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Brazilian Artificial Intelligence Strategy:

Comments on Resolution
4.617/2021 of the Ministry of
Science, Technology and
Innovation (MCTI)



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Written by: Eduardo Magrani

Contributors: Mário Pragmácio, Walter Gaspar

Coordination and comments: Maia Levy Daniel

Editing: Carlos David

Design and layout: Ápice Estudio

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Brazil

Brazilian Artificial Intelligence Strategy: comments on the Resolution 4.617/2021 of the Ministry of Science, Technology and Innovation (MCTI)

Executive Summary

After a public consultation held between 2019 and 2020, Brazil's Ministry of Science, Technology and Innovation published Resolution No. 4.617/2021, establishing the Brazilian Artificial Intelligence Strategy (EBIA). It listed strategic actions divided into nine thematic axes. Although the EBIA is a welcome step toward positioning Brazil in the geopolitical landscape of AI, its design presents problems, chiefly because the listed actions are abstract. Gaps were also identified that jeopardize the implementation of this instrument for guiding public policy. This paper analyzes these problems through comparison with other national experiences, which support the hypothesis that the EBIA is overly general and lacks concrete detail.

Introduction

The changes heralded by artificial intelligence systems have expanded the debates on the subject in Brazil in recent years, among industry, the scientific community and civil society. Numerous contributions try to outline principles, safeguards, rights and duties linked to the use of this technology, as well as formulate policies for its development. More recently, the federal government has been committed to building strategic actions for the digital transformation of the country, especially taking into account the aforementioned interest of the government in joining the Organisation for Economic Co-operation and Development (OECD). In 2017, the Presidency of the Republic directed, on the recommendation of the Economic and Social Development Council (CDES), the preparation of a proposal for a long-term strategy for the country's digital economy, with artificial intelligence systems central to the debate on transformation and development. The then

Ministry of Science, Technology, Innovations and Communications (MCTIC) was in charge of developing studies and public consultations with that objective. The first of these studies was "Internet of Things: an action plan for Brazil", published together with the Bank for Economic and Social Development (BNDES), in 2017. This study presented a diagnosis of 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 relevant actions and policies for AI in the country. The MCTIC also helped develop 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 it, strategic actions were proposed for the transformations in the economy and society provided by the digital environment. Artificial Intelligence becomes more central in government proposals from the preparation of the Recommendation of the Council on Artificial Intelligence, published by the OECD in 2019. While seeking membership in the organization, Brazil became a signatory, along with 41 other countries, to 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 that architecture. Seeking to align with the OECD guidelines, the MCTIC launched a public consultation, also in 2019, to define the National Artificial Intelligence Strategy. According to the presentation of the document, the "objective of the strategy is to solve specific problems in the country, identifying priority areas in the development and use of technologies related to AI, in which there is a greater potential to obtain benefits." Based on that public consultation, Brazil officially published, on 6 April 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 why the document deserves criticism: its overly general nature, its insufficiently specified and developed actions, in addition to the lack of specific objectives, deadlines and planning. All this gives the aforementioned document the appearance of a letter of intent, leaving the reader with the arduous task of inferring what the Brazilian State actually proposes to achieve based on these aspirations and, thus, be able to effectively analyze the intended actions. Even so, it is worth noting, initially, the negative reception of the EBIA among specialists. Some important names in the area of Law and Technology reacted to the EBIA highlighting precisely its insufficiency to deal with the complex challenge of promoting and regulating AI in the country. Ronaldo Lemos ², one of the first to deal with the issue shortly after the publication of the strategy, said that it is "difficult to list all the problems of the document. The first is not to have any goal, budget, organization or implementation plan. The document is a collection of platitudes and citations of data found online." Similarly, other analysts pointed out that "there is a lack of concrete substance and a more detailed action plan for the strategy to move beyond paper and deliver results that benefit society" ³ and that

Studying the document in more detail, it becomes clear that, in addition to good intentions, many things are missing. It is far from being 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 foundational actions that provide a successful path towards the model of the leading nations in the adoption of artificial intelligence in the world. And that is worrying. ⁴

2 LEMOS, Ronaldo. Estratégia de IA brasileira é patética. 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>. Accessed: 28/05/2021.

3 XAVIER, F. C. A Estratégia Brasileira de Inteligência Artificial. MIT Tech Review Brasil, 23/04/2021. Available at:

<https://mittechreview.com.br/a-estrategia-brasileira-de-inteligencia-artificial/>. Accessed: 28/05/2021.

4 REY, Alexandre Del. A Estratégia Brasileira de Inteligência Artificial. noomis CIAB Frebraban, 19/04/2021. Available at:

<https://noomis.febraban.org.br/especialista/alexandre-del-rey/a-estrategia-brasileira-de-inteligencia-artificial>. Accessed: 28/05/2021.

On the strategy's interaction with other public policy instruments, Francisco Saboya, president of SEBRAE in Pernambuco ⁵ and the National Association of Entities Promoting Innovative Entrepreneurship, writes:

The EBIA chose a different path than another MCTIC initiative, in association with the BNDES, which is the National Internet of Things Plan (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 integration, connectivity infrastructure and regulatory, digital security and privacy issues). The comparison between both studies is inevitable, not only because of the contrast in terms of clarity and objectivity, but above all because of the divergence in conceptual approach and public-policy vision. This is one of the most vulnerable points, since, despite mentioning the IoT Plan, the EBIA clearly fails to engage with it and wastes substantial 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

The intention is not to make an appeal to authority, an inappropriate form of argument, but only to point out strong criticisms that point to problems that must be investigated. To go beyond mere perception, this analysis seeks objective reference points for assessing the strategy's usefulness. Some of these reference points are internal to the EBIA development process itself; others are external, serving as a standard of comparison with other models. Among the internal reference points for analysis, we first mention the content of the contributions provided by society – academia, industry and the third sector – throughout the public consultation process. A careful reading of these contributions reveals specific lines of action that could have been included in the EBIA, either as actions themselves, or as alternatives to be considered in processes of constructing future public policies. Consequently, we obtain evidence that the content of the public consultation could have been used better. A second basis for this analysis was the interviews conducted during the first phase of this research. There, especially in the interview with personnel from the Ministry of Science, Technology and Innovations, we had a preview of the potential of the EBIA, which ended up not being realized. The comparison between

⁵ Brazilian Micro and Small Business Support Service.

⁶ SABOYA, F. Existe mesmo uma estratégia brasileira de inteligência artificial? Canal MyNews, 13/04/2021. Available at: <https://canalmynews.com.br/francisco-saboya/existe-mesmo-uma-estrategia-brasileira-de-inteligencia-artificial/>. Retrieved: 28/05/2021.

those technical accounts and the final content of the strategy allow us to verify the gap between one and the other, as well as the gaps that remained in the EBIA. Regarding the external instruments, or, more precisely, the analytical reference points outside the EBIA development process, other instruments of strategy and public policy formulation were used in Brazil and in the world. The use of domestic documents allows a direct comparison between what was done on one occasion and another, allowing the identification of points in which one has been more complete and precise than the other. International instruments, on the other hand – which will be used in a much more specific manner and only to reinforce a specific aspect of the governance architecture – provide a very clear example of what could have been incorporated or carried out in the EBIA, given that Brazil arrives in the field of strategic thinking regarding AI at a time when several other countries are already developing concrete policies and actions, reaping the benefits and providing examples of good practice. A final important methodological note refers to the approach given to the strategic actions proposed in the 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, are nothing more than an introduction and contextualization of the thematic axis. They are not, for example, a diagnosis, nor are they 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 composed of an introduction and a list of strategic actions, which are those that in fact represent what the public policy maker is defining as a specific objective to be pursued. Thus, what we intend in this work is, in summary, to glimpse the gaps left by the strategy, mainly: open questions, doubts and unresolved issues. We believe that this can be a useful effort to improve the strategy itself, starting from the moment in which the ministry begins to develop and implement it, when it needs to provide answers to the questions raised in this report. As established by 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. Likewise, it is intended to encourage its conscious and ethical use for a better future, ensuring innovation in business and social settings in the area of Artificial Intelligence, in order to face the challenges associated with the development of the country.

The resolution that established the EBIA makes explicit reference to the principles of the OECD, structuring, in its annex, nine axes (three horizontal, six vertical) that will form the structure of the strategy, namely:

● 3 horizontal axes: i. legislation, regulation and ethical use; ii. governance of Artificial Intelligence; iii. international aspects; ● 6 vertical axes: i. qualifications for a digital future; ii. workforce and training; iii. research, development, innovation and entrepreneurship; iv. application in business sectors; v. application in the public sector; vi. public safety.

All axes, whether transversal or vertical, follow the same model: they present a brief contextualization of the topic of each axis, accompanied by a list of strategic actions. It should be noted, as mentioned above, that the opening text of each axis is not exactly a diagnosis or a more in-depth study of the topic, but rather a brief description of the topic to which good practices and comments on the international and national scenario are added. At the end of each of the introductory parts of the axes, the strategic actions are listed, without elaboration or action plans linked to the listed actions.

Absence of governance structures

There are no governance mechanisms in the Brazilian Artificial Intelligence Strategy. The AI strategy does not specify basic governance structures, although, as we were able to find out through interviews with government officials, there was a rudimentary institutional arrangement sketched out for that purpose. The interview with representatives ⁷ of the MCTI revealed some important points to understand the development process of the EBIA, such as the strategy's progress through the state bureaucracy and the way in which the proposed content was reached in the base document for public consultation.

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

However, the governance structure that was being designed by the ministry's technical staff was not incorporated into the final text of the strategy. The creation of a governance committee, for example, did not materialize; nor did the process of monitoring the implementation of the strategy and its general review after 4 (four) years, as reported in interviews. Regarding governance structures, the resolution under analysis only establishes that it will be up to the Ministry of Science, Technology and Innovations to "create governance bodies and practices to prioritize, implement, monitor and update the strategic actions established in the Brazilian Artificial Intelligence Strategy" (art. 2, I). It does not define what these bodies 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 deadline for such action. The problem is aggravated by the points that will be addressed below. With unspecified 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 Innovations will be responsible for "coordinating and establishing the 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 sufficient detail to make their implementation realistically foreseeable. We will take, as an example, some actions of the Brazilian Strategy, since the problem is generalized and a detailed enumeration would be excessive. First of all, it is worth pointing out 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 fairly widespread perspective regarding the definition of objectives is that they should be "SMART", an acronym for Specific, Measurable, Attainable, Relevant and Time-bound (that is, specific, measurable, achievable, relevant and subject to a time limit). According to the definition found in a Strategic Planning manual of the National School of Public Administration:

8 DORAN, George T. There's a S.M.A.R.T. way to write management's goals and objectives. *Management Review*, n. 70 (11), 1981, pp. 35–36. Available at:

<https://community.mis.temple.edu/mis0855002fall2015/files/2015/10/S.M.A.R.T-Way-Management-Review.pdf>.

Retrieved: 28/05/2021.

- Specific: An objective should not be broad or generic to the point of leading to ambiguous interpretations or taking attention away from the goal.
- Measurable: you cannot manage what you cannot measure, therefore an objective or goal must be measurable;
- Achievable: an objective must be realistic, feasible, and achievable in light of the available resources (human, material, financial, etc.) and the limitations inherent to public administration;
- Relevant: an objective must be related to a priority problem, demand or opportunity for the strategic agenda. It must also be in line with the established strategic objectives (sectoral and governmental).
- Time: an objective must be capable of being scheduled; it must have a time limit for its achievement (a deadline).⁹

Under this approach, actions would break objectives down into smaller components, determining what must be done to achieve a purpose and, in this way, defining the necessary resources, the timeframe for the work, those responsible for each stage, the dedicated budget and a series of practical aspects extracted from the planning. However, what we see in the EBIA is a set of aspirations, intentions, which are more similar to generic goals or broader State objectives. For example, in the "Workforce and training" axis, the action of "stimulating the retention of talents specialized in ICT in Brazil" is proposed. Although it is obviously an aspiration worthy of praise, it is difficult to characterize it as an action itself. Who will be responsible for carrying out this action? Who are the relevant stakeholders? What policies will be implemented, how and when? Although a strategy can leave spaces reserved for discretion or unpredictability, or define issues that still need to be specified in the future, at least the indication of real and concrete paths would be expected. This is what will inform the assessment of its success. The definitions of strategic planning elements presented here may not coincide with the perspective adopted by the drafters of the EBIA. However, we have no way of knowing, since the strategy does not adequately define the methodological and conceptual elements on which it is based. In

9 ENAP. Gestão estratégica com uso da BSC. Módulo 4: Etapas do Planejamento Estratégico. 2014. Available at: https://repositorio.enap.gov.br/bitstream/1/1891/1/M%c3%b3dulo_4_GESTAO_BSC%281%29.pdf . Accessed: 28/05/2021.

fact, it addresses these matters only briefly, without defining what it means by “objectives” and “actions” and, consequently, maintaining doubt about what it is really intended to achieve with the level of generality with which its actions are presented.

Comparison with other instruments

The problem becomes even clearer when we compare the EBIA with other instruments. Recent experiences provide useful comparisons for analyzing the interconnections and consolidation of the directions that Brazil has been taking in the field of technology and innovation. In this sense, the National IoT Plan ¹⁰ and E-Digital ¹¹ are important legal and political milestones on which to focus in a comparative effort with the EBIA. The National IoT Plan, for example, created in 2019 important mechanisms, such as the Chamber of Management and Supervision of the Development of Machine-to-Machine Communication Systems and Internet of Things ¹², indicating which areas are priority for the elaboration of an action plan for the development of IoT in Brazil. 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 question of the strategy development methodology 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 working subgroups, thirty-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 Internet of Things Plan, with powers to: monitor and evaluate the implementation initiatives of the National Internet of Things Plan; promote and encourage alliances between public and private entities to achieve the objectives of the National Internet of Things Plan; discuss with public organizations and entities the topics of the action plan; IV - support and propose mobilizing projects.

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

14 It is the responsibility of CITDigital to: 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 the different public organizations and entities with responsibilities linked to digital issues are supported by evidence and are consistent with E-Digital; III - promote the exchange of information and analyze the impact of sectoral initiatives in the digital environment, with the aim of harmonizing and promoting efficiency and synergy between the actions of different organizations and entities; IV - periodically monitor and evaluate the results of E-Digital, based on predefined indicators and goals, and provide input, when requested, for the coordination and monitoring of the government programs of the Presidency of the Republic; V - coordinate with similar organizations from other countries, states, the Federal District and municipalities; VI - issue the necessary recommendations for the exercise of its remit; VII - propose to the competent authorities the adoption of measures and the issuance of regulatory instruments necessary for the execution of the strategic actions defined in the E-Digital; VIII - decide on the updating and periodic review of the E-Digital; IX - give an opinion on any topic related to its remit; and X - prepare and approve its internal regulations.

a focused consultation with contributions from one hundred and thirty experts, workshops, sector meetings, seminars and a final public consultation with seven hundred contributions. Specifically, it is important to note that, during the preparation of the aforementioned document, the participants were instructed to follow a conceptual model that oriented the result towards tangible and measurable objectives:

Following the conceptual model adopted for E-Digital, the WG participants, through their respective subgroups, and also the invited presenters were guided to adopt a common model for the organization of work results:

- Diagnosis: where we are and what the challenges are;
- Vision: where we want to go;
- Strategy: how we will get there;
- Indicators: to monitor the progress of strategic actions.¹⁵

In short, analyzing the architecture of the aforementioned plan, which provides for the creation of a governance structure with defined responsibilities, capabilities and remit, with annual work planning and provision for periodic reviews of the base document, the EBIA's lack of substance becomes very clear. A comparison between the respective strategic actions also makes the problem quite clear. The EBIA, under the thematic line of "Research, development, innovation and entrepreneurship", dictates the following action: "establish 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." E-Digital, in turn, in the "Research, development and innovation" axis, describes the following:

Stimulate interaction between universities, research institutions (ICTs) and companies in R&D&I activities in digital technologies, through the use of support mechanisms (such as, for example, fellowships from the Human Resources Training Program in Strategic Areas - RHAE), as well as stimulating the

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

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

The actions can be considered similar: both deal with the alignment between science and technology institutions, including universities, and the private sector. The second, however, outlines a more concrete path for the implementation of what has been established, even if only in the form of suggestions. Based on the action planned in the E-Digital, it is possible to imagine specific support mechanisms – and, consequently, entities responsible for these mechanisms – or, at least, forms of partnership between ICTs and the private sector (incubators and technology parks), which also provides a more specific notion of what the action is intended to do. In addition, the axis mentioned in E-Digital has an extensive introduction and diagnosis, specifies priority areas of investment and establishes specific indicators for measuring results, namely:

- In addition to the classic R&D&I indicators to monitor the performance of the entire national economy (for example, level of investment in relation to GDP; level of sectoral investment relative to the business sector as a whole; level of technical training, etc.), it is important that the monitoring and evaluation of the R&D&I activities of the Brazilian Digital Transformation Strategy are based on specific cases (companies), or certain sectors.
- In addition, it is important that the indicators are supported by consolidated international benchmarks, in particular of nations that managed to stimulate the emergence of leading domestic players in the ICT sector, such as Asian nations (Korea, China and Japan), Nordic countries (Finland and Sweden) and other countries with prominent indicators, such as Israel.
- By way of reference, existing and consolidated international indicators such as the Global Innovation Index, in which Brazil ranked 69 in 2016 and 2017 may also be used.¹⁷

The EBIA, on the other hand, provides only a brief account of the Brazilian R&D&I scenario, but does not suggest concrete paths or solid indicators. This is a focused comparison, but it indicates a recurring problem throughout the EBIA, as mentioned above.

¹⁶ p. 36

¹⁷ p. 36

Turning to comparable international instruments, we can see even more inadequacies of the EBIA. The AI strategy of the Czech Republic 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 areas of development and establishing specific public administration bodies responsible for each line of action, the instrument also establishes short-term (up to 2021), medium-term (2027) and long-term (2035) objectives; defines specific tools to achieve the objectives, including the suggestion to create specific programs and the search for specific financing options; and maps the entities involved in the implementation of the strategy. The direct comparison between different countries is too complex and we do not intend to make a comprehensive comparative analysis here. However, a superficial observation of the two strategies, without incorporating considerations on the particular context of each one and focusing only on the objective components of what is called "strategy" in each of the cases, allows us to identify elements that are absent in the Brazilian strategy. The aforementioned points, present in the document conceived in Prague and non-existent in its Brazilian counterpart, are important elements to ensure transparency and demonstrated accountability for effective implementation of the plan. That 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 the deadline and the necessary resources. Likewise, from a broader perspective, the Brazilian strategy seems to lack a vision adapted to the national reality. When observing the Indian strategy for AI, for example, called # AI for All, we repeatedly find 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. Although it only represents a generic vision of the country's role in the global AI scenario, it already allows us to imagine concrete paths and pragmatic decisions that must be made. The Brazilian strategy does not present anything similar, limiting itself to listing objectives that could be considered basic to any AI strategy:

Contribute to the development of ethical principles for the development and use of responsible AI. Promote sustained investments 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.

development of AI. Remove barriers to innovation in AI. Build the skills of and train professionals for the AI ecosystem. Stimulate the innovation and 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.

Returning once more to other domestic planning instruments, it is worth mentioning the National Internet of Things Plan. Based on an extensive study ²² of Brazil's technological and industrial landscape, four verticals capable of promoting greater local technological density and economic, social and environmental returns for the country were identified: health, rural areas, smart cities and industry. Despite being mentioned in a scattered way in the EBIA, there are no similar objective definitions of strategic sectors in the new document. Even if we assume that E-Digital, the National IoT Plan and the EBIA operate in coordination, each instrument should be understandable on its own, so that the underlying direction of the proposed strategy is apparent.

The contributions of the Public Consultation and the EBIA

The EBIA's public consultation process received around 1000 contributions from actors from academia, civil society, the private sector and the government. Reviewing these contributions gives us an indication of what could have been incorporated into the EBIA, if not as a concrete action, at least as possible alternatives for future governance bodies to consider. Next, we select some contributions that show instances in which very pragmatic suggestions were made, but that are not reflected in the EBIA, except in very general terms. 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), but do not propose concrete actions, such as the definition of obligations to prepare social impact reports for algorithms (impact reports are cited in the axis "AI Governance", but incorporated into strategic actions only as a mention of impact reports on data protection); or the obligation to design AI models oriented to transparency and auditability. Returning to the contributions, we see some suggestions that point to such actions:

21 https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/transformacaodigital/arquivos/inteligenciaartificial/ia_estrategia_doc_referencia.pdf/view, p. 7.

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

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

(a) design: i. verifiability and replicability, ii. impact assessment, iii. environmental responsibility; (b) monitoring: i. evaluation and audit requirements, ii. creation of a supervisory body at the national level and guided by the latest academic and technical knowledge, iii. ability to appeal, safeguarding the scalability of AI solutions; (c) correction: correction of automated decisions, ii. accountability and legal liability, iii. recommendation to adopt new regulations ²⁴ .

And others that highlight important guidelines, extracting from them practical issues that could be developed into more concrete strategic actions: the creation of specific bodies for the definition of processes, the attribution of responsibilities, the suggestion of bodies capable of controlling and auditing, etc.:

Algorithmic impact assessment focuses on decision making, mainly on the robustness, fairness and explainability of the system. This corresponds to defining limits of use and a validity period in order to generate trust among stakeholders, hold the creators of the system responsible for the results of their programming and provide more transparency, opportunities for accountability and auditing. Robustness means that systems must be secure and protected against failures, intrusions, or corruption of the data on which they are trained. Fairness means that systems use data and training models free of bias, to avoid unfair treatment of certain groups. And explainability means that systems must provide decisions or suggestions that can be understood by their users and developers. There may be systems that, by design, are capable of meeting these three demands (Koshiyama, 2019). To do this, specifically with regard to explainability, the developer must be able to answer the following questionnaire: Have you evaluated to what extent the decisions and, therefore, the result obtained by the AI system can be understood? Have you ensured an explanation of why the system made a certain decision, producing a certain result that all users can understand? Have you designed the AI system with interpretability in mind from the beginning? Have you

24 Contribution from iFood

<http://participa.br/estrategia-brasileira-de-inteligencia-artificial/estrategia-brasileira-de-inteligencia-artificial-legislacao-regulacao-e-uso-etico>

researched and tried to use the simplest and most interpretable model possible for the application in question? Have you evaluated whether you can examine interpretability after training and developing the model, or whether you have access to the model's internal workflow? ²⁵

Furthermore, turning to the consultation's background document, we see questions that remained unanswered. For example, to the question "would it be necessary to establish safeguards for the use of AI in certain particularly sensitive fields [...]?" If so, what would the safeguards be and how can they be established?" the final text of the EBIA provides neither an answer nor a route toward one, but merely a reformulation: "Create parameters on human intervention in AI contexts in which the result of an automated decision implies a high risk of harm to the individual" (axis "Legislation, regulation and ethical use"). The text does not identify, or even clearly indicate, what these safeguards would be, who would create or control them, within what period, etc. On the topic of algorithmic bias and non-discrimination, the strategy's actions frequently cite the need to establish practices or principles that avoid discriminatory treatment, addressing different types of bias. However, it doesn't go much further than that. Below we highlight a contribution that stressed precisely the need for more concrete definitions in the EBIA:

[I]t is not clear what fairness criteria controllers must respect so that discrimination based on the automated processing of personal data is not abusive, nor is it clear what information about the processing can be considered protected by trade or industrial secrets. While it is to be hoped that such issues will eventually be addressed in case law, it would be interesting if 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. Thus, we recommend that an initiative of this type provide: (i) special criteria for the use of artificial intelligence in the processing of sensitive data, due to its greater potential to give rise to situations of algorithmic discrimination; (ii) parameters to consider discrimination based on automated data processing as abusive; and (iii) criteria to consider whether certain information on automated processing of personal data is or is not protected by trade or industrial secrecy.

26

25 Contribution by Danielle M T Denny.

<http://participa.br/estrategia-brasileira-de-inteligencia-artificial/estrategia-brasileira-de-inteligencia-artificial-legislacao-regulacao-e-uso-etico>

26 Contribution of the CEPI FGV-SP

<http://participa.br/estrategia-brasileira-de-inteligencia-artificial/estrategia-brasileira-de-inteligencia-artificial-legislacao-regulacao-e-uso-etico>

The call for further definitions went unheard. This is very clear in one of the actions of the EBIA's "AI Governance" axis: "Stimulate the use of representative data sets to train and test models." It seems too timid to talk about "stimulating" the adoption of representative data sets, since this is a recurring criterion in scholarship and practice to mitigate algorithmic biases. According to the study *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 was presented as an unoriginal reformulation of the topics already covered in the base document of the public consultation, even when substantial contributions were available on the topic. This does not necessarily mean that the strategy formulator ignored the contributions, but there definitely seems to have been a problem in translating the accumulated body of knowledge into a coherent document.

Conclusion

The EBIA does not have the pioneering character of other Brazilian strategies, such as the National IoT Plan and the Digital Transformation Strategy (E-Digital); or even the General Data Protection Law (2018) and the Brazilian Internet Civil Rights Framework (2014)²⁸, two important laws for creating a clear, up-to-date regulatory environment.

²⁷ <https://ssrn.com/abstract=3518482> , pp. 48-49.

²⁸ Law 13.709/2018 and Law 12.965/2014, respectively.

There are several other AI strategies in the world that are already clearly defined. The European Union, in fact, has just published its proposal for AI regulation, based on a sophisticated risk management system. Brazil could have taken advantage of the stage of international maturity 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 resolution is too generic and lacks basic elements that do justice to the document's designation as a "strategy", as has been demonstrated, such as the definition of governance mechanisms, specific goals and action plans, success indicators, provision for deadlines and periodic review, 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 beacon. However, in our analysis, it missed a major opportunity to bring the issue out of the shadows, given its diffuse and abstract nature. In its current form, the EBIA simply takes up issues raised during the public consultation process, making a general summary of the most relevant considerations on the subject, but without effectively demonstrating a pragmatic vision of the path to follow. After all, what is the Brazilian strategy really? This question remains unanswered, since the EBIA fails in several aspects, as already analyzed here, leaving Brazil unable to make up for the delay in preparing a strategic plan. It is interesting to resume an assessment already mentioned at the beginning of this study. Saboya, at the end of his criticism of the EBIA, proposes—presumably 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 was based on a survey conducted between February and March of 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. Although the report does not specifically address the resolution that institutionalized the EBIA, since it was concluded before the date of promulgation of that legal instrument, it is undoubtedly a relevant record of the moment prior to the official promulgation of the aforementioned strategy, as well as a gauge 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 was the difficulty in communicating the progress and purpose of the consultation and the strategy 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 government agencies, 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 noting the fact that some associations that have prominent positions in the public debate on Law and Technology and that contributed to the consultation were left out; to name just a few: the CTS/FGV, ITS-Rio and the InternetLab. This reinforces the impression of opacity of the EBIA's development process, which now results in a lack of representative participation in the formation of its governance structures, which highlights the need for the MCTI to reconsider its practices with respect to communication and social participation. The minutes can be accessed here:

https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/transformacaodigital/arquivosinteligenciaartificial/ebia-reuniao-governana-1-07_05_2021.pdf/view.

pages and rename it 'basic guidelines for an AI strategy in Brazil'" ³¹ . The biting comment reveals a precise insight into the heart of the issue: what we have in hand is a letter of intent, a backdrop, not a plan for the future. If judged from this perspective, many of the criticisms of the strategy cease to make sense. However, the solution, although simple, is not feasible. What the public authorities can do now is to remedy the problem: find all the gaps and inconsistencies of the EBIA and, under the public scrutiny required of all government activity and listening to the various voices that make up the body of stakeholders and specialists in the subject, get down to work.

31 SABOYA, F. Existe mesmo uma estratégia brasileira de inteligência artificial? Canal MyNews, 13/04/2021. Available at: <https://canalmynews.com.br/francisco-saboya/existe-mesmo-uma-estrategia-brasileira-de-inteligencia-artificial/> . Retrieved: 28/05/2021.