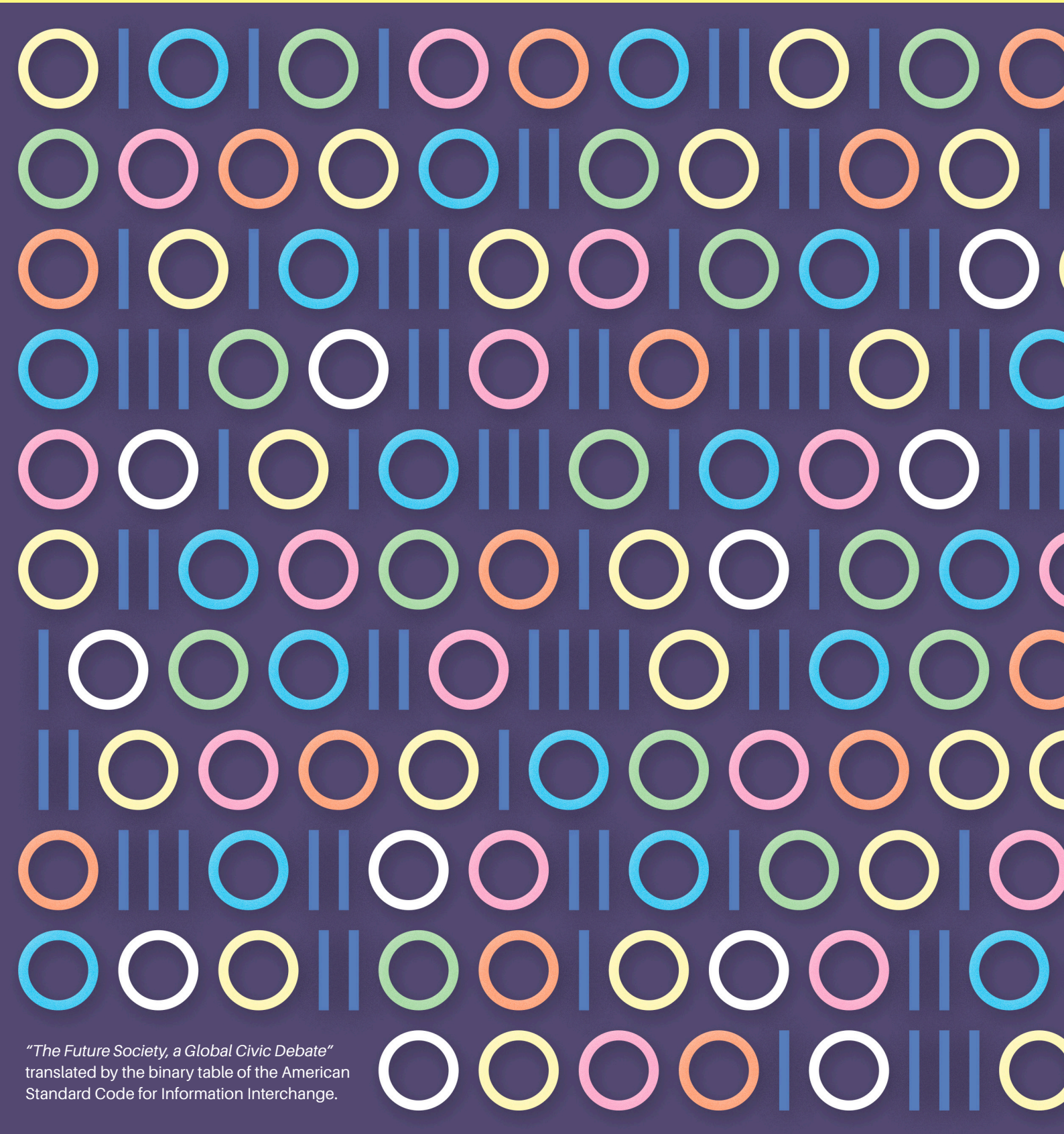
01

THE FUTURE SOCIETY

A Global Civic Debate on Governing the Rise of Artificial Intelligence

Executive Summary

September 2018



"The Future Society, a Global Civic Debate" translated by the binary table of the American Standard Code for Information Interchange.

5 languages

English, French, Chinese,
Japanese, Russian

17 Global partners:

H5, Bluenove, IEEE, CNIL,
Les Echos, JSAI Ethics Committee,
Usbek & Rica, Cap Digital,
CNNum, World Future Society,
Tencent Research Institute,
The Millennium Project
Future of Life Institute, Centre
for the Study of Existential Risk,
CFI, Nesta, GCSP

21 Online & Offline Events

Global reach:

From China, US, Europe and Russia.

Engagement & Participation:

70 390 Page views
2 525 Learning hours
2 200 Participants
2 074 Votes
1 291 Written proposals
702 Writers

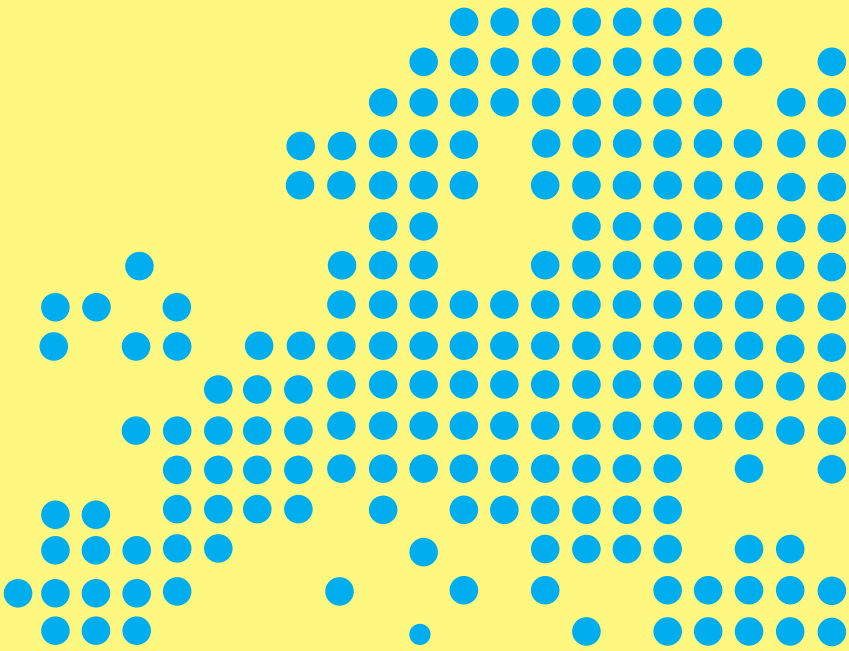
21 Newsletters

circulated to keep the community informed
on the latest developments in the discussion

Social Media:

#AIforGood
and **#ImaginariesofAI**
reached over **5,5** Million

Context



Artificial Intelligence and machine learning are becoming irrevocably embedded in our lives. From medical and legal diagnostics to financial loan approvals and virtual personal assistants, AI has many uses that benefit our society through greater inclusion and access to goods and services. It beckons a step-change in humanity's progress, and with continuous innovation, the positive impact of AI could amplify over time. Nonetheless, as with previous technological revolutions, AI also poses significant risks and threats to humanity, such as disintegration of individual privacy, lack of agency and control, scaled threats to cybersecurity, prolonged social disorder, and many others.

The opportunities and challenges of the AI revolution are inextricably imbricated. Designing and deploying smart governance for AI implies striking the right balance between pursuing the upside and minimizing the downside of this technological revolution. Smart governance also must differentiate between that which can be kept culturally specific and that which needs to be universal. This is particularly challenging in a global context that is changing fast, where nations, people, and economies are becoming more interdependent and connected, yet still very distant in terms of culture and values. Emerging economies for instance are driven by the urgency of development, modernization, demography, and disparity, while more advanced countries strive to maintain their position among world powers by reforming and renewing their socio- economic models. Harmonizing value systems in such context is difficult.

How the AI revolution plays out is not destiny or chance. Citizens, governments, business leaders, and academics are empowered to decide the course. This is why we convened the Global Civic Debate, a cross-disciplinary community assembled to discuss the multi-layered aspects of AI and its governance over a period of seven months. Through a diverse collection of more than 2,000 participants, over 700 writers, more than 3,300 contributions in five languages, and 21 events, we garnered insights into the impact of AI and discovered how it reverberates around the world. We synthesized these insights and developed recommendations for policymakers to shape a positive future for the role of AI.

Key Insights

Based on this collective intelligence exercise, we curated the following key insights.

The prevailing notion of Artificial Intelligence is obsolete.

1

It does not do justice to the reality (or the dynamics) of the concept it attempts to describe. It is a legacy of a history where there was never a universally accepted definition, but always ambiguity. The notion remains broad, fluid, and contested. AI refers to a vast array of techno-scientific disciplines, technologies, and methods, a loose definition that has accompanied its deployment across numerous sectors, which furthered the ambiguity. While AI technology has evolved, the public remembers film-depicted fantasies of machine intelligence replicating common sense, consciousness, or sentience. For effective governance, the notion must be re-invented, and inconsistencies and inaccuracies must be overcome by understanding the components and drivers of AI. Our functional definition – *big data driven, machine learning algorithm-centric, complex socio-technical systems powered by supercomputing* – serves as a lens and an anchor to assess the current dynamics of AI and how it should be governed.

Expectations of AI will diverge within and among societies, but building trust in AI is a universal desire.

2

There are no foundational moral, ethical, or societal norms that guide a universal view on an AI-driven future. However, it is evident that creating trust in AI technologies is valuable to the debate community. With continued engagement through public forums and awareness campaigns, technical standards and certification, and greater resources dedicated to explainability, citizens are more likely to gain trust in AI. This is an important hurdle, because when AI is deployed at scale, its full benefits will only be unlocked if citizens trust the technology enough to consistently engage with it in their everyday lives.

There is potential for blockchain and other self-governing protocols to address challenges in AI.

3

Blockchain and distributed ledgers could be used to address key challenges in AI, such as securing personal data, access to data for more developers, and governance of ethical systems. Blockchains and other self-governing protocols use distributed and decentralized digital ledgers to record, store, and cryptographically secure transaction data between parties. This infrastructure raises potential applications for AI such as securing data and the potential to support a *data exchange*, which may encourage more citizens to offer data, garner greater access to data for more parties, and increase diversity of sources of data reducing data bias. Blockchain-based incentivization mechanisms and smart contracts may also offer complement and/or alternative models for governance of AI development. These potential applications are largely early-stage, unexplored and may face technical challenges, but they offer interesting theoretical complements / alternatives to addressing the major challenges in AI governance.

AI is envisioned to unlock a step-change in societal progress.

4

With its vast potential to fuel and support new scientific discoveries, and ability to create impact at scale, such as monitoring, progressing, and achieving the UN Sustainable Development Goals, AI could beckon a clear shift from our current societal structures, which are arguably leaning toward increased inequality and exclusion. With robust global cooperation and deployment of AI, this technology could help address major challenges such as climate change and poverty, and find new or more efficient allocations of resources that drive economic development. Humanity should thrive if the appropriate checks and balances are in place for governing the rise of AI.

Smart governance is key to navigating AI risks, achieved by being agile and evolving.

5

From risks of data privacy to large scale workforce displacement, our debate surveyed a range of potential threats and risks as AI becomes increasingly prevalent. The debate took a clear stance that governance plays an important role in managing risks and ensuring that values such as inclusion, equality, representation, and transparency are preserved. Governance is also key to avoid an industry or national *race to the ethical bottom* to gain market share through first-mover advantages. Given the unprecedented pace of technological change, governance must evolve on several levels, including integration of the local and the global, and alignment of the political and the technical. Smart governance would enable governments to develop better knowledge on these deeply complex topics.

Anxieties over loss of human safety, control, or major failures in AI-integrated systems merit careful consideration by the global AI community.

6

With increased dependence on AI to conduct critical daily decisions – from individual choices such as scheduling time to supranational choices of deploying autonomous weapons – there is a significant fear of the consequences when humans are removed from the command chain. This, coupled with the lack of trust in the AI decision-making processes, creates significant roadblocks to public acceptance and adoption of AI.

AI makes humans re-evaluate their identity and place in society.

7

As the nature of machine intelligence evolves toward general or super intelligence, the shifting paradigm of human beings, the most cognitively developed entities so far known in the Universe, necessitates a discussion on the relevance, role, and future development of humanity in an AI centric world.

Top recommendations

To address the insights outlined above, the debate community put forward the following high-level recommendations.

Build *decision intelligence engineering* capability into governance processes to achieve balance in policy making to meet societal goals.

1

Decision intelligence builds an iterative understanding of the way certain actions lead to an outcome. The engineering concept relates to understanding who has the skill set to handle a particular challenge. In AI, decision intelligence engineering enables the right mix of talent to solve a problem and ensure the results are as intended. To disentangle the complexity in AI technologies and adequately address their impact, such an iterative and practical mechanism is essential for effective governance. Our decision intelligence capability could be advanced through these concepts:

- An Intergovernmental Panel on AI (IPAI) to build a solid base of facts to enable policy making. A large and interdisciplinary group of AI scientists and experts who perform regular assessments nested in a solid scientific process could play a key role in forging global consensus on the challenges to be addressed in AI development.

- An *AI4SDGs Center*, which seeks to harness the power of AI to monitor, simulate, predict, and make progress toward the UN's Sustainabl Development Goals. The center – a *do tank* that brings together business, governments, academia, and civic society – would act as an engine to apply IPAI's policy recommendations in real-world projects, embed governance and ethics in AI problem solving, and pursue inclusive and diverse AI development.

- A move from *United States versus China* toward *United States with China*, to close the gap in their AI business models, technical standards, and underlying framings and outlooks. The U.S. and China increasingly appear as *AI superpowers* operating within a global duopoly. Exploring the appropriate articulation between competitive and collaborative dynamics seems an important endeavor.

Propagate effective global governance for AI.

2

- Embed a multi-stakeholder, inter-disciplinary and collective intelligence process for policy making and oversight. This could include bringing artists from the film industry into conversations around governance, as they offer valuable insights and influence over citizens.
- Favor the rise of international technical standards-setting processes and organizations for AI to harness the power of *soft governance*.
- Work with established organizations and communities of practice to build and operationalize universal but culturally adaptive ethical guidelines, codes of conduct, and codes of practice.
- Explore the need for international treaties and implementation and oversight mechanisms *(hard governance)* on several topics. This could include governing the collection, storage, processing, and flow of data as well as the testing, liability, and use of autonomous drones, and the deployment of lethal autonomous weapons.

Ensure representative and secure data for AI.

3

- Establish a global data exchange that serves as an independent, market-driven, regulated platform for data exchange.
- Leverage development in blockchain technologies to secure data from its source.
- Educate citizens about AI to boost data representation, inclusion, and civic engagement.
- Build mechanisms whereby AI is able to detect and correct its own level of bias or lack of representation.

Mitigate risks from unemployment.

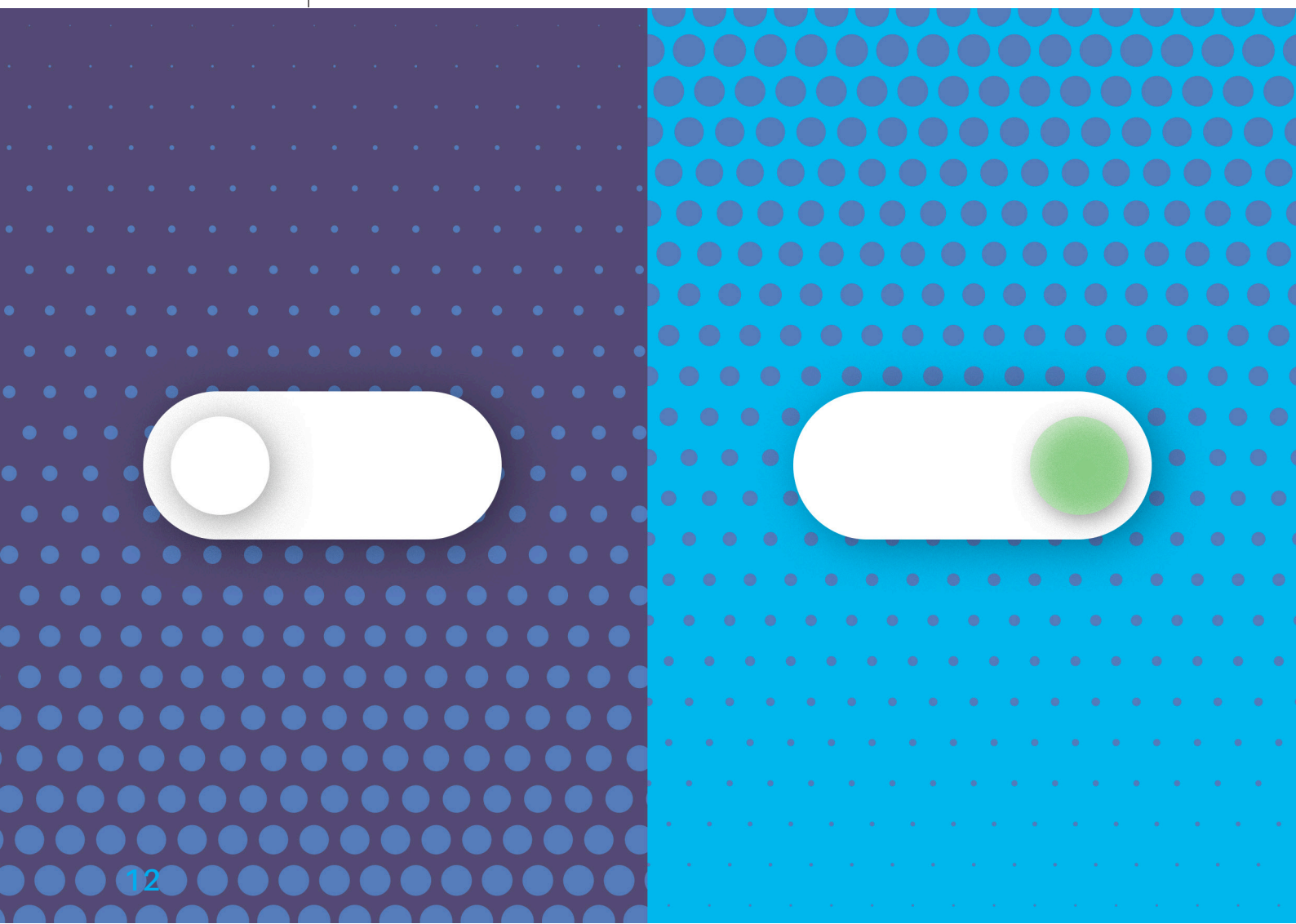
4

- Develop a detailed cash flow projection model to assess the feasibility and options to re-invent social safety nets for different countries and over varying time periods.
- Create new partnerships between employees, unions, employers, and the government to invest in lifelong training programs.
- Promote local community service movements as a complement to employment and instigate a shift in public perception of *work*.
- Evolve education national programs to foster lifelong adaptability and learnability given the uncertainty in nature of jobs posed by the *AI revolution*.

Beyond the Global Civic Debate

The Global Civic Debate began a conversation on the rise, dynamics, and consequences of AI. While this report provides an overview of the main insights, tensions, and policy recommendations put forward by our community, we recognize this is just the beginning. The Future Society commits to continuing this endeavor in the following ways:

- Work closely with governments and policymakers through research, advisory, convenings, educational programs, and *special projects* to ensure our community's views are translated into actionable policy and impact.
- Continue to nurture the debate and engage a diverse and inclusive community by building grassroots movements. We plan to disseminate many of the insights from the debate to global citizens through engaging video and visual content that spreads awareness and makes the debate on AI increasingly inclusive.



- Harness the creativity in the imaginaries of AI as a tool for communicating and working with governments, business leaders, and citizens. Among others, we aim to work with script writers, producers and others in the entertainment industry to understand how imaginary dynamics impact public perception and thus governance processes. We aim to create sharper and more balanced depictions of AI for mass scale audiences.

- Continue to leverage the collective intelligence platform to bridge conversations on AI among government, academia, private sector, and civil society. Inspired by the Imaginaries of AI theme of the Global Civic Debate, we are developing methodologies and strategies for large organizations (public and private) to better understand and harness the impact of AI adoption, implement effective AI solutions within their operations, and enable transformation.

- Work to develop pathways towards Smart Global AI Governance through a virtuous cycle of research, convenings, and education programs. We are committed to applying a dynamic and iterative approach informed by the latest collective intelligence tools and methodologies to better understand the dynamics, impact and governance of AI. One example the *"Dubai Global Governance of AI Roundtable"* (GGAR), which we are developing in partnership with the United Arab Emirates government and which is envisioned as a yearly event fueled by a continuous research and community building effort. The GGAR first edition took place in Dubai last February during the 2018 World Government Summit. Another example is our support for the creation of an *"Intergovernmental Panel on AI"* (IPAI; modelled after the Intergovernmental Panel on Climate Change) envisioned as a vessel to mature a solid base of matter of facts capable of informing policy-making in the long run. A final example is our proposal to develop an "AI4SDGs Center", envisioned as an open platform to innovate, test and help scale novel AI solutions and associated models of Public-Private-People Partnerships and ethical governance to accelerate the delivery of the 17 *Sustainable Development Goals* (SDGs).

Consistent with the nature of AI, we believe our thinking on the impact and consequences of the AI revolution will continually evolve. We view this first Global Civic Debate as a robust foundation to continue the work and help build a future where we can capture the upsides of AI while minimizing the downsides risks and effects.