METHODOLOGY

Scope

We assessed the AI policies and practices of the top 25 countries by GDP. We also looked at several other countries we considered "high-impact." Our aim in this first survey was to examine those countries likely to have the greatest policy impact in the AI field. We considered also influential intergovernmental organizations, such as the institutions of the European Union, the OECD and G20, but we did not attempt to evaluate their AI policies.

Time Period

The research was undertaken in late 2020, anticipating publication in mid-December 2020.

Annual Review

We anticipate that the report will be updated and published annually, in conjunction the Cybersecurity Day of the Boston Global Forum (December 12).

Factors

We identified 12 factors to assess national AI policies and practices. The factors reflect well known frameworks for AI policy (the OECD/G20 AI Principles), human rights (the Universal Declaration for Human Rights), and democratic decision-making (transparency, public participation, and access to policy documents). We highlighted key themes for AI policy, including algorithmic transparency and accountability. We also included aspirational goals set out in the Universal Guidelines for AI and the Social Contract for the Age of AI.

On certain factors, we deferred to well established legal frameworks and well-known international organizations. For example, countries within the European Union are subject to the General Data Protection Regulation which provides certain rights to those who are subject to automated decision-making, including access to the underlying logic of an algorithm. The Council of Europe Modernized Convention 108 provides similar legal rights regarding AI. On general human rights assessments, we deferred to the reports of Freedom House, Human Rights Watch, and Amnesty International. We also recognized those countries that endorsed the

resolution on AI and Accountability, adopted by the Global Privacy Assembly, the global association of leading privacy experts and officials.

On the issue of implementation, we recognize that it is difficult to assess empirically progress toward AI policy goals, particularly when the underlying objective is not measured in quantitative terms, such as would be the case for research investment, papers published, or patents obtained. Nonetheless we believe this must be a key component of the evaluation. We turned first to the OECD, which has begun a process to track implementation of the OECD AI Principles. We looked next at national developments, both favorable and controversial, concerning the implementation of AI policy. We consulted official sources but also reviewed independent sources, such as news sources, agencies, and thinks thanks not directly aligned with national governments, for these assessments.

Finally, because AI policy is in the early days, there is far more information about what governments intend to do than what they have done. We encourage governments to establish independent agencies with annual public reporting requirements to provide information about progress toward national goals and compliances with international policy frameworks. Such reports could provide the basis for future comparative evaluations.

The Questions

Q1. Has the country endorsed the OECD/G20 AI Principles?

The OECD/G20 AI Principles are the first global framework for AI policy. Endorsement of these principles provides a baseline to determine a country's compliance with international AI policy norms. Countries that have endorsed the OECD/G20 AI Principles fall into three categories: (1) OECD Member Countries, (2) Non-member OECD Countries that endorsed the OECD AI Principles, and (3) G-20 Member countries that subsequently endorsed the G20 AI Principles which follow closely the original OECD AI Principles.[1091]

Determinations in this category are essentially binary: a country has either endorsed the OECD/G20 AI Principles or it has not.

[1091] The G20 AI Principles directly restate the value-based principles in Part I of the OECD AI Principles

Q2. Is the country implementing the OECD AI Principles?

Endorsement alone of the AI Principles is not sufficient to determine a country's AI practices. The OECD itself has begun a process to track implementation of the AI Principles, but the reporting to date is mostly anecdotal and inconclusive. We begin our analysis of implementation with the OECD reporting and then look to other sources, including government documents, news articles and NGO reports, to assess implementation.

Determinations in this category are more nuanced: some countries have called attention to their efforts to implement the OECD/G20 AI principles. Others have done so in practice without explicit references to the AI Principles. We have made reasonable efforts to identify national projects that implement the OECD/G20 AI Principles, but information is often difficult to find. In some instances, were able to acknowledge partial implementation (P). If implementation was unclear, then the determination was U. No country has fully implemented the OECD/G20 AI Principles and therefore no country received a Y determination.

Q3. Has the country endorsed the Universal Declaration of Human Rights?

In the human rights field, the Universal Declaration of Human Rights is the most well-known and widely adopted legal framework for the protection of fundamental rights. Although the UDHR preceded the rise of Artificial Intelligence, we anticipated that many of the significant policy debates ahead will be grounded in principles set out in the Universal Declaration. For this reason, we propose endorsement of the UDHR as a second baseline to assess country AI policies and practices.

Determinations in this category are essentially binary: a country has either endorsed the UDHR or it has not. The one notable exception is Saudi Arabia which did not endorse the UDHR but is a member of the United Nations and has recognized, according to human rights organizations, certain human rights obligations.

Q4. Is the country implementing the Universal Declaration for Human Rights?

Like the question regarding implementation of the OECD AI Principles, measuring implementation of the UDHR is not a simple task. Several well-established international organizations, such as Freedom

House and Human Rights Watch, have developed formal metrics to evaluate compliance with human rights norms. We defer to these organizations for the evaluation of general human rights practices, while also noting that several of these factors may be useful in future evaluation of AI practices.

Determinations in this category typically fell into two categories: Y, a country widely recognized for its defense of human rights as generally understood by reference to the UDHR, and P, a country in partial compliance with human rights obligations.

Q5. Has the country established a process for meaningful public participation in the development of a national AI Policy?

Almost every country in our report has set out a national AI strategy or action plan. We have attempted to fairly summarize and present these initiatives. But we are also interested in the development of these policies. Was there an opportunity for public participation? Was there a formal consultation process? Do the national AI policies reflect the views of those who may be impacted by the deployment of AI techniques? And is there an ongoing mechanism for public participation as national AI policies evolve?

Determinations in this category were based on our ability to identify opportunities for meaningful public participation. The distinction between a Y and P in this category reflected the quality of the opportunity for public participation.

Q6. Are materials about the country's AI policies and practices readily available to the public?

Effective public participation requires public access to relevant documents. Has the national government taken steps to ensure that documents concerning AI policy are readily available, complete, and accurate? Are the materials available on the website of a public agency or are they maintained by a private company? Are there opportunities for future comment?

The determinations in this category often aligned with the determinations about public participation. We respect the practice of countries to publish reports, and to seek public reports, in the national language. We note however that the absence of an English translation may

make independent evaluation of a country's AI policies and practices more difficult. We discuss the issue of Language in more detail below.

Q7. Does the country have an independent (agency/mechanism) for AI oversight?

All governments understandably seek to advance national AI priorities. And most governments have directed a science or industry ministry to lead national efforts. But the deployment of AI techniques also raises concerns about accountability, privacy and data protection, fairness, transparency, and equity. For these reasons, we look to determine whether countries have independent agencies, such as a data protection agency, a human rights commission, or an AI ethics commission, to protect fundamental rights.

Determinations in this category were based on the actual establishment of mechanisms to oversee or guide AI practices. Again, the difference between a Y and a P determination reflected the quality and breadth of the oversight mechanisms.

Q8. Do the following goals appear in the national AI policy: "Fairness," "Accountability," "Transparency," "Rule of Law," "Fundamental Rights"?

There are many themes in the AI policy realm. We identified these five goals as the most significant. They appear frequently in AI policy frameworks and they are grounded in law. We recognize that countries that have endorsed the OECD/G20 AI Principles have, by implication, endorsed these goals. But this question asks whether countries have explicitly endorsed these goals in their national AI strategies.

Determinations in this category attempt to evaluate the extent to which a country has prioritized these AI policy goals. Full endorsement received a Y, partial endorsement a P.

Q9. Has the country by law established a right to Algorithmic Transparency?

One of the most significant AI policy issues today is Algorithmic Transparency. We take the position that individuals should have the right to access the logic, the factors, and the data that contributed to a decision concerning them. This right is currently established in two legal

frameworks: The General Data Projection Regulation of the European Union (Article 22) and the Council of Europe Convention 108+, the modernized Privacy Convention (Article 9). Countries that are within the EU and/or signatories to COE 108+ have therefore established this right. We have also considered whether countries, by national law, have established the right to algorithmic transparency.

For determinations in this category, we assigned a Y to those countries that are subject to the GDPR and/or the Council of Europe Convention. In a subsequent review, we will investigate whether countries have *implemented* a right to algorithmic transparency. This will provide a more detailed assessment of this key metric.

Q10. Has the country supported the Universal Guidelines for AI?

In 2018, more than 60 organizations, including leading scientific societies, and 300 experts from over 40 countries endorsed the Universal Guidelines for AI. The Universal Guidelines go beyond the OECD/G20 AI Principles and establish "red lines" for certain AI practices, such as the scoring of citizens, criminal sentencing, and facial recognition for mass surveillance. Although there is no formal mechanism for countries to endorse the UGAI, we are interested in whether countries have adopted principles, and recognized red lines for AI, that go beyond the OECD/G20 AI Principles. Efforts to prohibit face surveillance or social scoring, for example, reflect the spirit of the UGAI.

For determinations in this category, we could not assign a Y to any country, but we did assign a P for countries that have specifically limited certain AI applications. Countries that have done little to develop AI policies likely received a N determination.

Q11. Has the country supported the Social Contract for AI?

Similar to the Universal Guidelines for AI, the Social Contract for the Age of AI (SCAAI) is not subject to formal endorsement by countries. The Social Contract sets out aspirational goals for the Age of AI that go beyond the OECD/G20 AI Principles. Members of the Boston Global Forum and the World Leadership Alliance, including former Prime Ministers, have endorsed the Social Contract and we anticipate, over time, countries will follow. We therefore looked for early indicators that countries have adopted policies that reflect these broader social goals.

Determinations in this category were similar to those in response to the question on the Universal Guidelines. We could not assign a Y to any country, but we did assign a P for countries that have adopted policies and practices similar to those in the SCAAI. Countries that have done little to develop AI policies likely received a N determination.

Q12: Has the country's Data Protection Agency endorsed the 2018 GPA Resolution on AI and Ethics and the 2020 GPA Resolution on AI and Accountability?

In the fall of 2018, the Global Privacy Assembly (then known as the International Conference of Data Protection and Privacy Commissioners), adopted a foundational Declaration on Ethics and Data Protection in Artificial Intelligence.[1092] The 2018 Declaration emphasized fairness, vigilance, transparency and intelligibility, and measures to reduce unlawful bias and discrimination. In 2020, the GPA adopted a resolution on AI and Accountability.[1093] That resolution sets out a dozen steps for AI accountability, including the preparation of human rights impact assessments.

We believe that support for these resolutions is an important indicator of a country's commitment to AI and data protection and effective implementation of AI policy goals. We checked to see which countries explicitly sponsored the resolutions. We will also consider other notable initiatives in future global surveys of AI policies and practices.

For determinations in this category, we assigned a Y to countries that sponsored both resolutions, an N to countries that sponsored neither (or are not represented at the GPA), and P to the countries that sponsored only resolution

As an aside to the Global Privacy Assembly, we would recommend new mechanisms that would allow members to endorse resolutions

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[1092] ICPDPC, *Declaration on Ethics and Data Protection in Artificial Intelligence* (including list of authors and co-sponsors) (Oct. 23, 2018), http://globalprivacyassembly.org/wp-content/uploads/2018/10/20180922_ICDPPC-40th_AI-Declaration_ADOPTED.pdf

[1093] Global Privacy Assembly, *Adopted Resolution on Accountability in the Development and Use of Artificial Intelligence* (including list of main sponsors and co-sponsors) (Oct. 2020), https://globalprivacyassembly.org/wp-content/uploads/2020/11/GPA-Resolution-on-Accountability-in-the-Development-and-Use-of-AI-EN.pdf

concerning AI in subsequent years. We will update country ratings accordingly.

Exemplars

In developing the methodology, we also created a list of exemplar countries for several metrics. For example, on Question 5, concerning meaningful public participation, we were struck by the high level of public engagement in Switzerland. On Question 6, concerning the availability of a countries AI policies and practices, Germany's *Plattform Lernende Systeme* offers a map that shows, by region, AI developments across the country. And the multiple agencies in France, the CNIL and the Defender of Rights, provide a very good example of independent oversight for AI, highlighted by Question 7.

Scoring

We assigned a numeric value of 1.0 to each "Y" answer, 0.5 to each "P" answer, and 0.0 to each "N" or "U" answer. (We may revise scores upward for U answers upon receipt of evidence regarding progress toward the specific metric). We then tallied the numbers, weighing each metric equally, and produced a total score. A top score would be 12, a bottom score is 0. On the basis of total scores, we grouped countries by color gradation and then into tiers. The groupings reflect a normalized distribution with Yellow or Tier III as the median.

Search Strategy

To locate relevant policy materials, we conducted extensive online searches. Key search terms, often used in combination with "AI" or "Artificial Intelligence," included: "Accountability," "Algorithmic Transparency," "Data Protection," "Digital," "Ethical," "Ethics," "Fairness," "Governance," "Law," "Legislation," "Policy," "Poll," "Privacy," "Regulation, "Strategy," and "Technology."

Descriptive Summary

Each country report includes a descriptive summary labelled "Evaluation." The evaluation does not precisely track the metrics. It is intended to highlight the key findings in the country report and provide a general overview for the reader.

Language

Our research team has language expertise in English, French, German, Italian, Japanese, Korean, Mandarin, Russian, Spanish, Turkish, Uyghur, and Vietnamese. However, we preferred English publications, as they would be considered authoritative original sources or authoritative translations for the international community from the original sources. In some instances, we translated text from non-English to English with a Machine Translation ("[MT]") tool, such as DeepL Translate ("[DT]") or Google Translate ("[GT]"). We noted such instances in the citations.

Citation Format

We adopted a simplified citation format for the *AI Social Index 2020.* Each citation includes the author and title of the publication. Where there are multiple authors, we provided the name of the institution if available but not the names of the authors. We include also a date where there was a final publication date. By way of contrast, cites to websites do not include dates. And we included URLs, which we made transparent so that the reader could quickly assess the source. In a paragraph where there may be multiple references to the same source, we cited to the source in the first instance, but not in subsequent instances unless there was an intervening reference to a different source.

Gender Balance and Diversity

In the development of the *AI Social Contract Index 2020,* the selection of team members and reviewers, we strived to maintain gender balance. We have also tried to promote diversity and regional representation.

Bias

We did not explicitly examine the issue of bias in AI, although this is a widely discussed topic and the focus of extensive research, including the bias of data sets. Our view is that the most effective policy response to the problem of bias is the *explicit recognition of Fairness, Accuracy, and Transparency* in AI policy and the implementation of these principles in AI practices. Several questions in the *AI Social Contract Index* (Q1, Q2, Q7, Q9, Q10, Q11, Q12) make these factors key metrics for the evaluation of a nation's AI policies.

We also recognize the inherent bias in the construction of all surveys, including in the survey focus, the framing of questions, and the research methodology.[1094]

Private Sector Practices

We did not attempt to review or evaluate the practices of private firms or organizations. The ***AI Social Contract Index 2020*** attempts only to evaluate the policies and practices of national governments. We do believe that private firms must act in compliance with law and through democratic institutions, and that the evaluation of government policies must ultimately be the measure of private sector practices.[1095]

[1094] Max Weber, *Objectivity of Social Science and Science Policy* (1904).
[1095] Further discussion of the methodology underlying the *AI Social Contract Index 2020* is presented in Marc Rotenberg, *Time to Assess National AI Policies,* Blog@CACM (Nov. 24, 2020), https://cacm.acm.org/blogs/blog-cacm/248921-time-to-assess-national-ai-policies/fulltext