up of a European registry of AI algorithms by uniting and promoting the creation of interoperable national registries to monitor digital transformation of both the public sector and the market around AI, to share relevant information and help to meet the relevant criteria set down by EU regulations"(Manzoni et al., 2022).

Besides the repositories of public algorithms, we identified two additional types of instruments that public bodies may implement as supply-driven transparency instruments. First, **user-driven proactive publications** consist of disclosures that public entities decide to make after receiving high volumes of similar individual information requests. In this case, public bodies publish the information proactively so "that future information-seekers do not have to file a request, saving time for both officials and requestors" (Darbishire, 2010, p. 17).

User-driven proactive publications are already used in some parts of the world for diverse government transparency purposes.[9] However, we are unaware of its specific use for complying with algorithmic transparency principles, standards, or rules. Still, it could be a pertinent and cost-effective tool for promoting algorithmic transparency by targeting the disclosure of information that people and organizations demand more frequently.

[7] Similarly, Valderrama et al. (2023, p. 84) define these instruments as "consolidated repositories or directories of information on the algorithmic systems used by governments, often including standardized information about different systems for ease of comparison".
[8] For example, the National Artificial Intelligence Strategy (2021-2026) of Peru aims at implementing a "registry of AI algorithms used [...] by the public sector, where in addition to algorithms, the sources of data used will be included" (Secretaría de Gobierno y Transformación Digital & Presidencia del Consejo de Ministros, 2021).
[9] "Some laws—including those of Mexico, Slovenia, and the United States—establish that frequent requests should result in proactive disclosure" (Darbishire, 2010, p. 17).

For example, a governmental organization that uses an ADM system to allocate subsidies to individuals may receive hundreds of information requests about how the ADM system works, how decisions are made with the tool, or the implications of its adoption. The flow of information requests could be significantly reduced by proactively publishing information about how the ADM system operates and what channels individuals may access to contest the governmental organization's decisions.

In Chile, for example, one of the reasons why the *Consejo para la Transparencia*, a public body that is in charge of overviewing public bodies' compliance with the "Law on Transparency of the Civil Service and Access to Information of the State Administration", decided to explore algorithmic transparency instruments was associated with the finding that there was an increased reception of complaints due to unfulfilled requests of information regarding public processes in which ADM systems had been used (Contreras & Pefaur, 2020; Garrido et al., 2021).

The **other supply-driven transparency instrument** that could be considered is **automated responses triggered by interactions with specific governmental processes.** In this case, information about an ADM system used by a public body would automatically be disclosed when a person or organization initiates a governmental process. For example, when a person enters a public body's website or online platform to request a specific public service or initiate an administrative proceeding that involves the deployment of an ADM system, the public body could provide relevant information about its system automatically, without the user having to request it explicitly.

This instrument is used, for example, to proactively inform data subjects about how ADM systems process their personal data and comply with data protection regulations. Regarding online platforms, privacy notices have become a widespread practice to notify users about collecting and processing their personal data when they access a digital space or initiate a specific digital interaction (Di Porto, 2023).

Table 1 provides examples of supply-driven algorithmic transparency instruments:

Table 1: Examples of supply-driven algorithmic transparency instruments

Type of instrument	Description and examples
Online repositories or registers of public algorithms	"Registers are consolidated directories providing information about algorithmic systems used by public agencies in different jurisdictions" (Ada Lovelace Institute et al., 2021, p. 19). These repositories can vary in format, the number of registered systems, and the number of variables. In section 4 of this report, we map 69 active repositories worldwide. These repositories have been created by supranational, national, subnational entities, universities, private organizations, and civil society organizations. We found records on three of the five continents: America, Europe, and Oceania.
User-driven proactive publications	User-driven proactive publications are a transparency instrument used by public entities to make information readily available to the public, based on previous user requests. Although there we did not are aware of specific examples of user-driven proactive publications as a means of achieving algorithmic transparency, the concept aligns with practices in some countries like Mexico and the US. In

	these cases, public entities may proactively disclose information when they anticipate a high demand for it on a particular topic. The closest example we identified is the FAQ section on The Algorithm Register of the Dutch government, which provides information about the repository, its usage, types of data it contains, participation opportunities, and ways to stay informed.
Automatized responses triggered by interaction with certain processes	This is an algorithmic mechanism that operates when a public entity's website or platform automatically provides users with relevant information about a specific ADM system and the disclosure is triggered by user interaction without any explicit request for such information. Analogies may be drawn from the use in other domains, for example, when digital platforms disclose information through notices with the objective of complying with data protection laws.

2.2.2 Demand-driven transparency instruments

The public sector responds to specific information requests from individuals, groups, or other authorities with **demand-driven transparency instruments**. This approach describes on-demand government action and contrasts with supply-side algorithmic transparency, where the public sector discloses information without being prompted or required. In this category of instruments, the government acts reactively, for example, at the request of an individual who exercises their right to access public information (**responses to requests for information**).

Algorithmic transparency may also be forced, such as when a judge or other authority orders the provision of information on the operation, deployment, or adoption of a particular ADM system (**judge-ordered responses**). This has occurred in cases where parties request the disclosure of information about an algorithm (used by public or private organizations). The judge orders a certain level of disclosure deemed necessary (e.g., when required to protect due process rights) and proportional for deciding the case while balancing other rights such as intellectual property rights (e.g., the disclosure may be subject to a protective order) (Gullo, 2023; Gutiérrez & Castellanos-Sánchez, 2023; Prior & Rowe, 2022).

Table 2 provides examples of supply-driven algorithmic transparency instruments:

Table 2: Examples of demand-driven algorithmic transparency instruments

Type of instrument	Description and examples
Responses to requests for information	Right to request information held by public bodies. According to UNESCO (2022, p. 3), 114 countries and territories “have constitutional, statutory and/or policy guarantees for Access to Information. The mobile applications adopted by governments during the COVID-19 pandemic to trace contacts illustrate the debate on whether the source code of algorithmic tools should be made public or not in response to a citizen’s request for information and whether other types of information about the system could be more pertinent to understand how it works and its implications. On September 5, 2020, in Spain, more than 200 researchers and academics wrote a letter to the Government requesting "maximum transparency regarding the development of the contact tracing 'app' Radar Covid" (Méndez, 2020a). The Secretary of State for Digitalization and Artificial Intelligence (SEDIA) released the code on September 9 of the same year. However, some researchers argued that releasing the code was just a first step, and there were questions about whether releasing

	it was enough to make the algorithm transparent (Méndez, 2020b; Pérez Colomé, 2020). However, citizens' requests to public bodies aimed at the release of a source code are not always successful. In 2019, a citizen in El Salvador requested the source code of computational systems used by the Ministry of Health. However, "the Institute of Access to Public Information (IAIP) studied the case and considered that making them public could lead to a vulnerability risk for the State portfolio," therefore "it ordered that the 49 computer systems used by Health be reserved" and decided that the restriction would be maintained for seven years (Vides, 2020). According to some critics of the measure, this decision implied that "the public would not be able to know, for example, the data on how diseases such as dengue or cancer are being combated, or how public hospitals are managed" (Vides, 2020).
Judge-ordered disclosure	In Colombia, the Constitutional Court is currently reviewing whether the source code of CoronApp, a mobile application developed by the Colombian national government during the COVID-19 pandemic for epidemiological management and control, can be classified as public information and, consequently, whether it should be released (Gutiérrez & Castellanos-Sánchez, 2023). On April 30, 2024, the Seventh Chamber of the Contentious-Administrative Court of Spain's *Audiencia Nacional* dismissed the appeal of the non-profit organization Civio, which requested access to the source code of BOSCO. BOSCO was "an application developed by the Government and used by electricity companies to determine if a vulnerable user can receive discounts on their electricity bill" (CIVIO, 2022). This was the third time the request for access to the source code was denied (Cotino Hueso, 2024). The justification for the denial was that access to the code would pose a severe risk to the information of third parties. Another example of Spain that involves an oversight authority (albeit non-judicial), illustrates how some information requests may be successful. The Commission for the Guarantee of the Right to Access to Public Information (GAIP) of Catalonia (Spain) ordered, through Resolution 200/2017, the disclosure of the source code of the computer program used to designate members of the appraisal tribunals for the university entrance exams (PAU).[10] The Center for Telecommunications and Information Technologies of the Government of Catalunya had denied a teacher's request for information. The GAIP's resolution explained that "Public information includes not only that expressed in natural language (in words, which is the most common), but also that expressed through photographs, videos, plans, signs, etc. or other languages, such as mathematics or, in this case, computer science." Additionally, the GAIP argued that in that case there was "public and private interest - of the interested parties who participate in the various calls - evident in being able to verify that the computer program is correctly designed to guarantee the equality of all participants and that the designation of the members of the courts conforms to the criteria established by the regulations that regulate them."[11]

[10] See GAIP's Resolution 200/2017 here: https://www.gaip.cat/web/.content/pdf/Resolucions_2017-pdf/20170621_Resolucio_200_2017_estimacio_171_2017.pdf

[11] For an account of this case, another access of information cases, see FEMP and RED (2021).

3. Mapping repositories of public algorithms worldwide

3.1. Criteria for mapping repositories of public algorithms

We compiled a list of online repositories of public algorithms worldwide. These repositories were published by supranational and national public bodies, subnational public bodies, universities, civil society organizations, and private organizations (see Tables 4, 5, 6, and 7 in Annex B). The list includes information about active repositories, projects of repositories, and repositories that are no longer available.

The repositories of public algorithms that are mapped in this section meet the following criteria: 1) Online Accessibility: the information is available in one of the following formats, such as documents (.pdf), files (Excel or .csv) or platforms or web pages; and 2) Minimum Content: the repository provides at least minimal details concerning ADM systems employed by one or more public sector entities, such as the name of each system, the public body that deployed and/or uses it, and its purpose.

This second criterion discards three types of online repositories: i) repositories that track private sector algorithms,[12] ii) repositories that record incidents resulting from the use of algorithms,[13] and iii) registries that merely count the number of algorithms deployed in the public sector but do not publish information such as the name of each ADM systems, the public body that deployed or uses it, and/or its purpose.[14] Additionally, the list does not include individual or private open code repositories not directly associated with algorithms used in the public sector.[15]

Although this report focuses on repositories of systems adopted by public bodies of the executive branch, it is pertinent to mention that we found repositories of AI systems adopted by the judiciary. In Brazil, for example, the judiciary has a "National Repository of Software Projects and File Versioning (Git.Jus)" that includes AI systems. Similarly, the Resource Centre Cyberjustice and AI built by the European Commission for the Efficiency of Justice (CEPEJ) documents over 100 ADM systems used by judicial bodies around the world.

[12] We are aware of initiatives that supervise algorithmic systems employed in the private sector, such as creating a Service Algorithm Registration List in China, which requires certain companies (including the largest internet platform companies) to report the systems they use. As of the April 2024 report, the registry had 394 registrations. However, our research project focused on analyzing algorithmic transparency in the public sector. In the future, this GPAI project may expand to examine algorithmic transparency in the private sector as well.

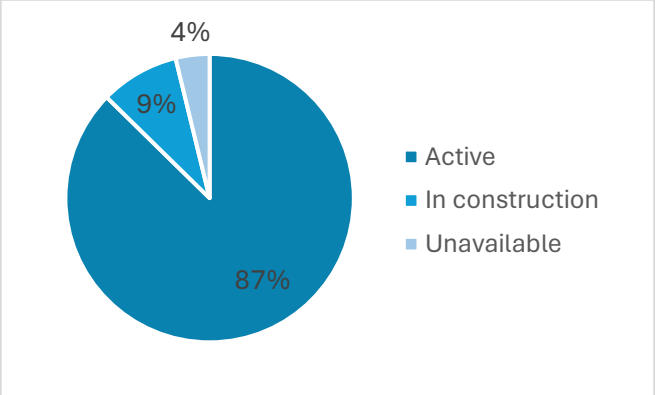
[13] There are repositories that inform about incidents and controversies that may arise from the use of AI systems or ADM systems, such as the OECD's AI Incident Monitor, and the AIAAIC Repository (global). While these repositories also contribute to transparency, this report focuses on repositories of public algorithms.

[14] For example, we do not include the "*Registro de herramientas de IA*" (AI tools registry) of the "*Observatorio de IA en Salud*" (AI in Health Observatory) of Catalonia, Spain, as it only provides general statistics. Although it mentions that 156 AI tools have been identified and most of them are in hospital care, it does not specify the name of each tool, who uses it, or the purpose for which it was designed.

[15] Such is the case of the AI Hub in South Korea and the "Made in Africa" open code repository, which do not necessarily focus on describing the algorithms implemented by the public sector.

3.2. General findings about repositories of public algorithms

Based on the criteria described in section 3.1 and considering the 29 repositories previously identified by Gutiérrez (2024), Gutiérrez and Muñoz-Cadena (2023), and Nieuwenhuizen (2024), along with our search, we built a list of 79 repositories of public algorithms (see tables 4, 5, 6 and 7 in Annex B). Among these, 87% are active, 9% are still under construction, and 4% have been deactivated (Figure 2). Of the 79 registries, 49 (62%) were published by national public bodies, 17 (21%) by subnational public bodies, six (8%) corresponded to civil society or private organizations repositories, five (6%) were published by universities and the remaining two repositories (3%) by supranational bodies (Figure 3).



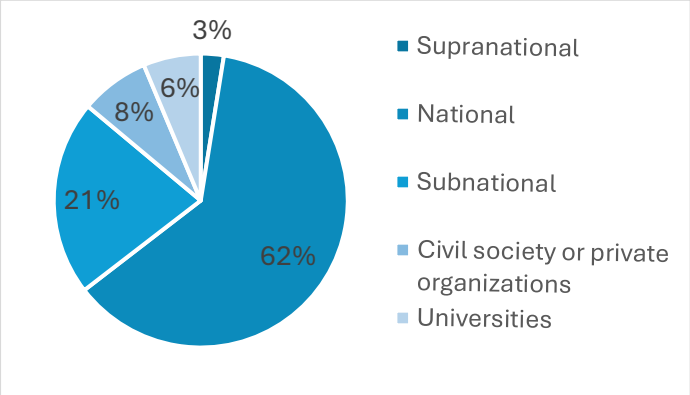


Figure 2: Status and accessibility of the repository (Active, In construction, Unavailable).

Figure 3: Type of organization that published the repository.

Figure 4 shows the locations of the 69 active repositories of public algorithms. The United States of America (US) leads with 37 active repositories, followed by the Netherlands with 14, France with four, and Colombia with three.

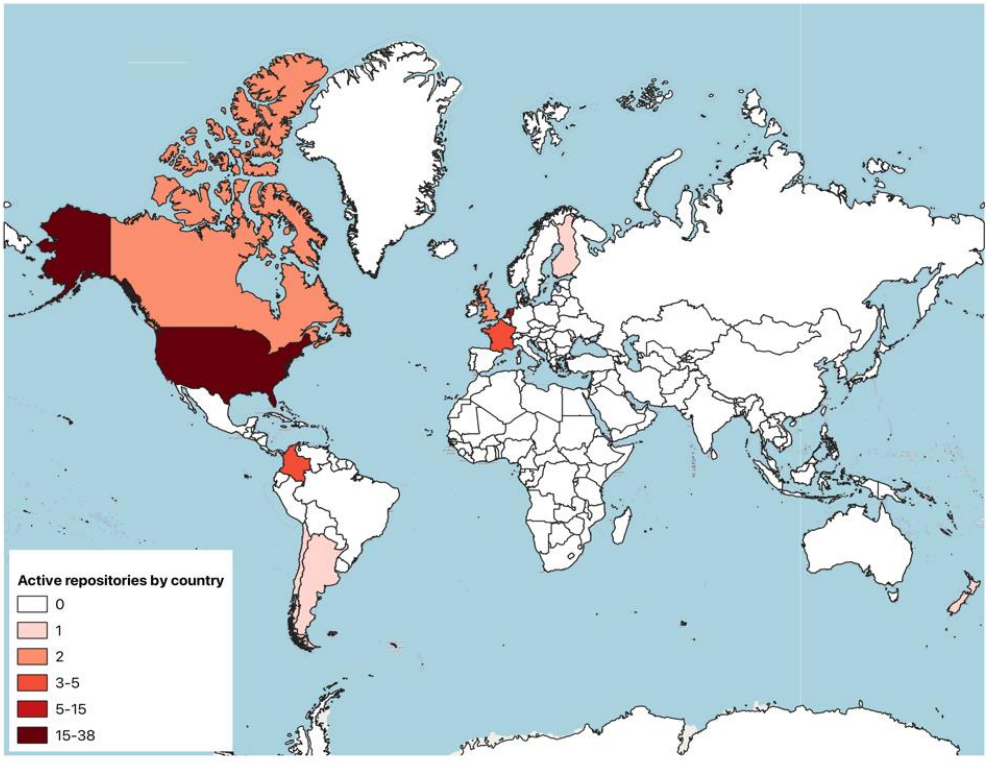


Figure 4: Countries in which there are active repositories of public algorithms.

After analyzing the number of systems present in each active repository, along with the number of variables that have information available, we grouped them by the type of entity that published the repository. Our findings showed that, on average, the repositories built by supranational entities have the highest number of registered ADM systems and variables for each system. Universities, civil society or private organizations, national entities, and subnational entities follow in that order.

Three repositories stand out in terms of the number of variables per system they publish: *Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory)*, which maps 46 variables; *Sistemas de decisión automatizada en el sector público colombiano (Colombia),* which maps 40 variables; and *Algorithmic Transparency Records* (UK), which maps 37 variables.

However, it is important to note that there is a great deal of data dispersion, especially in the case of national repositories. For example, within the repositories created by national public bodies, the US's repository has the most identified systems (710). In contrast, some repositories register low numbers of systems (six) or do not register any system. The case of the US is particular, because Executive Order 13960 of December 3, 2020, "Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government", mandates that each federal government agency "shall prepare an inventory of its non-classified and non-sensitive use cases of AI, within the scope defined by section 9 of this order, including current and planned uses, consistent with the agency's mission." This partly explains why there has been

an increase in the number of repositories in the US. The US government also published an “AI Use Case Inventory” as a national registry, but each federal agency has its registry on its website. It is important to note that the “AI Use Case Inventory” describes each system with ten variables. In comparison, the agencies' repositories can display variables ranging from two (User case name or Artificial Intelligence Project name and summary of the use case or short Description of Project) to 23 variables.

Something relatively similar occurs in the Netherlands, where there is a general repository with 347 registered systems (*The Algorithm Register of the Dutch government*), and national and subnational public bodies have also published their repositories on their websites. We found that some systems registered in the national repository (*The Algorithm Register of the Dutch government*) also appear in the subnational repositories. For example, two out of four systems in the *City of Amsterdam Algorithm Register* are also in the national registry. This creates an overlap in the information. However, if we filter the national registry by “Municipality of Amsterdam”, we get a total of 41 records, meaning that there are systems registered in the national repository that are not in the city's repository.

Furthermore, the multiplicity of repositories within a country entails that sometimes repositories published by national governmental organizations may overlap with those published by subnational public bodies, universities, or civil organizations. However, this does not necessarily mean that they contain identical information. For example, two different repositories may report on the same ADM system, but the type of information disclosed may vary, as may the actuality of the data.

It's important to note that repositories can be published or accessible in various formats. We found that 14 repositories have a simple interface (e.g., tables on a website listing the systems). In contrast, 24 repositories have a more user-friendly interface (e.g., a platform that allows for search, includes descriptions that aim at broad audiences, and uses images to illustrate each system). Additionally, 14 repositories allow downloading an Excel file, 16 a .csv file, and eight repositories are only available in .pdf format.

Regarding access to information, the City of Helsinki's repository (*Artificial intelligence systems of Helsinki*) can also be consulted in Suomi, Svenska, and English. Moreover, the Amsterdam repository (*City of Amsterdam Algorithm Register*) can be consulted in Dutch and English.

Finally, we observe a few noteworthy points regarding the repositories that are either under construction or unavailable. Four of the seven repositories under construction are part of a Eurocities initiative that aims to help “European cities provide clear information about the algorithmic tools they use, and why they’re using them.” Regarding the currently unavailable repositories, it is worthwhile to highlight the case of the Colombian Ethical Framework Monitoring Dashboard (*Tablero de seguimiento marco ético*). According to Gutiérrez and Castellanos-Sánchez (2023), the platform has been inaccessible since May 2023 because the government failed to renew the software license required to display the information. This raises questions about the costs associated with implementing such repositories: It is not just about

capturing a snapshot of the algorithms used in the public sector at a given time, but also considering the expenses involved in maintaining the website and updating the information.[16]

3.3. Findings regarding the type of information published in repositories

Based on the list of the elements of an ADM system that could be made transparent proposed by Gutiérrez and Castellanos (2023), we analyzed the type of information contained in the mapped repositories (see Annex C). The list of elements is divided into the five stages of the AI systems "lifecycle" proposed by Denis et al. (2021): Planning and design, Data collection and processing, Model building and validation, Deployment and monitoring, and Accountability. Based on this analysis, we report five findings that are worth highlighting.

First, in general and relative terms, there are more examples of repositories with information on variables related to the "Deployment and monitoring stage of the AI system". Conversely, relatively less information is available for the "Accountability stage".

Second, the three most frequent variables included in the repositories are the following: "Name of the system" (63 examples); "System's objectives, tasks, and outputs or a description of what the system does and/or how it does it" (62 examples); and "Name of the unit in charge of deploying the system or responsible unit" (46 examples).[17] Table 3 lists the ten most common variables we found in repositories of public algorithms.

Table 3: The ten most common variables in the repositories

Most common variables
1. Name of the system.
2. System's objectives, tasks, and outputs (Description of what the system does and/or how it does it).
3. Unit in charge of deploying the system (or responsible unit).
4. Architecture of the system and techniques and methods used to build the system.
5. Information on the status of the system and its building process (e.g., conceptual prototype, piloting, production, discontinued, completed)?
6. Data sources.
7. Whether the system was developed in-house or with external developers.[18]

[16] In Colombia's case, the Datos Abiertos repository also presents some "warming advertisements" when clicking to display more information about the systems as of April 2024. If this situation is not resolved soon, this repository may also end up as "unavailable."

[17] In contrast, our review did not find examples for 11 elements proposed by Gutiérrez and Castellanos (2023): Metrics of the system's objectives; Information on public procurement procedures required for building, acquiring or operation the system (when applicable); How often the database is updated and who is responsible for updating it; Information about the system's pre-feasibility studies and/or risk and impact assessments; Information on data quality (e.g., accuracy, quantity, representativeness, timeliness, and limitations); Information about the positive or negative effects generated by the system generated and/or about who has benefitted and/or who has been harmed; information on who can access the system's data: whether the beneficiaries or recipients of the system are informed about the use of the system and/or whether they receive information explaining how the system influenced the process or decision; whether officials revoke or annul a decision made based or made with the system; processes for building or acquiring the system; and level of achievement of the system's objectives.

[18] We found that 23 repositories disclose whether the system was developed internally or by external developers. Notably, 16 are in the US: 14 from federal entities and two from subnational entities. However, only nine repositories

8. Contact information of the unit and/or public official in charge of system's deployment.
9. Whether personal data was used.
10. Information about the source code.

Third, some trends can be detected when examining information disclosure by country. On the one hand, in the US, twelve repositories record information on whether the responsible unit has access to the system's code and/or monitors and/or audits its performance. On the other hand, repositories in the Netherlands tend to publish information on the justification for the adoption of the system, whether the systems use personal data, risk management practices, human oversight mechanisms and/or at what stage(s) are humans involved in the deployment and use of the system, what processes are supported by the system, and whether the systems have been identified as potentially entailing discrimination or unequal treatment. Another noteworthy feature of repositories in the Netherlands is that they usually include space for adding the legal basis justifying the development of the algorithm.[19]

Finally, only two repositories include information on how the registered systems could contribute to the public policy cycle: *Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory)* (European Union) and *Sistemas de decisión automatizada en el sector público colombiano (Colombia)*. Moreover, only two repositories measure the level of transparency of the systems: *Tracking Automated Government (TAG) Register* (UK) and *Tracking Automated Government (TAG) Register Canada* (Canada).

3.4. Findings regarding the auxiliary instruments of the repositories

In addition to a table or a user-friendly interactive interface, repositories of public algorithms can contain auxiliary instruments. These instruments can provide users with additional information and resources to better understand and utilize the repository. For instance, repositories with user-friendly interfaces may include additional tabs with detailed information about the organization or team that created the repository,[20] its purpose,[21] and the inspiration behind its creation.[22] They may also provide information on the governing standards for publishing information,[23] the types of information included,[24] the repository's update history,[25]

identify the name of the external developer involved, and of these nine, only two cases are from the US (subnational ones).

[19] The Algorithm Register of the Dutch government (Netherlands), Algoritmeregister (Netherlands), Algoritmeregister gemeente Groningen (Netherlands), City of Amsterdam Algorithm Register (Netherlands), Algoritmeregister (Gemeente Rotterdam) (Netherlands), and Algoritmeregister (Zuid-Holland) (Netherlands).

[20] The Algorithm Register of the Dutch government, Tracking Automated Government (TAG) Register Canada, Repositorio de algoritmos públicos, Observatorio Algorítmico, The OASI Register, New Zealand Algorithm Hub, Tracking Automated Government (TAG) Register.

[21] Algoritmeregister RDW, City of Amsterdam Algorithm Register, Artificial intelligence systems of Helsinki, Algoritmeregister (Rotterdam), Tracking Automated Government (TAG) Register Canada, Repositorio de algoritmos públicos, Algorithmic Tips, The OASI Register, New Zealand Algorithm Hub, Tracking Automated Government (TAG) Register.

[22] Tracking Automated Government (TAG) Register Canada.

[23] Artificial Intelligence Use Case Inventory (DHS).

[24] City of Amsterdam Algorithm Register, Artificial intelligence systems of Helsinki, Artificial Intelligence and Algorithms of Ontario

[25] Artificial Intelligence and Algorithms of Ontario.

definitions or glossaries,[26] system classification criteria or methodologies,[27] how to use the register,[28] a FAQ section,[29] contact channels for obtaining further information,[30] and methods for contributing additional information to the repository.[31]

It is worth noting that these ancillary instruments are not exclusive to repositories with interactive interfaces. For example, in the case of US federal government agency repositories, unless they are Excel, .csv, or .pdf files, it is always noted that the information in these inventories is compiled within the framework of Section 5(e) of Executive Order (EO) 13960. Additionally, some repositories, even though their interface is very simple, may also contain documents with variable descriptions or codebooks (in the case of databases). Such is the case of New York City's *Algorithmic Tools* repository, which has a file called *"Algorithmic Tools Compliance Report Data Dictionary"*. Similarly, the repository of *Inventaire des algorithmes utilisés par la Ville d'Antibes* (Ville d'Antibes, France) has a file called *"Précisions sur les intitulés de colonnes de l'inventaire"* and the repository *Sistemas de decisión automatizada en el sector público colombiano* in Colombia has a file called "*Libro de códigos SDA en el estado Colombiano".*

In some cases, repository designers also provide a space for feedback on the usefulness of the information displayed about each algorithm.[32] This space can range from a "box" where you can leave a written comment to some that, in addition to the text "box," use emojis or even more complex forms. In the latter case, the Chilean *Repositorio de algoritmos públicos* stands out, whose Google form, *"Feedback for the Public Algorithm Repository 2024*" allows users to submit feedback directed to one of the following three categories or even allows them to comment on all three categories: Feedback on Algorithm Categories, Feedback on Algorithm "Card Fields", and Website Feedback.

In addition to the previously discussed ancillary instruments, we highlight three novel approaches that are not widely used. First is social media utilization. The *GobLab* at the Universidad Adolfo Ibáñez, which created the Chilean repository (*Repositorio de algoritmos públicos*), also uses its social media channels to publish information about specific algorithms.

[26] The Algorithm Register of the Dutch government, Algoritmeregister van het NFI, Algoritmeregister, Algoritmeregister CJIB, Algorithms SVB, Algoritmeregister kadaster, Algoritmeregister, City of Amsterdam Algorithm Register, Artificial intelligence systems of Helsinki, Algoritmeregister (Zuid-Holland), Tracking Automated Government (TAG) Register Canada, Observatorio Algorítmico, The OASI Register, Tracking Automated Government (TAG) Register.

[27] Repositorio de algoritmos públicos, The OASI Register.

[28] Consultation des Algorithmes publics de Nantes Métropole, Algorithmic Tips, The OASI Register, New Zealand Algorithm Hub, Tracking Automated Government (TAG) Register.

[29] The Algorithm Register of the Dutch government.

[30] The Algorithm Register of the Dutch government, Algoritmeregister, Algoritmeregister CJIB, Algoritmeregister UWV, Algoritmeregister, Artificial Intelligence Use Case Inventory (DHS), City of Amsterdam Algorithm Register, Artificial intelligence systems of Helsinki, Consultation des Algorithmes publics de Nantes Métropole, Algoritmeregister (Zuid-Holland), Tracking Automated Government (TAG) Register Canada, Repositorio de algoritmos públicos, Observatorio Algorítmico, The OASI Register, New Zealand Algorithm Hub.

[31] The Algorithm Register of the Dutch government, City of Amsterdam Algorithm Register, Artificial intelligence systems of Helsinki, Repositorio de algoritmos públicos, Observatorio Algorítmico, The OASI Register, New Zealand Algorithm Hub.

[32] On the one hand, in the case of the City of Amsterdam Algorithm Register they have after each of the records a small form so that the users of the web page can comment on the usefulness of the information received. On the other hand, in the case of the repository of the city of Helsinky, there are three emoji options, and it is also possible to give an opinion on whether the information presented was relevant (but there is no space for written comments). Meanwhile, in the Algoritmeregister CJIB and in the Algoritmeregister UWV of the Netherlands you can also give your opinion about how useful the information was with emojis or with a written comment.

This approach leverages social media's reach and engagement potential to disseminate information beyond the confines of the repository itself.

Second, personalized algorithm alerts. The *Algorithmic Tips* repository in the US offers the option to create periodic "alerts" for specific algorithms or jurisdictions that use them. Users can register to receive email notifications when new information about these selected algorithms or jurisdictions becomes available. Additionally, users can "flag" information for easy retrieval within the repository.

Third, interactive algorithm testing. The *New Zealand Algorithm Hub*, focused on algorithms in the healthcare sector, is the only one we found that offers a “try-out” option for 29 of the 34 algorithms. Without registration, users can input data such as gender, age, weight, specific medical conditions, and other relevant information to generate results based on the algorithm. The data requested varies depending on the algorithm, ranging from six questions to as many as 55.

These innovative ancillary instruments demonstrate the potential for repositories to go beyond simply providing static information. By incorporating social media, personalized alerts, and interactive testing capabilities, repositories can enhance user engagement, promote transparency, and facilitate a deeper understanding of the algorithms they contain.

4. Conclusions and future avenues of research

Three main findings can be derived from this state-of-the-art report on algorithmic transparency instruments. First, repositories of public algorithms are designed and published in various formats, ranging from simple .pdf documents with tables to Excel or CSV files and interactive platforms. The New York City repository (*Algorithmic Tools*) even allows the creation of visualizations with the data. While these diverse formats cater to different needs, the design of the repositories should aim at catering to a range of users such as: i) citizens seeking information about algorithms used in their city or country, a user-friendly platform with clear explanations and visualizations is essential; (ii) civil society organizations that work on government transparency or digital rights; (iii) private companies that produce or market AI solutions for the public sector; iv) researchers, which may prefer Excel or .csv files to compare data on different algorithms easily; and v) for programmers and data scientists, which may prefer GitHub or similar platforms that provide convenient access to system codes when publicly available.

Second, most repositories only provide limited information about the existence and use of AI systems deployed by governments. Very few repositories contribute to what the literature has termed “meaningful transparency”, meaning that most repositories do not disclose pertinent and sufficient information to evaluate AI systems. Additionally, AI systems are under-registered because most repositories only report about a handful of systems. Different reasons may explain this finding: the incapacity or reluctance of governments to evaluate their instruments (which is an issue that is not limited to AI systems), IP rights and confidentiality agreements that may restrict the type of information that is disclosed, and cybersecurity concerns that prevent governments from releasing certain information.

Furthermore, the active repositories of public algorithms mapped in this report are localized in three continents (America, Europe, and Oceania). At the same time, we have not found such instruments in Africa and Asia. Out of the 29 international partners of GPAI[33], we found at least one active repository only in eight (28%) of these international partners (Argentina, Canada, France, Netherlands, New Zealand, United Kingdom, United States, and European Union).

Third, while some authors such as Floridi (2020) recognize and celebrate the potential of repositories to promote transparency and even as a tool that can be replicated (which the growing number of algorithms seems to confirm), other authors are somewhat more critical of the benefits attributed to them. Cath and Jansen have summarized their critique of this perspective as "the dangers of romanticizing the register as a governance solution and normalizing the use of AI in cities" (2022). They argue that on the one hand, "a lack of contextualization can lead to hastily lauding these voluntary databases for functions that do not address the most pressing problems arising out of urban use of AI systems", and on the other hand, "At the same time, surface-level engagement with these proposed solutions can inflate the utility of voluntary localized databases for the governance of technology" (Cath & Jansen, 2022).

Something similar is argued by Gutiérrez and Muñoz-Cadena (forthcominga) when analyzing proactive algorithmic transparency in Colombia, where they note that in this case "the Colombian state appears to favor a "performative transparency" practice where information about ADM systems is used to portray an image of efficiency and innovation, but such data is not sufficient to inform citizens when and ADM system is used to take or support a decision, nor does it allow key stakeholders to assess the performance of such systems".

Repositories of public algorithms may increase the availability of publicly held data about ADM systems adopted by the public sector. Additionally, repositories can contribute to other key AI ethics principles, such as the explainability of AI systems and government accountability (Gutiérrez & Castellanos-Sánchez, 2023). Moreover, Tangi et al. (2024, p. 222) contend that "algorithm registries have emerged as promising approaches to increase transparency and trust in AI-based solutions in the public sector and beyond." Still, the literature has not sufficiently explored the actual contributions of the repositories.

While the interest in repositories of public algorithms as a transparency instrument is growing, proactive disclosure in practice faces various challenges. First, while the Internet has an important role "in making large-scale proactive disclosure possible" (Darbishire, 2010, p. 23), the gap between those with and without access to the Internet and digital technologies can create a barrier to accessing proactively disclosed information. This is particularly concerning in countries with significant digital divides.

Furthermore, in addition to ensuring access to information, it is equally essential to ensure that the information disclosed is clear, concise, and understandable to most of the population. Along with making information accessible to the population, it is also necessary to consider

[33] Argentina, Australia, Belgium, Brazil, Canada, Czech Republic, Denmark, France, Germany, India, Ireland, Israel, Italy, Japan, Mexico, Netherlands, New Zealand, Poland, Republic of Korea, Senegal, Serbia, Singapore, Slovenia, Spain, Sweden, Turkey, United Kingdom, United States, United States and European Union.

that in multilingual societies, proactively disclosed information should be available in different languages (Darbishire, 2010).

Proactive disclosure is not a one-time event; it requires ongoing commitment and effort from public entities. Information must be updated regularly to reflect the changes in data. Keeping information current can be a big challenge and may entail significant costs. Amidst the difficulties of proactive disclosure, one element that can significantly contribute to overall transparency, as highlighted by Darbishire (2010), is the implementation of central online portals. These portals can serve as a single "window" through which the public can access relevant information. However, it is essential to ensure that people are aware of the existence of these information channels. Without knowledge of their availability, individuals may struggle to utilize resources they are unaware of.

While recent studies suggest “that different methods of algorithmic transparency can reduce potential biases, make bureaucratic processes more efficient, and increase the public’s trust in government decisions that rely on ADM” (OGP, 2022, p. 81), there is still space for exploring the potential contributions of the repositories of public algorithms to algorithmic transparency and more generally to the right of access to information. In the same vein, Tangi et al. (2024, p. 222) argue that “[f]urther research should focus on the potential of algorithm repositories, their strengths and weaknesses, to develop recommendations for their application across the EU.” Experts could research whether and how these instruments contribute to the government’s transparency regarding their use of ADM systems.

Nevertheless, building upon the benefits already outlined for proactive disclosure and considering that repositories are an instrument of this type of transparency, we can find that they could, on one hand, “improve a public authority’s internal information flows, and thereby contributes to in- creased efficiency”, and, on the other hand, they could eventually “reduce the burden on public administration of having to process requests for information that may be filed under an access to information law” (Darbishire, 2010, p. 3). It is important to note that little research has been conducted on the effect of repositories on citizens' trust.

However, a study by Grimmelikhuijsen (2022) has shown that explainable algorithms positively impact citizens' trust in those algorithms, based on two experiments conducted. Since repositories provide a way to obtain at least some information about the algorithms, they could also increase trust. Nonetheless, there is still a gap in the existing literature on this subject.

As previously mentioned, the literature provides little information about the public value created by algorithmic transparency instruments. This document aims to take a first step toward future studies that address this gap by identifying the instruments currently in use, those that could be implemented, and the repositories of public algorithms and related instruments available today (for example, the ancillary instruments).

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Annex A: Glossary of terms

Accessibility: "Public availability of source code, model and/or data." (Grimmelikhuijsen, 2022, p. 3)

Algorithmic transparency: "the ability of actors internal or external to the development of an algorithm to obtain information, monitor, test, critique, or evaluate the logic, procedures, and performance of an algorithmic system in order to foster trust and increase accountability of the developers or controllers of the system" (Valderrama et al., 2023, p. 8).

Algorithmic transparency instruments: Mechanisms that "provide information about algorithmic systems to the general public (e.g. affected persons, media or civil society) so that individuals or groups can learn that these systems are in use, and demand answers and justifications related to such use" (Ada Lovelace Institute et al., 2021, p. 18).

Artificial intelligence systems: are understood as computational systems that can "process data and information in a way that resembles intelligent behaviour, and typically includes aspects of reasoning, learning, perception, prediction, planning or control." (UNESCO, 2022)

Automated decision-making systems: "any systems, software, or processes that use computation to aid or replace government decisions, judgments, and policy implementation that impact opportunities, access, liberties, rights, and safety. Automated Decision Systems can involve predicting, classifying, optimizing, identifying, and/or recommending." (Richardson, 2022, p. 795)

Explainability: "The outcomes of an algorithm can be explained in a way a human can understand how or why an algorithmic decision was reached." (Grimmelikhuijsen, 2022, p. 3)

Meaningful algorithmic transparency: this is achieved "if (1) governments generate appropriate records about their objectives for algorithmic processes and subsequent implementation and validation; (2) government contractors reveal to the public agency sufficient information about how they developed the algorithm; and (3) public agencies and courts treat trade secrecy claims as the limited exception to public disclosure that the law requires." (Brauneis & Goodman, 2018, p. 104)

Proactive transparency: "refers to the routine disclosure of information by the government that is "made available to external actors without them first having to explicitly request it" (Porumbescu et al., 2022, p. 11).

Reactive transparency: occurs when "individual members of the public file requests for and receive information" (Darbishire, 2010, p. 3).

Repositories or registers of public algorithms: "Registers are consolidated directories providing information about algorithmic systems used by public agencies in different jurisdictions" (Ada Lovelace Institute et al., 2021, p. 19)

Annex B: Existing repositories of public algorithms worldwide

Repositories published by supranational and national public bodies

Table 4: Repositories created by supranational and national public bodies.

City / Country / region	Name and hyperlink	Organization	Number of Systems	Number of variables	Type of repository*		
					1	2	3
Supranational repositories							
European Union	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory)	European Commission, Joint Research Centre (JRC)	686	46			
European Union	The Innovative Public Services Explorer (IPS-X)	European Commission, Joint Research Centre (JRC)	686	18			
National repositories							
Colombia	Tablero de seguimiento marco ético	Departamento Administrativo de la Presidencia de la República	Unavailable since 2023.	-			
Colombia	Datos Abiertos	Ministerio de Tecnologías de la Información y Comunicaciones	16	14			
Colombia	Ejercicios de Innovación Basados en Inteligencia Artificial	Ministerio de Tecnologías de la Información y Comunicaciones	4	7			
France	Publication des algorithmes et des codes sources	Direction Interministérielle du Numérique (Prime Minister service)	14	5			
Netherlands	Het Algoritmeregister van de Nederlandse overheid // The Algorithm Register of the Dutch government	Ministerie van Binnenlandse Zaken en Koninkrijksrelaties	347	29			
Netherlands	Algoritmeregister van het NFI	Nederlands Forensisch Instituut (NFI)	2	10			

Netherlands	Algoritmeregister	De Justitiële Informatiedienst (Justid)	2	9			✓
Netherlands	Algoritmeregister CJIB	Centraal Justitieel Incassobureau (CJIB)	1	10			✓
Netherlands	Algoritmeregister UWV	The Employee Insurance Agency (Uitvoeringsinstituut Werknemersverzekeringen, UWV)	9	8			✓
Netherlands	Algoritmes SVB // Algorithms SVB	The Dutch Social Insurance Bank (Sociale Verzekeringsbank, SVB)	6	8			✓
Netherlands	Algoritmeregister RDW	The Netherlands Vehicle Authority or RDW	5	9			✓
Netherlands	Algoritmeregister kadaster	The Netherlands' Cadastre, Land Registry and Mapping Agency (kadaster)	5	6			✓
Netherlands	Algoritmeregister	Belastingdienst (Tax and Customs Administration)	3	12			✓
United Kingdom	Algorithmic Transparency Records	Cabinet Office, Central Digital and Data Office, and Department for Science, Innovation and Technology	7	37		✓	
United States	AI Use Case Inventory	AI.GOV	710	10	CSV		
United States	Inventory of USDA Artificial Intelligence Use Cases	U.S. Department of Agriculture (USDA)	39	18	CSV		
United States	Department of Commerce - Artificial Intelligence (AI) Use Case Inventory - 2022	Department of Commerce	49	5	PDF		
United States	Inventory of Department of Education AI Use-Cases	U.S. Department of Education	12	3		✓	
United States	Unnamed (Department of Energy)	Department of energy	183	14	PDF		
United States	Artificial Intelligence Use Cases Inventory (DHHS)	Department of Health and Human Services	163	12	CSV		
United States	Artificial Intelligence Use Case Inventory (DHS)	Department of Homeland Security	58	17	X		✓

United States	AI Inventory (HUD)	Department of Housing and Urban Development	Unavailable	-			
United States	Agency Inventory of AI Use Cases for doi govdata	Department of the Interior	38	18			
United States	Unnamed (DOJ)	Department of Justice	4	23			
United States	Unnamed (DOJ) 2	Department of Justice	15	23			
United States	Artificial Intelligence Use Case Inventory (Department of Labor)	Department of Labor	18	5			
United States	AI Inventory (Department of State)	Department of State	28	3			
United States	Department of Transportation Inventory of Artificial Intelligence Use Cases	Department of Transportation	30	20			
United States	Artificial Intelligence (AI) Use Cases (Department of the Treasury)	U.S. Department of the Treasury	14	3			
United States	VA AI Inventory	Department of Veterans Affairs (VA)	129	2			
United States	AI Inventory EXIM	Export-Import Bank of the United States (EXIM)	No systems recorded	-			
United States	AI Inventory (NASA)	National Aeronautics and Space Administration (NASA)	33	15			
United States	Inventory of NARA Artificial Intelligence (AI) Use Cases	National Archives and Records Administration (NARA)	11	23			
United States	Artificial Intelligence	National Institute of Standards and Technology (NIST)	No systems recorded	-			
United States	Artificial Intelligence (AI) Use Case Inventory (NSF)	National Science Foundation (NSF)	4	7			
United States	Artificial Intelligence (AI) use cases Inventory (NTSB)	National Transportation Safety Board (NTSB)	No systems recorded	-			
United States	Inventory of Artificial Intelligence (AI) Use Cases (Peace Corps)	Peace Corps	No systems recorded	-			

United States	AI inventory (SBA)	Small Business Administration (SBA)	No systems recorded	-			
United States	SSA AI	Social Security Administration (SSA)	14	3	CSV		
United States	Inventory of Artificial Intelligence (AI) Use Cases (USAID)	U.S. Agency for International Development (USAID)	14	20			
United States	EPA Artificial Intelligence Inventory	U.S. Environmental Protection Agency (EPA)	3	2		✓	
United States	AI Inventory (GSA)	U.S. General Services Administration (GSA)	12	18	CSV	✓	
United States	OPM Artificial Intelligence Inventory	U.S. Office of Personnel Management (OPM)	4	19			
United States	Artificial Intelligence (AI) Use Case Inventory (GPO)	U.S. Government Publishing Office (GPO)	9	4		✓	
United States	Artificial Intelligence Use Case Inventory (FHFA)	Federal Housing Finance Agency	3	12	CSV		
United States	Inventory of Artificial Intelligence (AI) Use Cases	U.S. Nuclear Regulatory Commission	No systems recorded	-			
United States	AI Inventory (DFC)	U.S. International Development Finance Corporation	4	3		✓	
United States	Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives)	Office of the Clerk, U.S. House of Representatives	1	19	PDF		
Uruguay	Proyectos de aplicación de Inteligencia Artificial	Agencia de Gobierno Electrónico y Sociedad de la Información y el Conocimiento	In construction	-			

Source: Adapted and modified from Gutiérrez (2024), Gutiérrez and Muñoz-Cadena (2023), and Nieuwenhuizen (2024).
*Type of repository 1 = PDF or CSV, Type of repository 2 = Simple web platform, 3 = User-friendly platform

Repositories published by subnational public bodies

Table 5: Repositories created by subnational public bodies.

City / Country / region	Name and hyperlink	Organization	Number of Systems	Number of variables	Type of repository*		
					1	2	3
Amsterdam (The Netherlands)	City of Amsterdam Algorithm Register	Gemeente Amsterdam	4	10			✓
Barcelona (Spain)	Algorithm Register	Ayuntamiento de Barcelona (Eurocities)	In construction	-			
Brussels (Belgium)	Algorithm Register	(Eurocities)	In construction	-			
Eindhoven (The Netherlands)	Algoritmeregister	Gemeente Eindhoven	In construction	-			
Groningen (The Netherlands)	Algoritmeregister gemeente Groningen	Gemeente Groningen	8	19	X PDF		
Helsinky (Finland)	Artificial intelligence systems of Helsinki	City of Helsinki	8	9			✓
Mannheim (Germany)	Algorithm Register	(Eurocities)	In construction	-			
Nantes (France)	Consultation des Algorithmes publics de Nantes Métropole	Nantes Métropole et de la Ville de Nantes	2	8			✓
New York (United States)	Algorithmic Tools	Office of Technology and Innovation (OTI)	76	18	CSV	✓	
Ontario (Canada)	Artificial Intelligence and Algorithms of Ontario	Government of Ontario	8	14			✓
Rotterdam (The Netherlands)	Algoritmeregister (Gemeente Rotterdam)	Gemeente Rotterdam	15	11			✓
San Jose (United States)	AI REVIEWS & INVENTORY	City of San Jose – Capital of Silicon Valley	8	22			✓

Sofia (Bulgaria)	Algorithm Register	(Eurocities)	In construction	-			
Utrecht (The Netherlands)	Algoritmeregister Utrecht	Gemeente Utrecht	4	6			
Ville d'Antibes (France)	Inventaire des algorithmes utilisés par la Ville d'Antibes[34]	Ville d'Antibes	8	19			
Ville d'Antibes (France)	Algorithmes mis en œuvre par la Ville d'Antibes	Ville d'Antibes / DataSud	11	19			
Zuid-Holland (Netherlands)	Algoritmeregister (Zuid-Holland)	Provincie Zuid-Holland	8	11			

Source: Adapted and modified from Gutiérrez (2024), Gutiérrez and Muñoz-Cadena (2023), and Nieuwenhuizen (2024).
*Type of repository 1 = PDF or CSV, Type of repository 2 = Simple web platform, 3 = User-friendly platform

Repositories published by universities

Table 6: Repositories created by universities.

City / Country / region	Name and hyperlink	Organization	Number of Systems	Number of variables	Type of repository*		
					1	2	3
Canada	Tracking Automated Government (TAG) Register Canada	Starling Centre at Western Universit	303	25			
Chile	Repositorio de algoritmos públicos	Universidad Adolfo Ibañez	101	19			
Colombia	Sistemas de decisión automatizada en el sector público colombiano	Universidad del Rosario	113	40			
Mexico	Registro de algoritmos	Centro de Investigación y Docencia Económicas (CIDE)	In construction	-			

[34] While this repository appears to be a more updated version of the previous listing repository and contains the same number of variables, we decided to include both inventories because they are both active, are located on different websites, and in the case of the second, were sponsored by another entity.

United States	Algorithmic Tips	Computational Journalism Lab at Northwestern University.	903	10			✓

Source: Adapted and modified from Gutiérrez (2024) and Gutiérrez and Muñoz-Cadena (2023).
*Type of repository 1 = PDF or CSV, Type of repository 2 = Simple web platform, 3 = User-friendly platform

Repositories published by civil society organizations and private organizations

Table 7: Repositories created by civil society or private organizations.

City / Country / region	Name and hyperlink	Organization	Type of organization	Number of Systems	Number of variables	Type of repository*		
						1	2	3
Argentina	Observatorio Algorítmico	Algorithmic Avengers	Think Thank	10	20	PDF		✓
Global	The OASI Register	Eticas Foundation	Civil society organization	96	16	CSV	✓	
Latin-American	Repositorio de algoritmos	BID FairLAC	Private	Unavailable	-			
New Zealand	New Zealand Algorithm Hub	Orion Health Group	Private	33	6			✓
United Kingdom	Tracking Automated Government (TAG) Register	Public Law Project	Civil society organization	55	12	CSV	✓	
United States	Agency Inventory AI Usage	Anna Blue	Private	338	9	X		

Source: Adapted and modified from Gutiérrez (2024) and Gutiérrez and Muñoz-Cadena (2023).
*Type of repository 1 = PDF or CSV, Type of repository 2 = Simple web platform, 3 = User-friendly platform

Annex C – Type of information published by the repositories (organized per stage of the AI system's life cycle)

As section one of this document mentions, algorithmic transparency is not a binary variable of 0 and 1; there are gradations of transparency. The following table shows how algorithmic transparency goes beyond releasing the source code or just informing about the algorithm. As depicted in Table 8, repositories could publish different types of information about ADM systems used in the public sector and the processes supported or informed using these systems. The information can range from the name of the systems and the public body that implements it, information on the type of data that was used to train the systems, the techniques that were used, which organization developed the system, whether a private organization was involved in the development of the tool, to information about algorithmic audits and evaluations.

Table 8: Type of information that could be disclosed in repositories of public algorithms.

Stage of the system's life cycle	Type of information	Examples
I. Planning and design	1. Policy problem to be addressed by the system.	Datos Abiertos (Colombia) [in at least one case there is a "description of the necessity"] Ejercicios de Innovación Basados en Inteligencia Artificial (Colombia) [Description in one or two lines of the problema] Algorithmic Transparency Records (UK)
	2. System's objectives. [Only includes repositories in which system's objectives are expressly disclosed].	Datos Abiertos (Colombia) Ejercicios de Innovación Basados en Inteligencia Artificial (Colombia) The Algorithm Register of the Dutch government (Netherlands) Algoritmeregister (Netherlands) AI REVIEWS & INVENTORY (USA) Inventaire des algorithmes utilisés par la Ville d'Antibes (France) Algorithmes mis en œuvre par la Ville d'Antibes (France) Algoritmeregister (Zuid-Holland) (Netherlands) Tracking Automated Government (TAG) Register Canada (Canada) Repositorio de algoritmos públicos (Chile) Sistemas de decisión automatizada en el sector público colombiano (Colombia)

		Algoritmeregister (Gemeente Rotterdam) (Netherlands)
	3. Metrics of the system's objectives.	*Examples not found.*
	4. Justification for the adoption of the system, and/or assessment of the pros and cons of the system's deployment and/or justification on why the system is needed.	The Algorithm Register of the Dutch government (Netherlands) Algorithmic Transparency Records (UK) Algoritmeregister van het NFI (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands) Algoritmeregister UWV (Netherlands) Algoritmeregister (Netherlands) Algoritmeregister (Gemeente Rotterdam) (Netherlands) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	5. Information about the system's pre-feasibility studies and/or risk and impact assessments.	*Examples not found.*
	6. Target population or intended beneficiaries.	Datos Abiertos (Colombia) [in some cases] Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	7. Processes for building or acquiring the system.	*Examples not found.*
	8. Sources that financed the development or acquisition of the system.	Repositorio de algoritmos públicos (Chile) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	9. Cost of building or acquiring the system.	Repositorio de algoritmos públicos (Chile) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	10. Unit of the public body that led the building process.	Datos Abiertos (Colombia) Algorithmic Transparency Records (UK) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	11. Information about the organization and/or team that built the system.	Datos Abiertos (Colombia) [in some cases] New Zealand Algorithm Hub (New Zealand)
II. Data collection and processing	1. Data sources.	Datos Abiertos (Colombia) Publication des algorithmes et des codes sources (France) The Algorithm Register of the Dutch government (Netherlands) [in some cases] Algoritmeregister UWV (Netherlands) Algorithms SVB (Netherlands) Algoritmeregister (Netherlands) Algorithmic Transparency Records (UK)

		Inventory of USDA Artificial Intelligence Use Cases (USA) Unnamed (Department of Energy) (USA) Artificial Intelligence Use Case Inventory (DHS) (USA) Agency Inventory of AI Use Cases for doi govdata (USA) Unnamed (DOJ) (USA) Unnamed (DOJ) 2 (USA) Department of Transportation Inventory of Artificial Intelligence Use Cases (USA) AI Inventory (NASA) (USA) Inventory of NARA Artificial Intelligence (AI) Use Cases (USA) Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA) AI Inventory (GSA) (USA) OPM Artificial Intelligence Inventory (USA) Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA) City of Amsterdam Algorithm Register (Netherlands) Algoritmeregister gemeente Groningen (Netherlands). Artificial intelligence systems of Helsinki (Finland) Consultation des Algorithmes publics de Nantes Métropole (France) Algorithmic Tools (USA) AI REVIEWS & INVENTORY (USA) Inventaire des algorithmes utilisés par la Ville d'Antibes (France) Algorithmes mis en œuvre par la Ville d'Antibes (France) Algoritmeregister (Zuid-Holland) (Netherlands) Sistemas de decisión automatizada en el sector público colombiano (Colombia) Observatorio Algorítmico (Argentina)
	2. Types or categories of data used to train, pilot or test, and deploy the system.	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory) (European Union) Datos Abiertos (Colombia) [in some cases] Algorithmic Tools (USA) AI REVIEWS & INVENTORY (USA) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	3. Whether personal data was used.	The Algorithm Register of the Dutch government (Netherlands) Algoritmeregister van het NFI (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands) Algoritmeregister UWV (Netherlands) Algoritmeregister RDW (Netherlands) Algoritmeregister (Netherlands)

		Algorithmic Transparency Records (UK) City of Amsterdam Algorithm Register (Netherlands) Algoritmeregister gemeente Groningen (Netherlands). Algoritmeregister (Gemeente Rotterdam) (Netherlands) Algorithmic Tools (USA) Inventaire des algorithmes utilisés par la Ville d'Antibes (France) Algorithmes mis en œuvre par la Ville d'Antibes (France) Repositorio de algoritmos públicos (Chile) Sistemas de decisión automatizada en el sector público colombiano (Colombia) Observatorio Algorítmico (Argentina)
	4. Justification on how data protection laws were complied with.	City of Amsterdam Algorithm Register (Netherlands)
	5. Publication of Dataset Nutrition Labels or analogous means for disclosing basic information about the system.	AI REVIEWS & INVENTORY (USA)
	6. Information on data quality (e.g., accuracy, quantity, representativeness, timeliness, and limitations)?	*Examples not found.*
	7. How often the database is updated and who is responsible for updating it.	*Examples not found.*
	8. Glossaries with definitions of terms and variables included in the repository.	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory) (European Union) Algorithmic Tools (USA) Tracking Automated Government (TAG) Register Canada (Canada) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
III. Model building and validation	1. Information on the status of the system and its building process (e.g., conceptual prototype, piloting, production, discontinued, completed)?	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory) (European Union) The Innovative Public Services Explorer (IPS-X) (European Union) The Algorithm Register of the Dutch government (Netherlands) Algorithmic Transparency Records (UK) AI Use Case Inventory (USA) Inventory of USDA Artificial Intelligence Use Cases (USA) Unnamed (Department of Energy) (USA) Artificial Intelligence Use Cases Inventory (DHHS) (USA) Artificial Intelligence Use Case Inventory (DHS) (USA) Agency Inventory of AI Use Cases for doi govdata (USA) Unnamed (DOJ) (USA)

		Unnamed (DOJ) 2 (USA) Artificial Intelligence Use Case Inventory (Department of Labor) (USA) Department of Transportation Inventory of Artificial Intelligence Use Cases (USA) Artificial Intelligence (AI) Use Cases (Department of the Treasury) (USA) AI Inventory (NASA) (USA) Inventory of NARA Artificial Intelligence (AI) Use Cases (USA) Artificial Intelligence (AI) Use Case Inventory (NSF) (USA) Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA) AI Inventory (GSA) (USA) OPM Artificial Intelligence Inventory (USA) Artificial Intelligence (AI) Use Case Inventory (GPO) (USA) Artificial Intelligence Use Case Inventory (FHFA) (USA) Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA) Algoritmeregister gemeente Groningen (Netherlands) Algoritmeregister (Gemeente Rotterdam) (Netherlands) Algoritmeregister (Zuid-Holland) (Netherlands) Repositorio de algoritmos públicos (Chile) Sistemas de decisión automatizada en el sector público colombiano (Colombia) The OASI Register (global) Tracking Automated Government (TAG) Register (UK) Agency Inventory AI Usage (USA)
	2. Whether diverse techniques and methods were considered to build the system. Justification for the techniques or methods that were prioritized.	Algorithmic Transparency Records (UK)
	3. Information about the source code.	Datos Abiertos (Colombia) [in some cases] Publication des algorithmes et des codes sources (France) [in some cases] AI Use Case Inventory (USA) (in a few cases) Inventory of USDA Artificial Intelligence Use Cases (USA) (in a few cases) Artificial Intelligence Use Case Inventory (DHS) (USA) [The option is included, but the code has not been released for any of the systems] Agency Inventory of AI Use Cases for doi govdata (USA) (in a few cases) Unnamed (DOJ) (USA) (in a few cases) Department of Transportation Inventory of Artificial Intelligence Use Cases (USA) AI Inventory (NASA) (USA) [in some cases] Inventory of NARA Artificial Intelligence (AI) Use Cases (USA) [in at least one case] Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA)

		AI Inventory (GSA) (USA) [in some cases] OPM Artificial Intelligence Inventory (USA) Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA) [The option is included, but the code has not been released for any of the systems] City of Amsterdam Algorithm Register (Netherlands) [in some cases] Consultation des Algorithmes publics de Nantes Métropole (France)
	4. Architecture of the system and techniques and methods used to build the system.	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory) (European Union) The Innovative Public Services Explorer (IPS-X) (European Union) AI Use Case Inventory (USA) Inventory of USDA Artificial Intelligence Use Cases (USA) Unnamed (Department of Energy) (USA) Artificial Intelligence Use Case Inventory (DHS) (USA) Agency Inventory of AI Use Cases for doi govdata (USA) Unnamed (DOJ) (USA) Unnamed (DOJ) 2 (USA) Artificial Intelligence Use Case Inventory (Department of Labor) (USA) Department of Transportation Inventory of Artificial Intelligence Use Cases (USA) AI Inventory (NASA) (USA) Inventory of NARA Artificial Intelligence (AI) Use Cases (USA) Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA) AI Inventory (GSA) (USA) OPM Artificial Intelligence Inventory (USA) Artificial Intelligence (AI) Use Case Inventory (GPO) (USA) Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA) City of Amsterdam Algorithm Register (Netherlands) Algoritmeregister gemeente Groningen (Netherlands) Artificial intelligence systems of Helsinki (Finland) Algorithmic Tools (USA) Artificial Intelligence and Algorithms of Ontario (Canada) Algoritmeregister (Gemeente Rotterdam) (Netherlands) AI REVIEWS & INVENTORY (USA) Inventaire des algorithmes utilisés par la Ville d'Antibes (France) Algorithmes mis en œuvre par la Ville d'Antibes (France) Algoritmeregister (Zuid-Holland) (Netherlands) Tracking Automated Government (TAG) Register Canada (Canada)

		Sistemas de decisión automatizada en el sector público colombiano (Colombia) New Zealand Algorithm Hub (New Zealand) Tracking Automated Government (TAG) Register (UK) Agency Inventory AI Usage (USA)
	5. Information on variables, heuristics, limitations, and assumptions of the model.	Algoritmeregister gemeente Groningen (Netherlands) (Information about limitations) Sistemas de decisión automatizada en el sector público colombiano (Colombia) New Zealand Algorithm Hub (New Zealand)
	6. In the case Machine Learning systems, information on how the system was trained and the data used for training.	Datos Abiertos (Colombia) [in some cases] Publication des algorithmes et des codes sources (France) [in some cases] Artificial intelligence systems of Helsinki (Finland) Algorithmic Tools (USA) AI REVIEWS & INVENTORY (USA) Algoritmeregister (Zuid-Holland) (Netherlands) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	7. Whether the system was developed in-house or with external developers.	The Algorithm Register of the Dutch government (Netherlands) Algorithmic Transparency Records (UK) Inventory of USDA Artificial Intelligence Use Cases (USA) Unnamed (Department of Energy) (USA) Artificial Intelligence Use Cases Inventory (DHHS) (USA) Artificial Intelligence Use Case Inventory (DHS) (USA) Agency Inventory of AI Use Cases for doi govdata (USA) Unnamed (DOJ) (USA) Unnamed (DOJ) 2 (USA) Department of Transportation Inventory of Artificial Intelligence Use Cases (USA) Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA) AI Inventory (GSA) (USA) OPM Artificial Intelligence Inventory (USA) Artificial Intelligence Use Case Inventory (FHFA) (USA) Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA) Algoritmeregister gemeente Groningen (Netherlands) Artificial intelligence systems of Helsinki (Finland) Algorithmic Tools (USA) Algoritmeregister (Gemeente Rotterdam) (Netherlands) AI REVIEWS & INVENTORY (USA) Tracking Automated Government (TAG) Register Canada (Canada) Sistemas de decisión automatizada en el sector público colombiano (Colombia) Agency Inventory AI Usage (USA)

	8. Identification of external developers (when applicable).	The Algorithm Register of the Dutch government (Netherlands) Algorithmic Transparency Records (UK) Algoritmeregister gemeente Groningen (Netherlands) Artificial intelligence systems of Helsinki (Finland) Algorithmic Tools (USA) Algoritmeregister (Gemeente Rotterdam) (Netherlands) AI REVIEWS & INVENTORY (USA) Tracking Automated Government (TAG) Register Canada (Canada) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	9. Information on public procurement procedures required for building, acquiring or operation the system (when applicable).	*Examples not found.*
	10. Hardware required to deploy and operate the system.	Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	11. Use of cloud services.	Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	12. Who can access and/or use the system.	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory) (European Union) The Innovative Public Services Explorer (IPS-X) (European Union) The Algorithm Register of the Dutch government (Netherlands) Algorithmic Transparency Records (UK) City of Amsterdam Algorithm Register (Netherlands) Artificial intelligence systems of Helsinki (Finland) Consultation des Algorithmes publics de Nantes Métropole (France) Artificial Intelligence and Algorithms of Ontario (Canada) Algoritmeregister (Gemeente Rotterdam) (Netherlands) Sistemas de decisión automatizada en el sector público colombiano (Colombia) New Zealand Algorithm Hub (New Zealand)
	13. Metrics defined to measure the performance of the model.	Algorithmic Transparency Records (UK)
	14. Information on whether the deployment of the systems could entail discrimination or unequal treatment. Mechanisms adopted to prevent discriminating vulnerable population.	Algoritmeregister UWV (Netherlands) Algoritmeregister RDW (Netherlands) Algoritmeregister (Netherlands) City of Amsterdam Algorithm Register (Netherlands) Artificial intelligence systems of Helsinki (Finland) AI REVIEWS & INVENTORY (USA) Tracking Automated Government (TAG) Register Canada (Canada) Tracking Automated Government (TAG) Register (UK)

IV. Deployment and monitoring	1. Name of the system.	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory) (European Union) The Innovative Public Services Explorer (IPS-X) (European Union) Datos Abiertos (Colombia) Ejercicios de Innovación Basados en Inteligencia Artificial (Colombia) Publication des algorithmes et des codes sources (France) The Algorithm Register of the Dutch government (Netherlands) Algoritmeregister van het NFI (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands) Algoritmeregister UWV (Netherlands) Algorithms SVB (Netherlands) Algoritmeregister RDW (Netherlands) Algoritmeregister kadaster (Netherlands) Algoritmeregister (Netherlands) Algorithmic Transparency Records (UK) AI Use Case Inventory (USA) Inventory of USDA Artificial Intelligence Use Cases (USA) Department of Commerce - Artificial Intelligence (AI) Use Case Inventory - 2022 (USA) Inventory of Department of Education AI Use-Cases (USA) Unnamed (Department of Energy) (USA) Artificial Intelligence Use Cases Inventory (DHHS) (USA) Artificial Intelligence Use Case Inventory (DHS) (USA) Agency Inventory of AI Use Cases for doi govdata (USA) Unnamed (DOJ) (USA) Unnamed (DOJ) 2 (USA) Artificial Intelligence Use Case Inventory (Department of Labor) (USA) AI Inventory (Department of State) (USA) Department of Transportation Inventory of Artificial Intelligence Use Cases (USA) Artificial Intelligence (AI) Use Cases (Department of the Treasury) (USA) VA AI Inventory (USA) AI Inventory (NASA) (USA) Inventory of NARA Artificial Intelligence (AI) Use Cases (USA) Artificial Intelligence (AI) Use Case Inventory (NSF) (USA) SSA AI (USA) Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA) EPA Artificial Intelligence Inventory (USA)

		AI Inventory (GSA) (USA) OPM Artificial Intelligence Inventory (USA) Artificial Intelligence (AI) Use Case Inventory (GPO) (USA) Artificial Intelligence Use Case Inventory (FHFA) (USA) AI Inventory (DFC) (USA) Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA) City of Amsterdam Algorithm Register (Netherlands) Algoritmeregister gemeente Groningen (Netherlands) Artificial intelligence systems of Helsinki (Finland) Consultation des Algorithmes publics de Nantes Métropole (France) Algorithmic Tools (USA) Artificial Intelligence and Algorithms of Ontario (Canada) Algoritmeregister (Gemeente Rotterdam) (Netherlands) AI REVIEWS & INVENTORY (USA) Algoritmeregister Utrecht (Netherlands) Inventaire des algorithmes utilisés par la Ville d'Antibes (France) Algorithmes mis en œuvre par la Ville d'Antibes (France) Algoritmeregister (Zuid-Holland) (Netherlands) Tracking Automated Government (TAG) Register Canada (Canada) Repositorio de algoritmos públicos (Chile) Sistemas de decisión automatizada en el sector público colombiano (Colombia) Algorithmic Tips (USA) Observatorio Algorítmico (Argentina) The OASI Register (global) New Zealand Algorithm Hub (New Zealand) Tracking Automated Government (TAG) Register (UK) Agency Inventory AI Usage (USA)
	2. System's objectives, tasks, and outputs (Description of what the system does and/or how it does it).	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory) (European Union) The Innovative Public Services Explorer (IPS-X) (European Union) Datos Abiertos (Colombia) Ejercicios de Innovación Basados en Inteligencia Artificial (Colombia) The Algorithm Register of the Dutch government (Netherlands) Algoritmeregister van het NFI (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands) Algoritmeregister UWV (Netherlands)

		Algorithms SVB (Netherlands) Algoritmeregister RDW (Netherlands) Algoritmeregister kadaster (Netherlands) Algoritmeregister (Netherlands) Algorithmic Transparency Records (UK) AI Use Case Inventory (USA) Inventory of USDA Artificial Intelligence Use Cases (USA) Department of Commerce - Artificial Intelligence (AI) Use Case Inventory - 2022 (USA) Inventory of Department of Education AI Use-Cases (USA) Unnamed (Department of Energy) (USA) Artificial Intelligence Use Cases Inventory (DHHS) (USA) Artificial Intelligence Use Case Inventory (DHS) (USA) Agency Inventory of AI Use Cases for doi govdata (USA) Unnamed (DOJ) (USA) Unnamed (DOJ) 2 (USA) Artificial Intelligence Use Case Inventory (Department of Labor) (USA) AI Inventory (Department of State) (USA) Department of Transportation Inventory of Artificial Intelligence Use Cases (USA) Artificial Intelligence (AI) Use Cases (Department of the Treasury) (USA) VA AI Inventory (USA) AI Inventory (NASA) (USA) Inventory of NARA Artificial Intelligence (AI) Use Cases (USA) Artificial Intelligence (AI) Use Case Inventory (NSF) (USA) SSA AI (USA) Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA) EPA Artificial Intelligence Inventory (USA) AI Inventory (GSA) (USA) OPM Artificial Intelligence Inventory (USA) Artificial Intelligence (AI) Use Case Inventory (GPO) (USA) Artificial Intelligence Use Case Inventory (FHFA) (USA) AI Inventory (DFC) (USA) Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA) City of Amsterdam Algorithm Register (Netherlands) Algoritmeregister gemeente Groningen (Netherlands) Artificial intelligence systems of Helsinki (Finland) Consultation des Algorithmes publics de Nantes Métropole (France)

		Algorithmic Tools (USA) Artificial Intelligence and Algorithms of Ontario (Canada) Algoritmeregister (Gemeente Rotterdam) (Netherlands) AI REVIEWS & INVENTORY (USA) Algoritmeregister Utrecht (Netherlands) Inventaire des algorithmes utilisés par la Ville d'Antibes (France) Algorithmes mis en œuvre par la Ville d'Antibes (France) Algoritmeregister (Zuid-Holland) (Netherlands) Tracking Automated Government (TAG) Register Canada (Canada) Repositorio de algoritmos públicos (Chile) Sistemas de decisión automatizada en el sector público colombiano (Colombia) Algorithmic Tips (USA) Observatorio Algorítmico (Argentina) The OASI Register (global) New Zealand Algorithm Hub (New Zealand) Tracking Automated Government (TAG) Register (UK) Agency Inventory AI Usage (USA)
	3. Processes that are supported by the system or decisions that are informed or made with the system.	Algoritmeregister van het NFI (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands) Algoritmeregister UWV (Netherlands) Algorithmic Tools (USA) Artificial Intelligence and Algorithms of Ontario (Canada) Algoritmeregister Utrecht (Netherlands) Inventaire des algorithmes utilisés par la Ville d'Antibes (France) Algorithmes mis en œuvre par la Ville d'Antibes (France) Algoritmeregister (Zuid-Holland) (Netherlands) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	4. Unit in charge of deploying the system (or responsible unit).	Selected AI cases in the public sector (AI-WATCH: EU Artificial Intelligence Observatory) (European Union) The Innovative Public Services Explorer (IPS-X) (European Union) Datos Abiertos (Colombia) Ejercicios de Innovación Basados en Inteligencia Artificial (Colombia) Publication des algorithmes et des codes sources (France) The Algorithm Register of the Dutch government (Netherlands) Algoritmeregister van het NFI (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands)

		Algoritmeregister UWV (Netherlands) Algorithms SVB (Netherlands) Algoritmeregister RDW (Netherlands) Algoritmeregister (Netherlands) Algorithmic Transparency Records (UK) AI Use Case Inventory (USA) Inventory of USDA Artificial Intelligence Use Cases (USA) Department of Commerce - Artificial Intelligence (AI) Use Case Inventory - 2022 (USA) Inventory of Department of Education AI Use-Cases (USA) Unnamed (Department of Energy) (USA) Artificial Intelligence Use Cases Inventory (DHHS) (USA) Artificial Intelligence Use Case Inventory (DHS) (USA) Agency Inventory of AI Use Cases for doi govdata (USA) Unnamed (DOJ) (USA) Unnamed (DOJ) 2 (USA) AI Inventory (Department of State) (USA) Department of Transportation Inventory of Artificial Intelligence Use Cases (USA) AI Inventory (NASA) (USA) Inventory of NARA Artificial Intelligence (AI) Use Cases (USA) Artificial Intelligence (AI) Use Case Inventory (NSF) (USA) SSA AI (USA) Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA) OPM Artificial Intelligence Inventory (USA) Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA) City of Amsterdam Algorithm Register (Netherlands) Artificial intelligence systems of Helsinki (Finland) Algorithmic Tools (USA) Artificial Intelligence and Algorithms of Ontario (Canada) Inventaire des algorithmes utilisés par la Ville d'Antibes (France) Algorithmes mis en œuvre par la Ville d'Antibes (France) Algoritmeregister (Zuid-Holland) (Netherlands) Tracking Automated Government (TAG) Register Canada (Canada) Repositorio de algoritmos públicos (Chile) Sistemas de decisión automatizada en el sector público colombiano (Colombia) Algorithmic Tips (USA) Observatorio Algorítmico (Argentina)

		The OASI Register (global) Tracking Automated Government (TAG) Register (UK)
	5. Description of human oversight mechanisms and/or at what stage(s) are humans involved in the deployment and use of the system.	The Algorithm Register of the Dutch government (Netherlands) Algoritmeregister van het NFI (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands) Algoritmeregister UWV (Netherlands) Algoritmeregister RDW (Netherlands) City of Amsterdam Algorithm Register (Netherlands) Algoritmeregister gemeente Groningen (Netherlands) Artificial intelligence systems of Helsinki (Finland) Algoritmeregister (Gemeente Rotterdam) (Netherlands) Algoritmeregister (Zuid-Holland) (Netherlands)
	6. How often the system is used.	Inventaire des algorithmes utilisés par la Ville d'Antibes (France) [The "number of administrative decisions taken using the algorithm" is published in this repository.]
	7. Types of system users.	Datos Abiertos (Colombia) [in some cases] AI REVIEWS & INVENTORY (USA) Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	8. Types of beneficiaries or recipients of the system.	Datos Abiertos (Colombia) [in some cases] Ejercicios de Innovación Basados en Inteligencia Artificial (Colombia) Artificial intelligence systems of Helsinki (Finland) Algorithmic Tools (USA) Artificial Intelligence and Algorithms of Ontario (Canada) Sistemas de decisión automatizada en el sector público colombiano (Colombia) Observatorio Algorítmico (Argentina) New Zealand Algorithm Hub (New Zealand)
	9. Whether the beneficiaries or recipients of the system are informed about the use of the system and/or whether they receive information explaining how the system influenced the process or decision.	*Examples not found.*
	10. Precision of system.	AI REVIEWS & INVENTORY (USA) [at least in one case]
	11. Risk management practices.	The Algorithm Register of the Dutch government (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands) Algoritmeregister UWV (Netherlands)

		Algorithms SVB (Netherlands) Algoritmeregister RDW (Netherlands) Algorithmic Transparency Records (UK) City of Amsterdam Algorithm Register (Netherlands) Algoritmeregister gemeente Groningen (Netherlands) Artificial intelligence systems of Helsinki (Finland) Algoritmeregister (Zuid-Holland) (Netherlands) Observatorio Algorítmico (Argentina)
	12. Information on the procedures for challenging or reviewing decisions taken based on or with the system.	Algoritmeregister (Gemeente Rotterdam) (Netherlands)
	13. Contact information of the unit and/or public official in charge of system's deployment.	Datos Abiertos (Colombia) [in some cases] Algoritmeregister van het NFI (Netherlands) Algoritmeregister Justid (Netherlands) Algoritmeregister CJIB (Netherlands) Algoritmeregister RDW (Netherlands) Algoritmeregister (Netherlands) Algorithmic Transparency Records (UK) Department of Commerce - Artificial Intelligence (AI) Use Case Inventory - 2022 (USA) Unnamed (Department of Energy) (USA) Artificial Intelligence Use Cases Inventory (DHHS) (USA) Unnamed (DOJ) (USA) Unnamed (DOJ) 2 (USA) Inventory of NARA Artificial Intelligence (AI) Use Cases (USA) Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA) OPM Artificial Intelligence Inventory (USA) Artificial Intelligence Use Case Inventory (FHFA) (USA) City of Amsterdam Algorithm Register (Netherlands) Artificial intelligence systems of Helsinki (Finland) Artificial Intelligence and Algorithms of Ontario (Canada) Algoritmeregister (Gemeente Rotterdam) (Netherlands)
	14. Information on who can access the system's data.	*Examples not found.*
	15. Does the responsible unit have access to the system's code and/or whether the unit	Inventory of USDA Artificial Intelligence Use Cases (USA) Artificial Intelligence Use Case Inventory (DHS) (USA). Agency Inventory of AI Use Cases for doi govdata (USA).

	monitors and/or audits the system's performance.	Unnamed (DOJ) (USA). Unnamed (DOJ) 2 (USA). Department of Transportation Inventory of Artificial Intelligence Use Cases (USA). AI Inventory (NASA) (USA). Inventory of NARA Artificial Intelligence (AI) Use Cases (USA). Inventory of Artificial Intelligence (AI) Use Cases (USAID) (USA). AI Inventory (GSA) (USA). OPM Artificial Intelligence Inventory (USA). Artificial Intelligence Use Case Inventory (Office of the Clerk, U.S. House of Representatives) (USA).
	16. Whether officials revoke or annul a decision made based or made with the system.	*Examples not found.*
V. Accountability	1. Whether there is a unit or group accountable for the system.	Sistemas de decisión automatizada en el sector público colombiano (Colombia)
	2. Whether internal or independent algorithmic audits have been performed and/or what were their findings.	Algorithmic Transparency Records (UK) Sistemas de decisión automatizada en el sector público colombiano (Colombia) The OASI Register (global)
	3. Whether impact assessments with a human rights approach have been conducted and/or what were their findings.	Tracking Automated Government (TAG) Register Canada (Canada) [DPIA, Equality Impact Assessment (EIA), or other evaluation report] AI REVIEWS & INVENTORY (USA)
	4. Whether Data Protection Impact Assessments (DPIA) and/or Privacy Impact Assessments (PIA) have been performed and/or what were their findings.	Algorithmic Transparency Records (UK) Algoritmeregister gemeente Groningen (Netherlands) Algoritmeregister Utrecht (Netherlands) Algoritmeregister (Zuid-Holland) (Netherlands) Tracking Automated Government (TAG) Register Canada (Canada)
	5. Whether Ethics Impact Assessments (EIA) have been conducted and/or what were their findings.	Algoritmeregister Utrecht (Netherlands)
	6. Information about the evaluation of the system's performance.	Artificial intelligence systems of Helsinki (Finland) City of Amsterdam Algorithm Register (Netherlands) AI REVIEWS & INVENTORY (USA) Tracking Automated Government (TAG) Register Canada (Canada) [Algorithmic Impact Assessment] Sistemas de decisión automatizada en el sector público colombiano (Colombia) Observatorio Algorítmico (Argentina)

	7. Level of achievement of the system's objectives.	*Examples not found.*
	8. Information about the positive or negative effects generated by the system generated and/or about who has benefitted and/or who has been harmed.	*Examples not found.*

Source: Adapted and modified from Gutiérrez and Castellanos-Sánchez (2023) and Gutiérrez and Muñoz-Cadena (forthcomingb).