empatia

Estrategia Brasileña de Inteligencia Artificial:

comentarios sobre la Resolución 4.617/2021 del Ministerio de Ciencia, Tecnología e Innovación (MCTI)

empatia.la

Written by: Eduardo Magrani

Collaboration: Walter Gaspar

Coordination and comments: Maia Levy Daniel

Edition: Carlos David

Design and layout: Apex Studio

This project aims to solve public problems in the region Latin America and the Caribbean (LAC by its acronym in English) within the framework of the global project Artificial Intelligence for Development (AI4D) of the International Research Center for Development (IDRC by its acronym in English). The project is directed by ILDA and Centro Latam Digital.

Brazil

Brazilian Artificial Intelligence Strategy: comments on it

Resolution 4,617/2021 of the Ministry of Science, Technology and Innovation (MCTI)

Executive Summary

After carrying out a public consultation carried out between 2019 and 2020, the Brazilian Ministry of Science, Technology and Innovation published Resolution nº 4,617/2021, which instituted the Brazilian Artificial Intelligence Strategy - EBIA, which enumerated strategic actions, divided into new thematic areas. Despite being welcome to insert Brazil into the IA geopolitical scenario, EBIA presents problems in its configuration, mainly due to the abstraction of listed actions. Furthermore, gaps have been identified that compromise the implementation of this public policy guiding instrument. This work will analyze these problems, based on a comparison with other national experiences, which demonstrate the hypothesis of generality and lack of concretion of the EBIA.

Introduction

The transformations announced by Artificial Intelligence systems have expanded debates on the topic in Brazil in recent years, including in the productive sector, the scientific community or civil society. Numerous contributions try to outline principles, guarantees, rights and duties linked to the use of this technology, as well as formulating policies for its development.

More recently, the federal government has committed itself to building strategic actions for the digital transformation of the country, especially considering the aforementioned interests of the government in joining the Organization for Economic Cooperation and Development (OECD).
In 2017, the Presidency of the Republic determined, based on a recommendation from the Economic and Social Development Council (CDES), the elaboration of a long-term strategy proposal for the country's digital economy, whose debate on transformation and development would directly involve Artificial Intelligence systems. Then

Ministry of Science, Technology, Innovations and Communications (MCTIC) was responsible for developing studies and public consultations with this objective.

The first of these studies was “Internet of Things: an action plan for Brazil”, published together with the Banco de Desarrollo Económico y Social (BNDES), in 2017. This study presented a diagnosis about the Internet of Things in Brazil, and was used as a basis for the development of the National Internet of Things Plan[1]. Despite not dealing directly with Artificial Intelligence, the plan serves as a guide for some actions and policies relevant to AI in the country.

The MCTIC also operates in the development of the Brazilian Strategy for Digital Transformation - E-Digital, published in 2018, after carrying out seminars and workshops during the formulation process, in addition to a Public Consultation on the base document. In addition, strategic actions were proposed for transformations in the economy and society provided by the digital environment.

Artificial Intelligence begins to acquire more centrality in government proposals from the elaboration of it*Recommendation of the Council on Artificial Intelligence*, published by the OCDE in 2019. Pleading for entry into the organization, Brazil became a signatory, along with 41 other countries, of the “OECD Principles on Artificial Intelligence”. The document presents guidelines to guarantee international standards for AI systems, in addition to serving as a guide for governments, organizations and other actors in the design and implementation of AI systems, ensuring the centrality of the human person in this architecture.

Seeking to align with the OECD guidelines, the MCTIC launched, in 2019, a Public Consultation to define the National Artificial Intelligence Strategy. According to the presentation of the document, the “objective of the strategy is to solve concrete problems of the country, identifying priority areas in the development and use of technologies related to AI, where there is a greater potential to obtain benefits”.

Based on this public consultation, Brazil officially published, on April 6, 2021, the Brazilian Artificial Intelligence Strategy (EBIA), through Resolution nº 4,617 of the current Ministry of Science, Technology and Innovation (MCTI) of the federal government, which will be analyzed in this work.

1 Presidential Decree nº 9854/2019.

EBIA: critical analysis of the Resolution

Carrying out a critical analysis of the text published by the MCTI is not easy for the same reasons that the document deserves criticism: its too generic character, its poorly specified and undeveloped actions, in addition to the lack of concrete objectives, plans and planning.

Everyone trusts the aforementioned document with the appearance of a letter of intentions, leaving the reader with the arduous task of guessing what is what the Brazilian State proposes to achieve based on these aspirations and, therefore, be able to effectively analyze the intended actions.

Therefore, it is worth highlighting, initially, the negative reception that the EBIA received in the specialized field. Some important figures in the field of Law and Technology reacted to the EBIA, highlighting precisely its insufficiency in dealing with the complex challenge of promoting and regulating AI in the country. Ronaldo Lemos[2], one of the first to address the issue shortly after the publication of the strategy, stated that it is "difficult to list all the problems in the document. Firstly, there is no goal, assumption, organization or implementation plan. The document is a compilation of common places and quotes from data searched on the internet".

In a similar way, other analysts noted that "there is a lack of materiality and a more detailed action plan so that the strategy leaves the paper and turns into results for the benefit of society"[3]and that

> When studying the document in greater detail, it becomes clear that, in addition to good intentions, many things are missing. It is ready to be a strategic guide for public authorities, for organizations, for society, for professionals and citizens. There is no clear strategy proposal, there is no set of structural actions that allow a successful path towards the model of leading nations in the adoption of artificial intelligence in the world. Y eso is worrying.[4]

---

2 LEMOS, Ronaldo. Brazilian AI strategy is pathetic. Folha de S. Paulo, 11/04/2021. Available at: https://www1.folha.uol.com.br/colunas/ronaldolemos/2021/04/estrategia-de-ia-brasileira-e-patetica.shtml . Consulted: 05/28/2021.

3 XAVIER, FC The Brazilian Strategy for Artificial Intelligence. MIT Tech Review Brazil, 04/23/2021. Available at: https://mittechreview.com.br/a-estrategia-brasileira-de-inteligencia-artificial/ . Consulted: 05/28/2021.

4 REY, Alexadre Del. The Brazilian Artificial Intelligence Strategy. noomis CIAB Frebraban, 04/19/2021. Available at: https://noomis.febraban.org.br/especialista/alexandre-del-rey/a-estrategia-brasileira-de-inteligencia-artificial . Consulted: 05/28/2021.

About the interaction of the strategy with other public policy instruments, write Francisco Saboya, president of SEBRAE of Pernambuco[5] and the National Association of Entities Promoting Innovative Enterprises:

> The EBIA chose a different path to another MCTIC initiative, in association with the BNDES, which is the National Internet Plan of the Cosas (2018). The latter clearly defines what to do (the priority areas: cities, health, industry, agriculture) and how to do it (the enabling areas: human capital, innovation and international insertion, connectivity infrastructure and regulatory themes, digital security and privacy). The comparison between both studies is inevitable, mainly due to the contrast in terms of clarity and objectivity, mainly due to the conceptual gap and vision as public policy. This is one of the most vulnerable points, since, despite mentioning the IoT Plan, the EBIA definitely does not dialogue with that and wastes a great potential for synergy between government actions in the area of science, technology and innovation. The same occurs in relation to another recent initiative of MCTIC itself, which is the Brazilian Digital Transformation Strategy (2018).[6]

This is not intended to resort to authority, an inappropriate argumentative form, but only to highlight scathing criticisms that highlight problems that need to be investigated. To go beyond mere perception, we seek in this analytical effort some objective anclajes to conceive an evaluation of the usefulness of the strategy. Some of these annexes are internal to the EBIA development process itself; others are external, serving as a standard for comparison with other models.

Among the internal analytical anclajes, we mention in the first place the content of contributions provided by society – academia, industry and third sector – throughout the public consultation process. A careful reading of these contributions reveals concrete lines of action that could have been included in the EBIA, which can be seen as specific actions, or as alternatives to consider in the construction processes of future public policies. Consequently, we obtained evidence that the content of the public consultation could have been used in a better way.

A second point of support for the analysis undertaken here was the interviews carried out to carry out the first phase of this investigation. There, especially in the interview with personnel from the Ministry of Science, Technology and Innovations, we saw a preview of the potential of EBIA, which ended up not being realized. The comparison between

5 Brazilian Support Service for Micro and Small Companies.

6 SABOYA, F. Is there really a Brazilian artificial intelligence strategy? Canal MyNews, 04/13/2021. Available at: https://canalmynews.com.br/francisco-saboya/existe-médio-uma-estrategia-brasileira-de-inteligencia-artificial/ . Consulted: 05/28/2021.

Those technical speeches and the final content of the strategy allow us to verify the gap between one and the other, as well as the gaps that fell into the EBIA.

Regarding external instruments, the best, external analytical framework for the EBIA development process was resorted to other instruments of strategy and formulation of public policies in Brazil and around the world.

The use of domestic documents allows a direct comparison between what was done on one occasion and another, allowing us to identify points where one has been more complete and precise than the other.

The international instruments, on the other hand – which will be used in a much more punctual and solo way to reinforce a specific aspect of the architecture of government provide a very clear example of what could be incorporated or carried out in the EBIA, given that Brazil reaches the field of strategic thinking regarding AI at a time when several other countries have come developing policies and concrete actions, reaping its fruits and serving good practices.

A last important methodological note refers to the focus given to the strategic actions proposed in EBIA. We start from the understanding that the introductory part of each thematic line of the EBIA, in which general data and current theories are shown, is no more than an introduction and contextualization of the thematic section. It is not, for example, a diagnosis, it is not the state of the art. The core of what is intended to be achieved in the strategic plan is – or should be – contained in the so-called “strategic actions”.

In other words, the EBIA is made up of an introduction and a list of strategic actions, which are the ones that represent what the public policy maker is defining as a concrete objective to be pursued.

Therefore, what we intend in this work is, in short, to glimpse the gaps left by the strategy, mainly: the open questions, the doubts and the indefinites.

We believe that this could be a useful effort to improve the strategy itself, from the moment the ministry begins to develop it and put it into practice, at the point where it is necessary to give answers to the questions raised in this report.

According to Resolution nº 4,617/2021, the EBIA aims to guide the actions of the Brazilian State in favor of strengthening research, development and innovation in Artificial Intelligence solutions. Asimismo, is intended to encourage its conscious and ethical use for a better future, ensuring innovation in the productive and social environment in the area of Artificial Intelligence, with the aim of facing the challenges associated with the development of the country.

The resolution that instituted the EBIA has explicit reference to the principles of the OECD, structuring, in its annex, new elements (three horizontals, six verticals) that will shape the structure of the strategy, namely:

- 3 horizontal ejes: i. legislation, regulation and ethical use; ii. governance of Artificial Intelligence; iii. international aspects;
- 6 vertical ejes: i. qualifications for a digital future; ii. strength of work and training; iii. investigation, development, innovation and entrepreneurship; iv. application in productive sectors; v. application in public authorities; saw. public security.

All projects, whether transversal or vertical, follow the same model: they present a brief contextualization of the theme of each project, accompanied by a list of strategic actions.

It is worth highlighting, as mentioned previously, that the opening text of each episode is not exactly a diagnosis or a deeper study of the theme, but rather a brief description of the theme which contains good practices and comments on the international and national scene. At the end of each of the introductory parts of the actions, strategic actions are enumerated, without developing the action plans linked to this enumeration.

Absence of governance structures

There are no governance mechanisms in the Brazilian Artificial Intelligence Strategy. The AI strategy does not specify basic governance structures, but, according to us, it was possible to ascertain through interviews with government officials, there was a minimally delineated institutional arrangement in this sense.

The interview with representatives[7]The MCTI revealed some important points to understand the EBIA development process, such as the path that the strategy took within the state bureaucracy and the way in which the proposed content was read in the base document for the public consultation.

7 Eliana Emediato and Karina Bressan Vidal, General Coordinator of Digital Transformation of the Ministry of Science, Technology and Innovations.

However, the governance structure that was being designed by ministerial technicians was not incorporated into the final text of the strategy. The creation of a governance committee, for example, did not materialize; also the process of following the implementation of the strategy and its general review over 4 (four) years, as reported in interviews.

Regarding governance structures, the resolution based on analysis alone establishes that the Ministry of Science, Technology and Innovation will "create governance instances and practices to prioritize, implement, monitor and update strategic actions established in the Brazilian Artificial Intelligence Strategy" (art. 2, I). It does not define what these instances and practices will be, leaving their materialization subject to the discretion of the ministry, so it is not possible to know what to expect, or the timeframe for such action.

The problem is aggravated by the points that will be addressed in the sequel. With poorly specific actions, without a work schedule or concrete indicators of task completion, the lack of well-defined governance structures is a structural failure.

Actions or intentions?

The EBIA resolution stipulates that the Ministry of Science, Technology and Innovation will be responsible for "coordinating and establishing actions that allow the implementation of the Brazilian Artificial Intelligence Strategy" (art. 2, II). However, in general, many of the actions listed are not presented in a sufficiently detailed way so that you can really glimpse their implementation. We will take, as an example, some actions of the Brazilian Strategy, since the problem is widespread and a detailed enumeration would be excessive.

Firstly, it is worth highlighting what is meant by objectives and actions. While the goals are linked to elements of an ideational and aspirational nature, the objectives are concretely determined results, and can be verified quantitatively or by some other reasonable means[8]. A very widespread perspective regarding the definition of objectives is that it must be "SMART", an acronym for *Specific, Measurable, Attainable, Relevant and Time-bound* (Specific, Measureable, Achievable, Relevant and Defined in Time). According to the definition found in a manual for Strategic Planning of the National School of Public Administration:

8 DORAN, George T. There's a SMART way to write management's goals and objectives. Management Review, no. 70 (11), 1981,pp.35–36.Availableen: https://community.mis.temple.edu/mis0855002fall2015/files/2015/10/SMART-Way-Management-Review.pdf . Consulted: 05/28/2021.

• *Specific*(specific): an objective should not be broad or generic to the point of leading to dubious interpretations or removing attention from the goal.

• Measurable: you cannot manage what you cannot measure, therefore both an objective and a goal must be able to be measured; • Achievable: an objective must be realistic, feasible, and can be achieved in view of available resources (human, material, financial, etc.) and the limitations inherent to public administration;

• Relevant: an objective must be related to a problem, demand or priority opportunity for the strategic agenda. It must also be in line with the established strategic objectives (sectoral and governmental).

• Timing: an objective must be programmable, it must have a closed limit for its achievement (target).[9]

Under this vision, the actions will be the specification of the objectives in their smaller components, determining what must be done to achieve a purpose and, in this way, defining the necessary resources, the temporal panorama in which they work, the people responsible for each stage, the dedicated assumption and a series of practical aspects extracted from the planning. However, what we see in EBIA is a set of aspirations, intentions, which are more similar to generic goals or broader objectives of the State.

For example, in the "Workforce and Capacity" project, the action to "stimulate the retention of talent specialized in ICT in Brazil" is proposed. While it is obviously an aspiration worthy of praise, it is difficult to characterize it as a properly said action. Who will be responsible for carrying out this action? Who are they?*stakeholders* relevant? What policies will be implemented, in what way and when?

If a strategy could leave spaces reserved for discretion or unpredictability, or define themes that may still be needed in the future, one would expect at least the indication of real and concrete paths. This is what will inform your successful measurement.

The definitions relating to the elements of strategic planning that are presented here may not coincide with the perspective adopted by the editors of the EBIA. However, we do not know how to know, as the strategy also adequately defines the methodological and conceptual elements on which it is based. Of

9 ENAP. Strategic management using BSC. Module 4: Strategic Planning Stages. 2014. Available at: https://repositorio.enap.gov.br/bitstream/1/1891/1/M%c3%b3dulo_4_GESTAO_BSC%281%29.pdf . Consulted: 05/28/2021.

Hecho, he does it quickly, without defining what he means by “objectives” and “actions” and, consequently, maintaining the doubt about what he really intends to achieve with the level of generality with which his actions are presented.

Comparison with other instruments

The problem becomes even clearer when we compare EBIA with other instruments. Recent experiences are good comparisons to analyze the entertainment and consolidation of the paths that Brazil is taking in the field of technology and innovation.

In this sense, the National IoT Plan[10]and E-Digital[11]They are important legal and political achievements that center us in a comparative effort with the EBIA. The National IoT Plan, for example, created in 2019 important mechanisms, such as the Management Chamber and Supervision of the Development of Machine-to-Machine Communication Systems and Internet of Things[12], highlighting which areas are priorities for the elaboration of an action plan for the development of IoT in Brazil. La E-Digital[13], in turn, also created similar governance instruments, such as the Interministerial Committee for Digital Transformation - CITDigital[14].

In the case of E-Digital, it is also important to return to the consideration of the methodology for developing the strategy and what is meant by “action”. When observing the introductory chapter of E-Digital, from a comparative perspective, one immediately perceives the robustness of the document, which is the culmination of a path that involved five specialized work subgroups, training and four meetings to discuss subtopics,

10 Created by Decree 9,854/2019.

11 Created by Decree 9,319/2018, modified by Decree 9,804/2019.

12 The IoT Chamber is an advisory body whose function is to supervise the implementation of the National Plan for Internet of Things, with powers to: monitor and evaluate the implementation initiatives of the National Plan for Internet of Things; promote and foster alliances between public and private entities to achieve the objectives of the National Internet of Things Plan; discuss with public bodies and entities the themes of the action plan; IV - support and propose mobilizing projects.

13 Which aims to give an answer to the following guiding questions: Where are we and where are the challenges? (which would be the Diagnosis); Where do we want to get to? (which would be the Vision); How will we get there? (which would be Strategy); monitoring the progress of strategic actions (which would be Indicators).

14 Corresponds to CITDigital: I - annually prepare its work plan, which will contain a schedule and establish the priority actions of E-Digital; II - work so that the programs, projects and initiatives of different public bodies and competent entities linked to digital issues are supported by evidence and are coherent with E-Digital; III - promote the exchange of information and analyze the impact of sectoral initiatives in the digital environment, with the objective of harmonizing and promoting efficiency and synergy between the actions of different organisms and entities; IV - monitor and periodically evaluate the results of E-Digital, based on predefined indicators and targets, and offer subsidies, when requested, to the articulation and follow-up activities of the government programs of the Presidency of the Republic; V - coordinate with similar organizations in other countries, states, the Federal District and municipalities; VI - issue the necessary recommendations for the exercise of its competence; VII - propose to the competent authorities the adoption of measures and the edition of normative acts necessary for the execution of strategic actions defined in E-Digital; VIII - decide on the update and periodic review of E-Digital; IX - give an opinion on any topic related to your skills; y X - prepare and approve its internal regulations.

a focused consultation with contributions from three scientific experts, workshops, sectoral meetings, seminars and a final public consultation with seven scientific contributions.

Specifically, it is important to point out that, during the preparation of the aforementioned document, participants were instructed to follow a conceptual model that will guide the result with tangible and measurable objectives:

> Following the conceptual model adopted for E-Digital, the participants of the GT, through their respective subgroups, and also the invited presenters were guided to adopt a common model for the organization of work results:
>
> • Diagnosis: where are we and what are the challenges; • Vision: where we want to go;
>
> • Strategy: how we will get there;
>
> • Indicators: to monitor the progress of strategic actions.[15]

Ultimately, analyzing the architecture of the aforementioned plan, which foresees the creation of a governance structure with defined responsibilities, capabilities and competencies, with annual work planning and forecast of periodic revisions of the base document, the low density of the EBIA is very clear.

A comparison between the respective strategic actions also makes the problem quite clear. The EBIA, along the thematic line of "Investigation, development, innovation and entrepreneurship", dictates the following action: "establishing connections and alliances between the public sector, the private sector and scientific institutions and universities in favor of advancing the development and use of AI in Brazil".

La E-Digital, in turn, in the "Research, development and innovation" project, describe it below:

> Stimulate interaction between universities, research institutions (TICs) and companies in R+D+i actions in digital technologies, through the use of development mechanisms (such as, for example, the Human Resources Training Program in Strategic Areas - RHAE), as well as stimulating

15 BRAZIL. E-Digital. 2018, pp. 11-12. Available at:https://www.gov.br/governodigital/pt-br/estrategia-de-governancadigital/eDigital.pdf . Consulted: 05/28/2021.

> strengthening business incubators, technology parks and other innovative environments.[16]

The actions can be considered close: both deal with the alignment between science and technology institutions, including universities, and the private sector. The second, however, brings a more concrete path to the implementation of it, although it is only in the form of suggestions.

From the action foreseen in E-Digital, it is possible to imagine specific development mechanisms –y, therefore, entities responsible for these mechanisms– or, at least, association formats between ICTs and the private sector (incubators and technology parks), which also provides a more specific notion of what is intended with the action.

Furthermore, the one mentioned in E-Digital has an extensive introduction and diagnosis, specifies priority areas for investment and establishes specific indicators for measuring results, namely:

> • In addition to the classical indicators of R+D+i to monitor the performance of the national economy as a whole (for example, level of investment in relation to GDP; level of sectoral investment in relation to the business group; level of technical training, etc.), it is important that the monitoring and evaluation of the actions of R+D+i of the Brazilian Digital Transformation Strategy is based on specific cases (companies), or determined sectors.
>
> • Furthermore, it is important that the indicators are supported by *benchmarks*consolidated international groups, particularly from nations that managed to stimulate the composition of the main*players*nationals in the ICT sector, for example Asian nations (Korea, China and Japan), Nordic countries (Finland and Sweden) and other countries with outstanding indicators, such as Israel.
>
> • As a reference, you can also use existing and consolidated international indicators as the*Global Innovation Index*, in which Brazil occupied the city 69 in 2016 and 2017.[17]

EBIA, on the other hand, quickly provides a reading of the Brazilian R+D+i scenario, but does not suggest concrete paths or solid indicators. This is a one-off comparison, but it indicates a recurring problem throughout EBIA, as mentioned previously.

16 p. 36

17 p. 36

By comparing it with international instruments of a similar nature, we can see even more shortcomings in EBIA. The Czech Republic's AI strategy[18], for example, establishes as a starting point a structure of priority areas and people or entities responsible for leading them[19]:

In addition to defining key development areas and establishing specific public administration bodies responsible for each line of action, the instrument also establishes short (up to 2021), medium (2027) and long-term (2035) objectives; defines specific tools to achieve objectives, including suggestions for creating specific programs and searching for specific financing options; and maps the entities involved in the execution of the strategy.

The direct comparison between different countries is too complex and we do not intend to carry out a complete effort of comparative analysis here. However, a superficial observation of two strategies, without incorporating considerations about the particular context of each one and focusing only on the objective components of what is called "strategy" in each case, allows us to identify elements that are absent in Brazilian strategy.

The previously mentioned points, present in the document created in Prague and non-existent in its Brazilian counterpart, are important elements to ensure transparency and responsibility demonstrated for the effective execution of what is planned. This is to say: to verify compliance with a plan, it is necessary to know who is responsible, which actors are involved, in addition to indicating what is the plan and what resources are needed.

Asymism, from a more panoramic point of view, the Brazilian strategy seems to lack a vision adapted to the national reality. By observing the Indian strategy for AI, for example, called # *AI for All*, we find ourselves repeatedly with the idea of making India the *"AI Garage for 40% of the world: solution provider of choice for the emerging and developing economies (ex-China) across the globe"*[20]. Even though it only represents a generic vision of the country's role in the global AI scenario, it allows us to imagine concrete paths and pragmatic decisions that should be taken. The Brazilian strategy does not present anything similar, limiting itself to enumerating objectives that could be considered basic for any AI strategy:

> Contribute to the development of ethical principles for the development and use of responsible AI. Promote sustained investment in research and

18 https://www.mpo.cz/assets/en/guidepost/for-the-media/press-releases/2019/5/NAIS_eng_web.pdf

19 https://www.mpo.cz/assets/en/guidepost/for-the-media/press-releases/2019/5/NAIS_eng_web.pdf , p. 14.

20 http://niti.gov.in/sites/default/files/2019-01/NationalStrategy-for-AI-Discussion-Paper.pdf , p. 18.

> AI development. Eliminate barriers to innovation in AI. Training and training professionals for the AI ecosystem. Stimulate innovation and the development of Brazilian AI in an international environment. Promote an environment of cooperation between public and private entities, industry and research centers for the development of Artificial Intelligence[21].

Once again, using other domestic planning instruments, it is worth mentioning the National Internet Plan for Things. Based on an extensive studio[22]of the Brazilian technological and industrial scene, four verticals have been identified capable of promoting greater local technological density and economic, social and environmental returns for the country: health, rural, smart cities and industry. Despite being mentioned sparingly in the EBIA, there are no similar objective definitions of strategic sectors in the new document. Even in the case of assuming that the different planning instruments work in a coordinated way, between E-Digital, National IoT Plan and EBIA, it is important that each one can have an independent reading, so that the underlying meaning of the outlined strategy can be seen.

The contributions of Public Consultation and EBIA

The EBIA public consultation process received around 1000 contributions from actors from academia, civil society, the private sector and the government. Navigating through these contributions, we have a clue as to what could be incorporated into EBIA, not as concrete action, at least as possible alternatives for the decision-making of future governance bodies. In continuation, we selected some contributions that demonstrate instances in which very pragmatic suggestions were made, but which are not reflected in EBIA, except in a very generic perspective.

For example, when dealing with "Legislation, regulation and ethical use", the strategic actions of the EBIA are limited to mentioning the implementation of the FAT matrix (*Fairness, Accountability and Transparency*[23]). or the obligation to design AI models oriented towards transparency and auditability. Returning to the contributions, we see some suggestions that indicate these actions:

21 https://www.gov.br/mcti/pt-br/acorte-o-mcti/transformacaodigital/arquivosinteligenciaartificial/ia_estrategia_doc_referencia.pdf/view , p. 7.

22https://www.gov.br/mcti/pt-br/acomprae-o-mcti/transformacaodigital/internet-das-coisas-estudo-repositorio

23https://www.fatml.org/resources/principles-for-accountable-algorithms

> (a) design: i. verifiability and replicability, ii. impact assessment, iii. environmental responsibility;
>
> (b) follow-up: i. evaluation and audit requirements, ii. creation of a supervisory body at national level and guided by the state of the art of academia and technique, iii. ability to recur, safeguarding the scalability of AI solutions;
>
> (c) correction: correction of automated decisions, ii. liability and legal responsibility, iii. recommendation for the adoption of new regulations [24].

And others that highlight important agendas, extracting practical questions that can develop into more concrete strategic actions: the creation of specific bodies for defining processes, the assignment of responsibilities, the suggestion of bodies capable of controlling and auditing, etc.:

> The evaluation of the impact of the algorithm focuses on decision making, mainly on the robustness, equity and explicability of the system. This corresponds to defining usage limits and a validity period in order to generate trust between interested parties, hold system creators responsible for the results of their programs and provide greater transparency, the possibility of reporting accounts and receiving audits. Robustness means that systems must be secure and protected against failures, intrusions or data damage to those that are stored. Equity, which systems use data and free training models, to avoid unfair treatment for certain groups. And explicability, that systems must provide decisions or suggestions that can be understood by their users and developers. It is possible that there are systems that, by design, are capable of satisfying these three demands (Koshiyama, 2019). For this, specifically in terms of explicability, the developer must be able to answer the following question: Can the decisions be evaluated and, therefore, can the result obtained by the AI system be understood? Is there a guarantee for an explanation of why the system makes a certain decision, producing a certain result that all users can understand? Has the AI system been designed with interpretability in mind from the beginning? There is

24 iFood Contribution http://participa.br/estrategia-brasileira-de-inteligencia-artificial/estrategia-brasileira-de-inteligencia-artificial-legislacaoregulacao-e-uso-etico

> investigated and attempted to use the simplest and most interpretable model possible for the application in questión? Has it been evaluated if you can examine the interpretability after training and developing the model, or if you have access to the internal work flow of the model?[25]

Looking, moreover, at the base document of the consultation, we see questions that remain unanswered. For example, the question “would it be necessary to establish safeguards for the use of AI in certain particularly sensitive fields [...]? If so, what are the safeguards and how can they be established?” does not provide a response or a path of responses, but only a reformulation in the final text of the EBIA: “Creating parameters on human intervention in AI contexts where the result of an automated decision implies a high risk of harm to the individual” (e.g. “Legislation, regulation and ethical use”). It is not known, at least it is suggested, what these safeguards would be, who would create them or control, in what period, etc.

On the topic of algorithmic guidance and non-discrimination, strategic actions frequently cite the need to establish practices or principles that avoid discriminatory treatment, attacking different types of intelligence. However, there's not much more to it than that. We highlight the continuation of a contribution that precisely highlights the need for more concrete definitions of EBIA:

> [I]t is not clear which equity criteria must be respected by controllers so that discrimination based on the automated processing of personal data is not abusive, nor is what information about the processing can be considered protected by commercial or industrial secret. If it is to be expected that these questions are eventually addressed by jurisprudence, it would be interesting that the parameters for the application of the LGPD in cases of automated processing of personal data were also provided by a national artificial intelligence strategy. Therefore, we recommend that an initiative of this type provides: (i) special criteria for the use of artificial intelligence in the treatment of sensitive data, due to its greater potential to give rise to situations of algorithmic discrimination; (ii) parameters to consider discrimination based on the automated processing of data as abusive; and (iii) criteria to consider if certain information on automated processing of personal data is not protected by commercial or industrial secret.
>
> [26]

[25] Contribution of Danielle M T Denny. http://participa.br/estrategia-brasileira-de-inteligencia-artificial/estrategia-brasileira-de-inteligencia-artificial-legislacaoregulacao-e-uso-etico

[26] Contribution of CEPI FGV-SP http://participa.br/estrategia-brasileira-de-inteligencia-artificial/estrategia-brasileira-de-inteligencia-artificial-legislacaoregulacao-e-uso-etico

The call by mayores definiciones remained unheard. This is very clear in one of the actions of the “IA Governance” eje of EBIA: “Encourage the use of representative data sets to train and test models”. It seems too timid to talk about “stimulating” the adoption of sets of representative data, as this is a recurrent criterion in doctrine and practice to mitigate algorithmic obstacles. According to the studio *Principled AI*:

> The “non-discrimination and the prevention of bias” principle articulates that bias in AI – in the training data, technical design choices, or the technology's deployment – should be mitigated to prevent discriminatory impacts. This principle was one of the most commonly included ones in our dataset225 and, along with others like “fairness” and “equality” frequently operates as a high-level objective for which other principles under this theme (such as “representative and high-quality data” and “inclusiveness in design”) function as implementation mechanisms [...] The use of a dataset that is not representative leads to skewed representation of a group in the dataset compared to the actual composition of the target population, introduces bias, and reduces the accuracy of the system's eventual decisions. It is important that the data be high quality and apposite to the context in which the AI system will be deployed, because a representative dataset may nonetheless be informed by historical bias.[27]

These are some cases in which the EBIA presented itself as a somewhat innovative reformulation of the themes addressed in the base document of the public consultation, even when substantial contributions on the subject were available. This does not necessarily mean that the strategy formulator has ignored the contributions, but there definitely seems to be a problem in translating the body of knowledge constructed into a coherent document.

Conclusion

EBIA does not have the pioneering character of other Brazilian strategies, such as the National IoT Plan and the Digital Transformation Strategy (E-Digital); including the General Data Protection Law (2018) and the Civil Internet Framework (2014)[28], of important legal standards to create a clear and up-to-date regulatory environment.

---

27 https://ssrn.com/abstract=3518482 , pp. 48-49. 28 Ley 13,709/2018 and Ley 12,965/2014, respectively.

There are several other AI strategies around the world that are clearly defined. The European Union, in fact, has just published its AI regulation proposal, based on a sophisticated risk management system. Brazil could have taken advantage of the international maturity stage to create a more robust plan. The result was much lower than expected, as demonstrated in this addendum to the Public Policy Report[29], since the strategy is too generic, ignoring many contributions made in the public consultation itself that preceded the resolution[30].

The Brazilian plan is opaque and diffuse. The content published by the resolution is too generic and lacks basic elements that justify the qualification of the "strategy" of the document, as has been demonstrated, such as the definition of governance mechanisms, goals and concrete action plans, success indicators, forecasting of schedules and periodic reviews, as well as the composition of governance bodies, among others.

The public policy established by Resolution nº 4.617/21 of the MCTI was intended to be a far cry. However, in our analysis, we missed a great opportunity to remove the theme from the penumbra, given its dispersion and abstraction. In its current form, the EBIA simply takes up questions raised during the public consultation process, providing a general summary of the most relevant considerations on the topic, but without actually demonstrating a pragmatic vision about the path that should be followed.

After all, what really is the Brazilian strategy? This question falls without an answer, as the EBIA fails in several aspects, as analyzed here, leaving Brazil unable to recover the delay in the late elaboration of a strategic plan.
It is interesting to revisit a value mentioned at the beginning of this study. Saboya, at the end of his critique of EBIA, proposes – we can assume ironically – a solution to the problem: "My suggestion: revoke the decree, rewrite it by reducing it to five

29 Before the publication of the EBIA, we prepared a Public Policy Report (RPP) called “Report on the Brazilian Artificial Intelligence Strategy”, which is based on a survey carried out between February and March 2021. The RPP was dedicated to analyzing the public consultation carried out by the federal government, between December 2019 and March 2020, for the construction of the Brazilian Artificial Intelligence Strategy (EBIA), which was only published later. While the report does not specifically address the resolution that institutionalized the EBIA, as it was concluded before the closing of the promulgation of this legal norm, it is undoubtedly a relevant record of the moment prior to the official promulgation of the aforementioned strategy, as well as a thermometer of the tensions, contributions and expectations created by the protagonists of the public consultation process.

30 An important final note. One of the problems reported and observed in our study of the EBIA public consultation process made it difficult to communicate the progress and purpose of the consultation and strategy in itself. Recently, the MCTI held the first EBIA governance meeting, limited to invited actors. The list included a large number of associations linked to business and industrial interests, some representatives of different governmental bodies, some representatives of specific research projects in public universities and a few representatives of organized civil society linked to human rights or digital rights. It is also worth highlighting that some associations that have prominent positions in the public debate on Law and Technology and that contributed to the consultation were lost; for naming just a few: the CTS/FGV, ITS-Rio and the InternetLab. This refutes the impression of opacity of the EBIA development process, which now results in the absence of representation in the formation of its governance structures, which highlights the need for the MCTI to reconsider its practices with regard to communication and social participation. You can access the minutes here: https://www.gov.br/mcti/pt-br/acomprae-o-mcti/transformacaodigital/arquivosinteligenciaartificial/ebia-reuniaogovernana-1-07_05_2021.pdf/view .

pages and rename it 'basic guidelines for an AI strategy in Brazil'"[31]. The scathing comment reveals a precise vision of the core of the question: what we have in our hands is a letter of intentions, a background, not a plan for the future. If it is judged from this perspective, many criticisms of the strategy still make sense.

However, the solution, despite being simple, is not feasible. What the Public Power can do now is to remedy the problem: finding all the gaps and inconsistencies of the EBIA and, under the public scrutiny necessary for all governmental activities and listening to the diverse voices that form the group of interested and specialists on the topic, putting hands to work.

31 SABOYA, F. Is there really a Brazilian artificial intelligence strategy? Canal MyNews, 04/13/2021. Available at: https://canalmynews.com.br/francisco-saboya/existe-médio-uma-estrategia-brasileira-de-inteligencia-artificial/ . Consulted: 05/28/2021.