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POLICY KITCHEN

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Policy Recipes

Towards an Inclusive Future in AI

A Global Participatory Process

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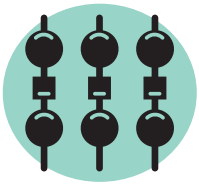
Disclaimer

The policy recipes in this publication are the result of a participatory process with a diverse mix of participants from four continents. They do not necessarily reflect the opinions of authors of this publication or the institutions they are affiliated with. All content published by foraus is independent from its funding sources, as laid out in the think tank's code of conduct.

Amuse-bouche



Executive Summary In response to the accelerating potential of artificial intelligence (AI) to transform our lives, various governments, multilateral bodies, and other organizations have produced high-level principles and guidelines for the ethical use of AI in recent years. Despite the staggering number of such documents (over 90 by October 2019), there appears to be a relatively high degree of convergence on the level of principles. «Inclusiveness» is one of just a handful of principles that most actors seem to agree upon. However, a closer look reveals that the principle is interpreted very differently in terms of the domain, scope and actors it pertains to. As the global community now works on transitioning from principle to practice, there is a clear need to specify what the principles mean in context and how they can be operationalized and evaluated.

To respond to this gap, the swissnex Network, foraus, and AI Commons launched the global campaign «Towards an Inclusive Future in AI» with foraus' new Policy Kitchen methodology. This joint experiment resulted in 11 workshops in 8 countries, involving 10 partner organizations and about 120 participants from a wide range of perspectives, who collaboratively generated 43 ideas for an inclusive future in AI. The preliminary output was presented at the AI for Good Global Summit 2019. This paper presents a more in-depth exploration of ideas and proposals on inclusion collected during the participatory process.

Menu

Amuse-bouche

The Kitchen

Policy Kitchen[1] is a policy crowdsourcing methodology developed by foraus – Swiss Forum on Foreign Policy. It enables a diverse network of thinkers from Switzerland and abroad to find creative policy recipes to pressing foreign policy challenges. The methodology is built on a crowd innovation platform, physical workshops, and a support process to bring the best recipes to impact.

Policy Kitchen is public. Any person, irrespective of background or location, can participate and contribute ideas. To ensure a high level of expertise, we partner with experts and professionals of various sectors (science, government, international organizations, civil society, business, etc).

The code for Policy Kitchen is made available as open-source software. We encourage and support other actors in using participative methods in their respective domains. Policy Kitchen has been made possible with the support of the Engagement Migros foundation.

The global campaign «Towards an Inclusive Future in AI» was initiated by foraus[2], the swissnex Network[3], and AI Commons[4] to address the need for concrete ideas on how to operationalize

the principle of inclusion in the AI space. The kickoff was held at the World Summit on the Information Society (WSIS) hosted by the International Telecommunications Union (ITU) in Geneva on April 22nd, 2019. Additional workshops were held in Bangalore, Berlin, Boston, Jaipur, Paris, San Francisco, São Paulo, Seoul, and Vienna throughout May 2019. The preliminary results were presented at the AI for Good Global Summit, hosted by ITU in Geneva on May 31st, 2019.

Over 120 people actively participated in the process. Following the general guidelines of «horizontal and vertical diversity», it included a broad range of perspectives - from policy makers, experts in academia and industry to professionals in culture, ethics, and law; from senior leaders to students and members of the general public. These participants collaboratively generated 43 proposals. This material was clustered and reviewed for this publication with the help of a senior advisory board consisting of Jonathan Andrew (Geneva Academy), Amir Banifatemi (XPRIZE, AI Commons), Jan Gerlach (Wikimedia), Jessica Cussins Newman (Center for Long Term Cybersecurity, UC Berkeley), Brandie Nonnecke (CITRIS Policy Lab, UC Berkeley), Malavika Jayaram (Digital Asia Hub, Berkman Klein Center) and Livia Walpen (Swiss Federal Office of Communications). The full list of partners and contributors is presented in the final chapter of this publication. All contributions are public on policykitchen.com/inclusiveai.

The Starter

«Inclusion» in the global AI discourse

«Our conclusion, through year-long research, visits to different places around the world, and discussions within the panel, is that inclusiveness is the best framework we have.» (Speaking about the UN report «The Age of Digital Interdependence»[5]) - Amandeep Singh Gill, UN High-level Panel on Digital Cooperation[6]

Recent months have seen a surge of efforts by various actors to define strategies, principles and guidelines for the ethical use of AI. At least 90 such documents exist to date, most of which were published between 2018 and 2019[7]. These include:

- Initiatives by academic, think tank and civil society actors, such as the Asilomar AI Principles[8], the Montreal Declaration for

Responsible AI[9], the Toronto Declaration[10], or the Beijing AI Principles[11];
- Guiding principles by companies, for example by Google[12], IBM[13], Microsoft[14] and others, as well as the Partnership on AI «tenets» which includes industry leaders alongside non-profit actors[15];
- Standards projects such as the Ethically Aligned Design initiative by the professional association IEEE[16];
- Governmental reports or declarations, for example by France[17], UAE[18], Singapore[19] or the UK[20]
- Documents by multilateral bodies such as the G7[21], G20[22], OECD[23], EU[24] and UN[25]

Although the sheer number of documents may seem overwhelming, there appears to be a surprisingly high degree of global convergence at the level of ethical principles[26]. At the same time, such principles remain very abstract and can be understood in various ways.[27] Furthermore, they are not always accompanied by clear guidance for operationalization and rarely propose any measurement and enforcement mechanisms beyond voluntary commitments.

The principle of «inclusiveness» is an interesting case in point. It is widely used across most high-profile «principles and guidelines» documents: The UN Secretary General's High-Level Panel on Digital Cooperation mentions the principle 59 times on the 40 pages of their report The Age of Digital Interdependence[28]. Inclusiveness is also stated as a main goal of the G7, G20 and OECD principles and featured in several civil society initiatives and industry documents. Closely related principles such as «fairness», «equity», «diversity», «non-discrimination» and «shared prosperity» appear in many more documents.[29] Taking these into account, we can safely assert that inclusiveness is one of only a few truly universally acknowledged principles in the current global debate on AI ethics.

Yet, a closer look reveals just how difficult it will be to translate the principle of «inclusiveness» into practice. First of all, different documents seem to apply it to very different scopes: Interpretations range from «non-biased algorithms» (e.g. in IBMs Everyday Ethics for Artificial Intelligence[30]) and «accessible» design (e.g. in Microsoft's Guidelines for Responsible Bots[31]), to «diversi-

ty during the design and development stage» (e.g. in AI4people's ethical framework[32]), «the active participation of, and meaningful consultation with, a diverse community» (Toronto declaration[33]), a «multistakeholder governance approach» (e.g. in The Internet Society policy paper[34]) all the way to «inclusive growth» at the macroeconomic level (e.g. in the OECD's Recommendation of the Council on Artificial Intelligence[35]). If such different meanings are attached to the same term in different contexts, the global «convergence» of ethical principles may only apply at a rather superficial level.

Secondly, in most documents there is very little clarity on the practical implications of the principle. For example, the European Commission's Ethics Guidelines for Trustworthy AI[36], one of the most comprehensive documents to date, states that «we must enable inclusion and diversity throughout the entire AI system's life cycle», and defines stakeholders as «those involved in making the products, the users, and other impacted groups», including «society at large». But how exactly should any actor ensure the inclusion of society at large in every step of an AI system's life cycle? Who exactly is society at large? What does this mean in practice, both for governments and companies?

In the absence of a universal definition and clear operational guidelines, it remains hard to see how the aspiration of inclusiveness can be achieved in practice. Clarity on the operationalization of ethical principles such as inclusiveness is a necessary condition for any further next steps, including the creation of binding regulations. Voluntary commitments to lofty principles may be an important start, but they will hardly suffice to ensure an ethical future.

As AI systems will almost certainly be interwoven into all aspects of human life, we provide data, collected through a global participatory process, on how civil society understands «inclusive AI». 2020 will be the year of multilateral institutions such as the OECD publishing practical recommendations based on principles agreed to in 2019. We hope that the present paper will help policy makers and practitioners grapple with the principle of inclusion by offering inspiration for practical steps.

Main Course

Outputs from the global participatory process

On inclusiveness

> «To make it inclusive, define inclusive.» - Lars Lünenburger, Policy Kitchen participant[37]

Our bottom-up Policy Kitchen process has brought to light several critical issues and proposals for ways to address them. The first insight concerns the lack of a universal understanding dof inclusiveness. As one participant put it: «as discussions on inclusiveness often remain vague with respect to the term, it is impossible to assess whether the underlying «thing» is inclusive in the end.»[38] The range of interpretations that is apparent in the various official principles and guidelines is also reflected in the diversity of proposals submitted to the Policy Kitchen. On the basis of this material, we were able to identify six clusters of shared meaning and scope among the various inputs. These clusters reflect what our participants from civil society think pertains to inclusiveness in AI, and we explore all of them more in depth in the remainder of this chapter:

- Inclusive AI systems refers to the absence of bias against certain groups of people in algorithms and in underlying data.
- Open access to data and algorithms refers to a more inclusive research, development and market environment by facilitating access for smaller players.
- User rights and transparency aims at balancing power and knowledge asymmetries between corporations and customers.
- Inclusive growth to balance out economic inequalities may arise from the technological change both within and between countries.
- Equal access to education, a precondition for inclusive growth.
- Inclusive governance refers to the process of defining and deciding upon norms and regulations.

Given this range of possible meanings and scopes, actors referring to the principle of «inclusiveness» should always be explicit with their interpretation of the term.

There is also a lack of clarity about who exactly needs to be included. The Policy Kitchen process has revealed a very large stakeholder landscape that may need to be considered:

- Women[39]
- LGBTQ people[40]
- People of different ethnicities[41]
- Youth[42]
- Elderly[43]
- People with disabilities[44]
- Customers/users[45]
- People affected by profiling systems, e.g. due to mental health or substance use disorders, criminal records, etc.[46]
- Displaced workforce[47]
- People of different professions[48]
- Academia[49]

- Economically marginalized groups[50]
- The «Global South»[51]
- The environment[52]

This list is certainly not exhaustive. When operationalizing «inclusiveness», there is an apparent dilemma between remaining too vague - rendering the term essentially meaningless - and being too specific - risking to exclude stakeholder groups that are not made explicit, and/or dramatically increasing coordination costs.

Therefore, participants in our bottom-up process recommend that clearer guidelines on how to identify relevant stakeholders should be produced through «a global standard for inclusive processes»[53] or within a «global AI inclusiveness manifesto that includes objectives, expected outcomes, and success metrics.»[54]

Non-biased systems

> «We risk losing the gains made with the civil rights movement and women's movement under the false assumption of machine neutrality.» - Joy Buolamwini, Algorithmic Justice League[55]

In its most narrow understanding by our participants, the inclusiveness principle is interpreted as the absence of bias in AI systems. In a world where machines increasingly make or prepare decisions that will have real-life implications for humans - particularly in sensitive areas such as policing, justice, hiring practices and others - bias in algorithmic systems may systematically reproduce or exaggerate societal biases, and thus risk disadvantaging certain groups of people.

> «In the life cycle of a model, lack of inclusion at different stages causes the model to develop bias over the course of time.» - Pranav M B, Alpan Raval and JadejaDA, Policy Kitchen participants[56]

Our participants point out that if AI systems are trained on datasets containing unknown biases, the future decisions made by these systems will produce more biased data, resulting in an amplification of the biases. Because such biases can enter the system at any given point in the life cycle of an AI system, a sole focus on the creation of inclusive training data would be too narrow. Therefore, it was suggested to implement checks at different stages of the life cycle that can identify the presence of such biases[57].

> «Supporting greater diversity and inclusion in the development of AI systems is critical to ensuring these systems are built in ways that support all stakeholders.» - Brandie Nonnecke, CITRIS Policy Lab UC Berkeley

Another relevant area for our participants is the composition of the teams building AI systems[58], and how this composition can influence design decisions and the presence of biases in those systems. If AI systems are designed by a relatively homogeneous group, they are more likely to have blindspots and contribute to unfair outcomes in their application. According to a recent study by the AI Now Institute, women and non-white ethnic groups are massively underrepresented in both industry and academia[59].

Overall, the consensus among our participants and external experts seems to be that the promotion of greater diversity in the development stage of the AI lifecycle is beneficial because it would both reduce possible biases and enhance the diversity of the stakeholders. This could be achieved by establishing targeted education and training programmes towards segments of the population at risk of being excluded from AI development (see education section below) and by developing monitoring and evaluation mechanisms that focus on the detection of algorithmic bias. Other solutions proposed by our participants include the development of AI sounding boards, where users report possible biases within algorithms, and the implementation of better feedback

loops[60] to facilitate the reporting of such incidents to AI developers.

In this regard, it may be interesting to keep in mind that some governments have already started to develop regulatory frameworks to protect society from algorithmic discrimination. For example, Cédric Villani, the lead author of France's AI strategy, proposes the introduction of discrimination impact assessments in the development of AI, «similar to the privacy impact assessments already made compulsory by General Data Protection Regulation for some data processing»[61]. Others, such as the US government, are looking at Algorithmic Accountability regulations «to conduct automated decision system impact assessments and data protection impact assessments»[62]. It has been recommended that such impact assessments be conducted by all government agencies when acquiring AI systems. For example, the report «Algorithmic impact assessments: A practical framework for public agency accountability»[63] published by the AI Now Institute highlights the importance for all government agencies to adopt practical frameworks to assess Automated Decisions systems and to ensure public accountability.

On a final note, several reviewers have pointed out that algorithmic bias is not always undesired - there are many applications where some form of bias is deliberate. Properly identifying bias and making it transparent to users should thus take priority over avoiding it altogether.

Open access

> «Inequalities tend to rise if this new knowledge and power are concentrated in the hands of a few players.» - Victor Vicente, Policy Kitchen participant[64]

A second aspect of inclusiveness, as understood by Policy Kitchen participants, pertains to the level of access to data and AI technologies. Inequalities may be exacerbated where such access is limited. Open access has been recognized as a democratizing element in the digital economy and ultimately a driver of economic development well before the AI revolution[65]. It may become more salient, but also more complex, in the age of AI.

Big tech companies play an ambiguous role here. On the one hand, they consolidate their market dominance with exclusive access to staggering amounts of data and proprietary algorithms. On the other hand, they contribute to the democratization of AI by publishing research, by offering open source machine learning platforms such as TensorFlow[66], and by providing open data portals (for example by Amazon[67], Google[68], Microsoft[69] and IBM[70]).

> «In a scenario where we increasingly interact with different AI agents, how can we share knowledge between them?» - Rodrigo Scotti, Policy Kitchen participant[71]

Despite the growing number of services and data repositories, our participants noted that there is a lack of standardization across the industry that would improve knowledge sharing. This could be addressed through the creation of a universal protocol by an international committee that would allow AI agents to share datasets and training knowledge among each other without compromising users' privacy.[72] Standards should be applied not only to the exchange of data between AI agents but in general when public or private entities make their data pools available. In the case of public data sets, our participants highlighted the importance of following open standards which could be revisited and improved by the global community in open forums.[73] At the same time, standards shouldn't be a means for homogenization - these must allow for sector-specific customizations that provide the necessary level of detail and data disaggregation to effectively train the particular AI models of each sector.[74] Some participants went even further and proposed the creation of a global data repository that consolidates public and private data. They pointed out that beyond policy, this will require incentive mechanisms for private companies to open up their data in a commons[75]. Inspiration could be found in existing endeavors; based on work by the Open Data Initiative[76], the UK government announced in early 2019 plans to invest up to £30m in a data trust

programme[77]. AI Commons[78] is contributing to and advocating for open access to AI technologies, quality and labeled data, and promoting collaboration between AI users and designers. Initiatives such as this may pave the way to global open access data repositories.

User rights and transparency

> «There is one group excluded from AI processes, that is quite easy to oversee because they are using AI on a daily basis - customers.» - Leyla Sünnewold, Policy Kitchen participant[79]

A third dimension of inclusiveness, as identified by our participants, concerns the power imbalance and knowledge asymmetries between users and AI service providers. To put users front and center, three themes emerged from our data: Data ownership, transparency, and choice.

On data ownership, a participant suggested the creation of a decentralized marketplace for personal data, giving users power over where and how their data is used and monetizing the data they contribute to AI service providers[80].

In regard to transparency, one participant suggested a product labeling system to alert individuals about the collection of personal data and use of machine learning, not unlike cookie consent banners in Internet browsers[81]. Others suggested to first design a research project[82] testing the hypothesis that more algorithmic transparency would lead to greater consumer trust and loyalty. Strong evidence in that area may indeed lead companies to disclose more about the inner workings of their offerings.

To get inspiration for AI transparency schemes, «useful insights can be drawn from the really innovative and creative design work that has stemmed from efforts to make privacy policies more succinct and comprehensible for the general public with the launch of the EU's General Data Protection Regulation (GDPR),» commented Jonathan Andrew from the Geneva Academy.

> «In Europe, we now have informed and free choice of cookies. We should provide no less for explicit and implicit AI standards.» - Oliver Hoffmann, Policy Kitchen participant[83]

On choice, participants highlighted the fact that a single standard is unable to reflect the diversity of worldviews among people and suggested a multi-staged process to develop AI systems reflecting multiple worldviews[84] and to allow for diversity and competition among AI standards, while letting users freely choose among them[85]. This is because, like Google Search, any AI systems come with embedded values and standards that stem from the worldview and culture of their builders. These systems, in turn, have the potential to transfer a particular worldview onto their users, like making them associate the word «apple» first and foremost with the company rather than the fruit.

Inclusive growth

Several contributions to Policy Kitchen look at inclusiveness from a more holistic perspective, akin to the notion of «inclusive growth» in documents such as the OECD Principles on Artificial Intelligence[86] or «Shared Prosperity» in the Asilomar Principles[87].

> «The US and China account for at least 75 percent of the cloud computing market and as much as 90 percent of the market capitalization value of the world's 70 largest digital platform companies.» - UN Digital Economy Report 2019[88]

If the digital economy holds the promise for a more equitable growth and shared prosperity, its effects have rather proved the contrary

so far. Instead of spreading widely, wealth creation has been highly concentrated in the hands of a few companies in the US and China, with the rest of the world, especially countries in Africa and Latin America, trailing considerably further behind.

To promote a more inclusive future in AI, our participants proposed two initiatives that involve specific redistribution schemes. The first, called «AI for Good Global Investment Fund»[89], would mandate that successful AI businesses allocate 2-3% of their profits to a common fund. Any individual, startup, or company could then apply for funding with ideas referring to the use of AI towards the realization of the Sustainable Development Goals, providing incentives for more people to develop AI for good. The fund would be governed by a multistakeholder board of directors comprised of impacted populations and public interest lawyers. «This initiative resonates well and could work with the AI for Good Global Summit and related industry funds,» says Amir Banifatemi from XPRIZE, founder of AI Commons.

> «Even highly qualified work could be endangered by the progress of AI and automatization. Unemployment, however, can lead to social problems like high rate of criminality, a radicalization of the population and social unrest.» - Miras Issayev, Amir Agovic & Cemsid Tunc, Policy Kitchen participants[90]

A second initiative proposes to create a special government budget[91] fed by a tax on major AI industries. The idea would be to allocate the collected funds towards research and development, for example around emerging professions and skills, and the creation of new training and education centers for the displaced workforce. Although the exact impact of AI on unemployment continues to be debated, scientists agree that AI will at least be able to replace a lot of technological tasks, particularly in the service sector, where data-based pattern recognition may supersede human experience in many areas. One of our participants therefore proposed a set of rules to protect human labour[92] involving a form of universal basic income.

Education

> «The education in the field of computer science is not appropriate for our times.» - Jendrick Ulfig, Policy Kitchen participant[93]

Almost one quarter of submitted ideas touch upon the subject of education. Access to relevant knowledge and skills is seen as a necessary condition to participate in an economy increasingly driven by AI technologies - both to empower consumers and to make the labor force ready for the digital transformation.

> «Providing learning opportunities that are tailored toward young people so that they can learn about AI will be critical, especially in that we should consider in many countries youths face increasing difficulties in finding long-term employment.» - Jonathan Andrews, Geneva Academy

At the most basic level, participants urge governments to ensure universal access to computer science education at all levels of the existing school system. A key challenge will be training qualified teachers and professors in the first place[94]. It may require opening lateral entry pathways to teaching[95]. Improving educational methods and more flexible education systems was seen as equally important as merely increasing the amount of computer science teaching. This may include a stronger focus on applied knowledge (e.g. block teaching, project weeks) and interdisciplinarity (e.g. STEAM programs)[96]. For inclusive outcomes, particular attention is necessary to make such curricula accessible and attractive to female students as well as minorities and economically disadvantaged groups[97].

> «There is an ever-growing digital divide between different generations of our society resulting in the exclusion of older citizens.» - Max Richter, Policy Kitchen participant[98]

Beyond school education for children and youth, participants also mentioned the importance of upskilling and reskilling programs for adults, particularly in those sectors most at risk of labor displacement in the AI revolution. In their view, governments should analyze skills gaps and target educational programs accordingly[99], or implement universally accessible «life-long learning» programs[100]. Finland[101], Singapore[102] and the UAE[103] are among the few countries that have launched programmes aimed at providing AI education to the general population.

Implementing such reforms to the educational system at the pace of technological development will be a daunting task for any government. While some participants proposed tax mechanisms to support public education, others advocated for public-private partnerships and civil society initiatives to supplement government efforts. One such idea is the creation of collaborative learning networks focused on AI with links to local schools[104]. They could be federated into a global umbrella organization providing coordination and funding[105]. More accessible AI education programs like AI4All[106], AI Saturdays[107] or Elements of AI[108] are already taking shape and may inspire similar initiatives in other countries.

> «Maximize knowledge generated by young innovators and institutions in the Global South to enrich our global agenda on AI in diversity and inclusion, and minimize the AI divide.» - Niousha Roshani, Policy Kitchen participant[109]

Arguably, the biggest challenge to inclusiveness on a global level is bridging the North-South «AI divide»[110]. AI talent is still highly concentrated in a handful of countries. This is not only problema-

tic with a view on inclusiveness in the AI core community, but also risks aggrandizing economic disparity between richer and poorer nations. Participants thus urged for investments in AI education in developing countries[111], measures to identify and foster young talent in such countries, as well as building and strengthening bridges between AI communities in the Global North and Global South[112]. Such efforts are sparse but growing: Several African universities are running AI programs. ICLR 2020 in Addis Ababa will be the first major international AI conference hosted in Africa. Google and Microsoft just opened their first African AI labs this year. While much of the Southern AI talent is likely to seek work in western countries, there is hope that the fast growth of venture capital flowing into African tech (~750m in 2018, a 300% increase within a year[113]) will also generate work opportunities locally. Similar trends are discernible in Latin America[114] and Southeast Asia[115].

In a conversation focused on challenges for inclusiveness in AI, it is easy to forget that AI also holds great potential for levelling access to education worldwide, for instance by providing virtual learning environments with smart content and intelligent tutoring systems adapted to the needs of students.[116]

Inclusive governance

Finally, many participants underlined the importance of inclusive governance systems - the processes used to define and implement norms. Their contributions suggest that it is important to issue ethical norms to foster inclusiveness in AI, yet inclusiveness might itself be jeopardized by non-inclusive processes to design such norms. Given the concentration of the technical and policy communities surrounding AI in a handful of countries, as well as the limited gender and racial diversity within these communities, the question of how to design inclusive governance in the first place is paramount - particularly at the global level.

While some were sceptical of the idea of creating specialized governance bodies for AI given existing governance mechanisms in related domains[117], many were of the opinion that some form

of intergovernmental organization would be necessary to ensure inclusive governance[118]. At the intergovernmental level, such a body would have to be designed in a way that ensures developing countries are not left out in the decision-making process[119]. So far, relatively narrow intergovernmental bodies like the G7, EU, OECD and G20 are spearheading AI governance efforts, while bodies with a more comprehensive membership such as the International Telecommunications Union (ITU) have not yet published AI principles or guidelines.

> «Members States should establish independent working groups, which will include all levels of their societies.» - Evelyn Shi & Clemens Denner, Policy Kitchen participants[120]

In any case, institutions based on national representation do not guarantee the inclusion of diverse interests at the sub-national level. Participants proposed models of inclusive working groups to inform national positions[121] and even the use of an «inclusive process standard» that could be applied by governments in intergovernmental bodies[122].

> «Too often it is assumed that knowledge and expertise only flow in one direction.» - Jessica Cussins Newman, Center for Long-Term Cybersecurity

There is also the option of direct multistakeholder participation in international fora. This may take the form of soft interfaces between policy and «grassroots» communities, as outlined in the proposal to create a «DAO AI Fellowship»[123]. Some participants called for applying the public crowdsourcing approach that led to the Brazilian Civil Rights Framework for the Internet, yet on a larger scale[124]. The EU AI Alliance is an example of a deliberative multistakeholder forum informing AI governance at the intergovernmental level. It is important to keep in mind that such approaches, while offering avenues to anyone for voicing concerns and preferences, do not ensure equal representation of different interest groups, nor do they provide them with

actual decision making power. Models providing such powers to specific stakeholder groups, like the International Labor Organization (ILO), will face the challenge of defining which stakeholder groups should be entitled to voting rights and which should not for the case of AI.

In a recent foraus paper[125], the authors outlined such models in greater detail for the case of the International Panel of AI (IPAI) initiated by France and Canada, and proposed following the stakeholder escalator framework of the International Risk Governance Council (IRGC). In this model, different levels of stakeholder inclusion would apply to different issues, depending on the level of uncertainty surrounding those issues.

> «In order to preserve an environment inclusive for different and dissenting views of the world, we should mandate that there is competition and diversity among AI standards.» - Oliver Hoffmann, Policy Kitchen participant[126]

Finally, while many participants were in favor of working towards a single binding ethical framework for AI systems with a global scope, some pointed out that full consensus is unlikely and that inclusiveness is better assured with a diversity of competing standards - under the condition that such standards be made transparent and subject to choice by consumers[127].

Dessert

In the following, we summarise the key takeaways from this global Policy Kitchen process.

1. There is a surprising level of convergence on the level of core principles for an ethical trajectory of AI across over 90 documents issued by a range of actors globally. Inclusiveness is almost universally accepted as a guiding principle. However, a closer look reveals great divergence in the comprehension of this term. This divergence was also apparent in the proposals submitted by the participants. The process identified a number of interpretations of the term, as well as a long list of actors involved. Participants urged for a clear definition, including the scope of application and success metrics, in any norm using the term.

2. In its most narrow sense, inclusiveness in AI pertains to non-biased algorithms. Many corporations already have internal guidelines for minimizing algorithmic bias and some governments are working on laws requiring the assessment of algorithms for bias and impact. Policy Kitchen participants proposed applying bias assessments at all stages of the life cycle of AI systems, the creation of reporting

mechanisms and a number of ways to increase diversity in the AI research and development communities.

3. A slightly broader interpretation of inclusiveness pertains to open access to data and source code, which, if available, would help level the playing field between bigger and smaller players. Participants proposed the establishment of open standards for sharing data and the creation of data pools / data trusts.

4. Inclusiveness was also understood as pertaining to the power relationship between corporations and consumers, warranting measures to strengthen consumers' rights, transparency and choice. Participant's proposals included labelling AI products, privacy measures, as well as giving monetary value to user data through the creation of data marketplaces.

5. In its broadest meaning, inclusiveness was understood as «inclusive growth» or «shared prosperity» - the idea of having all parts of society benefit from the economic advantages of and minimising inequities caused by AI technology. Participants proposed a range of measures, from voluntary commitments by corporations to reinvest part of their profits in a fund for the achievement of the Sustainable Development Goals with AI, to government-led redistribution schemes and regulations protecting human labor.

6. Equal access to education was seen by a large number of participants as a crucial component for inclusiveness on any of the above levels. It was pointed out that this does not only pertain to children and youth, but also the elderly, professions threatened by automation, as well as any potential user of AI systems. Participants explored several ideas to reform educational systems, provide lifelong learning opportunities and open access to knowledge. They also highlighted the fact that special measures need to be taken to improve access to and uptake of AI education for women, disadvantaged groups and citizens of developing countries.

7. Finally, the principle of inclusiveness was understood as applying to the governance process. It is hard to imagine inclusive outcomes if the process of setting norms itself is not inclusive in nature. Focussing on models for global governance, participants proposed several options ranging from classic intergovernmental bodies to more agile «crowdsourcing» approaches using digital deliberation, as well as soft measures for knowledge transfer between «grassroots» and «policy maker» communities.

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Endnotes

1 https://www.policy-kitchen.com
2 https://www.forgus.ch/
3 https://www.swissnex.org/
4 https://ai-commons.org/
5 UN Secretary General's High-level Panel on Digital Cooperation, "The Age Of Digital Interdependence", United Nations, (2019), https://www.un.org/en/pdfs/DigitalCooperation-report-for%20web.pdf
6 Amandeep Singh Gill."Digital Cooperation: Can Geneva Make It a Win-win?". Public lecture, Graduate Institute of International and Development Studies, Geneva, September 2, 2019.
7 Anna Jobin, Marcello Ienca and Effy Vayena, "The Global Landscape Of AI Ethics Guidelines", Nature Machine Intelligence, 1, no. 9 (2019): 389-399; "AI Ethics Guidelines Global Inventory." AlgorithmWatch. Accessed October 7, 2019. https://algorithmwatch.org/en/project/ai-ethics-guidelines-global-inventory/; Zeng, Yi, Huangfu Cunqing, and Enmeng Lu. "Linking Artificial Intelligence Principles (LAIP)." Linking Artificial Intelligence Principles (LAIP). Accessed October 7, 2019. http://www.linking-ai-principles.org/.
8 "AI Principles." Future of Life Institute. Accessed October 7, 2019.https://futureoflife.org/ai-principles/
9 "The Declaration - Montreal Responsible AI." Montrealdeclaration-responsibleai.com. Accessed October 7, 2019. https://www.montrealdeclaration-responsibleai.com/the-declaration
10 Access Now Policy Team. "The Toronto Declaration: Protecting the Rights to Equality and Non-Discrimination in Machine Learning Systems." Access Now. August 13, 2018. https://www.accessnow.org/the-toronto-declaration-protecting-the-rights-to-equality-and-non-discrimination-in-machine-learning-systems/
11 "Beijing AI Principles." Beijing Academy of Artificial Intelligence (BAAI). Accessed October 7, 2019. https://www.baai.ac.cn/blog/beijing-ai-principles
12 Sundar Pichai, "AI at Google: Our Principles." Google. June 7, 2018. https://www.blog.google/technology/ai/ai-principles/
13 Adam Cutler, Milena Pribić and Lawrence Humphrey, "Everyday Ethics For Artificial Intelligence", PDF, IBM Corporation. (2019). https://www.ibm.com/watson/assets/duo/pdf/everydayethics.pdf; Varshney, Kush R. "Introducing AI Fairness 360, A Step Towards Trusted AI - IBM Research." IBM Research Blog, February 12, (2019). https://www.ibm.com/blogs/research/2018/09/ai-fairness-360/
14 "Our Approach: Microsoft AI Principles." Microsoft. Accessed October 7, 2019. https://www.microsoft.com/en-us/ai/our-approach-to-ai
15 "Tenets." The Partnership on AI. Accessed October 7, 2019. https://www.partnershiponai.org/tenets/
16 "Ethically Aligned Design: A Vision For Prioritizing Human Well-Being With Autonomous And Intelligent Systems", PDF, 1st ed. The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems. (2019). https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/ead1e.pdf
17 Cédric Villani et al., "For A Meaningful Artificial Intelligence: Towards French And European Strategy", Conseil national du numérique. (2018). https://www.aiforhumanity.fr/pdfs/MissionVillani_Report_ENG-VF.pdf
18 "AI Principles", Smartdubai.Ae, 2019. https://www.smartdubai.ae/initiatives/ai-principles
19 "A Proposed Model Artificial Intelligence Governance Framework", PDF, 1st ed. Personal Data Protection Commission Singapore (PDPC), (2019). https://www.pdpc.gov.sg/-/media/Files/PDPC/PDF-Files/Resource-for-Organisation/AI/A-Proposed-Model-AI-Governance-Framework-January-2019.pdf
20 House of Lords, "AI In The UK: Ready, Willing And Able?", PDF, Authority of the House of Lords, (2018). https://publications.parliament.uk/pa/ld201719/ldselect/ldai/100/100.pdf
21 Government of Canada, "Charlevoix Common Vision For The Future Of Artificial Intelligence", International.Gc.Ca, 2019, https://www.international.gc.ca/world-monde/international_relations-relations_internationales/g7/documents/2018-06-09-artificial-intelligence-artificielle.aspx?lang=eng

22 "G20 Ministerial Statement on Trade and Digital Economy", PDF, 9 June 2019, https://www.mofa.go.jp/mofaj/files/000486596.pdf
23 "Recommendation Of The Council On Artificial Intelligence", OECD Legal Instruments, 2019, https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449
24 "Ethics Guidelines For Trustworthy AI", Digital Single Market - European Commission, 2019, https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai
25 UN Secretary General's High-level Panel on Digital Cooperation, "The Age Of Digital Interdependence", United Nations, (2019), https://www.un.org/en/pdfs/DigitalCooperation-report-for%20web.pdf
26 Jobin, Ienca and Vayena, "The Global Landscape Of AI Ethics Guidelines"; "AI Ethics Guidelines Global Inventory." AlgorithmWatch.; Yi, Cunqing, and Lu, "Linking Artificial Intelligence Principles (LAIP)."
27 Brent Mittelstadt, "AI Ethics – Too Principled To Fail?", SSRN Electronic Journal, 2019.
28 UN Secretary General's High-level Panel on Digital Cooperation, "The Age Of Digital Interdependence", United Nations, (2019), https://www.un.org/en/pdfs/DigitalCooperation-report-for%20web.pdf
29 Jessica Fjeld, Hannah Hilligoss and Nele Achten, "Principled Artificial Intelligence: A Map of Ethical and Rights-Based Approaches", Ai-Hr.Cyber.Harvard.Edu, 2019, https://ai-hr.cyber.harvard.edu/primp-viz.html
30 Cutler, Pribić and Humphrey, "Everyday Ethics For Artificial Intelligence".
31 "Responsible Bots: 10 Guidelines For Developers Of Conversational AI", Microsoft Research, 2019, https://www.microsoft.com/en-us/research/publication/responsible-bots/
32 Luciano Floridi et al., "Ai4people—An Ethical Framework For A Good AI Society: Opportunities, Risks, Principles, And Recommendations", Minds And Machines 28, no. 4 (2018): 689-707.
33 Access Now Policy Team. "The Toronto Declaration".
34 Internet Society, "Artificial Intelligence And Machine Learning: Policy Paper", PDF, (2017), https://www.internetsociety.org/wp-content/uploads/2017/08/ISOC-AI-Policy-Paper_2017-04-27_0.pdf.
35 "Recommendation Of The Council On Artificial Intelligence", OECD Legal Instruments, 2019, https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449
36 "Ethics Guidelines For Trustworthy AI", Digital Single Market - European Commission, 2019, https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai
37 Lars Lünenburger, https://www.policykitchen.com/node/244
38 Ibid.
39 Angela Böhringer, https://www.policykitchen.com/node/245
40 Lalit Gautam, https://www.policykitchen.com/node/240
41 Ben Chitsonga, https://www.policykitchen.com/node/211
42 Jendrick Ulfig, https://www.policykitchen.com/node/239
43 Max Richter, https://www.policykitchen.com/node/254
44 Ben Chitsonga, https://www.policykitchen.com/node/211, Lea Hungerbühler and Nathan Kaiser, https://www.policykitchen.com/node/251
45 Leyla Sünnenwold, https://www.policykitchen.com/node/247
46 Oral mention by participants of the San Francisco Workshop, May 10, 2019
47 Paul Ravindranath and Arvind Nadig, https://www.policykitchen.com/node/223
48 Ben Chitsonga, https://www.policykitchen.com/node/211
49 Marina Pecoraro and Igor de Luma, https://www.policykitchen.com/node/229
50 Naval Singh, Piyush Makhija, Aparna Ashok and Anuj Trehan, https://www.policykitchen.com/node/225
51 Niousha Roshani, https://www.policykitchen.com/node/252
52 Sophie Sithamma, https://www.policykitchen.com/node/248
53 Jonas Nakonz and Lars Lünenburger, https://www.policykitchen.com/node/221
54 Niousha Roshani, https://www.policykitchen.com/node/252
55 Joy Buolamwini, http://gendershades.org/index.html
56 Pranav M B, Alpan Raval, and JadejaDA;

https://www.policykitchen.com/node/226
57 Ibid.
58 Ibid.
59 Sarah Myers West, Meredith Whittaker and Kate Crawford, Discriminating Systems: Gender, Race And Power In AI, PDF, AI Now Institute, (2019). https://ainowinstitute.org/discriminatingsystems.pdf
60 Pranav M B, Alpan Raval, JadejaDA; https://www.policykitchen.com/node/226
61 Villani et al., "For A Meaningful Artificial Intelligence"
62 The United States Congress, "Algorithmic Accountability Act Of 2019", 2019, https://www.wyden.senate.gov/imo/media/doc/Algorithmic%20Accountability%20Act%20of%202019%20Bill%20Text.pdf
63 Dillon Reisman et al., "Algorithmic Impact Assessments: A Practical Framework For Public Agency Accountability", AI Now Institute, (2018), https://ainowinstitute.org/aiareport2018.pdf
64 Victor Vicente, https://www.policykitchen.com/node/231
65 Andrew Stott, "Open Data For Economic Growth", The World Bank, (2014), https://www.worldbank.org/content/dam/Worldbank/document/Open-Data-for-Economic-Growth.pdf.
66 "Tensorflow", Medium, 2019, https://medium.com/tensorflow
67 "Registry Of Open Data On AWS", Registry. Opendata.Aws, 2019, https://registry.opendata.aws/
68 "Bigquery Public Datasets", Google Cloud, 2019, https://cloud.google.com/bigquery/public-data/
69 "Azure Open Datasets", Microsoft Azure, 2019, https://azure.microsoft.com/en-in/services/open-datasets/
70 "Data Asset EXchange." IBM Developer, 2019, https://developer.ibm.com/exchanges/data/
71 Rodrigo Scotti, https://www.policykitchen.com/node/227
72 Ibid.
73 Victor Vicente, https://www.policykitchen.com/node/231
74 Sachin Unni and Prateek Agrawal, https://www.policykitchen.com/node/224
75 Jeremy Casorso, Kevin Koy and Christoph Droesser, https://www.policykitchen.com/node/217
76 Open Data Institute. "Huge Appetite for Data Trusts, According to New ODI Research." The ODI, April 15, 2019. https://theodi.org/article/huge-appetite-for-data-trusts-according-to-new-odi-research/
77 Evenstad, Lis. "Government Launches Data Trust Programme." ComputerWeekly.com, January 31, 2019. https://www.computerweekly.com/news/252456785/Government-launches-data-trust-programme
78 https://ai-commons.org
79 Leyla Sünnewold, https://www.policykitchen.com/node/247
80 Ibid.
81 B Cavello and Momin M. Malik, https://www.policykitchen.com/node/256
82 Lisa Nash and Cyrill Glockner, https://www.policykitchen.com/node/216
83 Oliver Hoffmann, https://www.policykitchen.com/node/232
84 Oliver Hoffmann, Evgeny Romanovskiy and Ursula Eysin, https://www.policykitchen.com/node/234
85 Oliver Hoffmann, https://www.policykitchen.com/node/232
86 "OECD Principles on AI." OECD. Accessed October 10, 2019. https://www.oecd.org/going-digital/ai/principles/
87 "Asilomar AI Principles." Future of Life Institute. Accessed October 10, 2019. https://futureoflife.org/ai-principles/
88 Sirimanne, Shamika N., "Digital Economy Report 2019", United Nations, (September 4, 2019), p.21, https://unctad.org/en/PublicationsLibrary/der2019_en.pdf,
89 Julia Davis, Leila Toplic, Rebecca C. Fan and John Robins, https://www.policykitchen.com/node/215
90 Miras Issayev, Amir Agovic and Cemsid Tunc, https://www.policykitchen.com/node/235
91 Caue Castellani and Guillaume Ulman, https://www.policykitchen.com/node/255
92 Miras Issayev, Amir Agovic and Cemsid Tunc, https://www.policykitchen.com/node/235
93 Jendrick Ulfig, https://www.policykitchen.com/node/239
94 Jendrick Ulfig, https://www.policykitchen.com/node/239; Anwesh Satapathy and Suresh Kannaiyan https://www.policykitchen.com/node/222
95 Parth Sharma, https://www.policykitchen.com/node/253
96 Jendrick Ulfig, https://

www.policykitchen.com/node/239; Nanao, https://www.policykitchen.com/node/212
97 Lalit Gautam, https://www.policykitchen.com/node/240
98 Max Richter, https://www.policykitchen.com/node/254
99 Paul Ravindranath & Arvind Nadig, https://www.policykitchen.com/node/223
100 Malin Borg and Niniane Paeffgen, https://www.policykitchen.com/node/101; Luca Brunner https://www.policykitchen.com/node/250
101 Delcker, Janosch. "Finland's Grand AI Experiment." POLITICO, April 18, 2019. https://www.politico.eu/article/finland-one-percent-ai-artificial-intelligence-courses-learning-training/
102 "Reskilling Schemes Benefit Workers, Employers and Governments." European CEO. Accessed October 10, 2019. https://www.europeanceo.com/home/featured/reskilling-schemes-benefit-workers-employers-and-governments/; Ang, Jolene. "Enhanced SkillsFuture Portal to Personalise Course Recommendations for Individuals." The Straits Times, July 30, 2019. https://www.straitstimes.com/singapore/education/enhanced-skillsfuture-portal-to-personalise-course-recommendations-for
103 Microsoft News Center. "UAE Ministry of Education Partners with Microsoft to Upskill Employees in AI and Data Science." News Center Middle East & Africa. Microsoft, April 24, 2019. https://news.microsoft.com/en-xm/2019/04/24/uae-ministry-of-education-partners-with-microsoft-to-upskill-employees-in-ai-and-data-science/
104 Claudinei Walker, https://www.policykitchen.com/node/228
105 Lars Martens, Helena Saurais and Solene_D, https://www.policykitchen.com/node/233
106 http://ai-4-all.org
107 https://www.saturdays.ai/
108 https://www.elementsofai.com/
109 Niousha Roshani, https://www.policykitchen.com/node/252
110 Ibid.
111 Parth Sharma, https://www.policykitchen.com/node/253
112 Niousha Roshani, https://www.policykitchen.com/node/252
113 Team WeeTracker. "African Venture Capital 2018 Report - USD 725.6 Mn Invested In 458 Deals." WeeTracker, August 31, 2019. https://weetracker.com/2019/01/04/what-a-year-the-state-of-venture-capital-in-africa-2018/
114 "Latin America Tech Booms As Brazil Dominates And Regional Investors Grow." CB Insights Research, July 19, 2018. https://www.cbinsights.com/research/latin-america-tech-funding/
115 Russell, Jon. "VCs Give Us Their Predictions for Startups and Tech in Southeast Asia in 2019." TechCrunch, January 23, 2019. https://techcrunch.com/2019/01/22/vc-predictions-southeast-asia-tech-startups/
116 Montebello, Matthew. AI Injected e-Learning: the Future of Online Education. Cham: Springer International Publishing, 2018.
117 Lea Hungerbühler and Nathan Kaiser, https://www.policykitchen.com/node/251
118 Ricardo Flores Filho, https://www.policykitchen.com/node/213; Parth Sharma, https://www.policykitchen.com/node/253; Marina Pecoraro and Igor de Lima, https://www.policykitchen.com/node/229; Deepak Ashwani, https://www.policykitchen.com/node/241; Kevin Kohler https://www.policykitchen.com/node/117
119 Parth Sharma, https://www.policykitchen.com/node/253
120 Evelyn Shi and Clemens Denner, https://www.policykitchen.com/node/236
121 Ibid.; Marina Pecoraro and Igor de Lima, https://www.policykitchen.com/node/229
122 Jonas Nakonz and Lars Lünenburger, https://www.policykitchen.com/node/221
123 Stefan Petzov, Şerife Wong, Jessica Cussins Newman and Chrisann Brennan, https://www.policykitchen.com/node/218
124 João Reis, Luis Fernando Eboli Kimaid and Rita Wu, https://www.policykitchen.com/node/230
125 Kevin Kohler, Nicolas Zahn and Pascal Oberholzer. "Making Sense of Artificial Intelligence: Why Switzerland Should Support a Scientific UN Panel to Assess the Rise of AI" foraus Policy Brief, October 2019.
126 Oliver Hoffmann, https://www.policykitchen.com/node/232
127 Ibid., Oliver Hoffmann, https://www.policykitchen.com/node/234

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