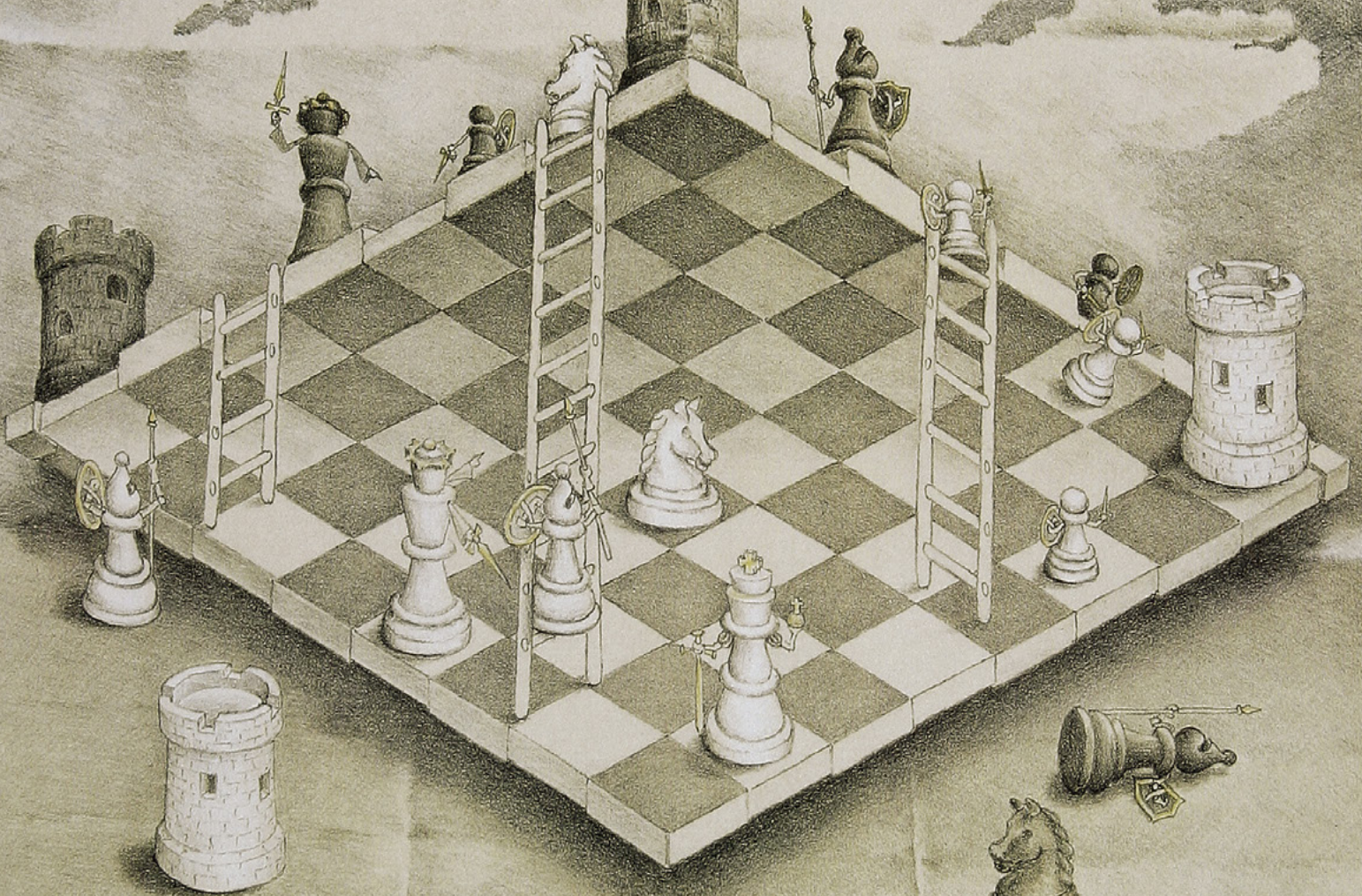




Atlantic Council

GEOTECH CENTER

Smart Partnerships amid Great Power Competition



AI, China, and the Global Quest for Digital Sovereignty

Mathew Burrows, PhD and Julian Mueller-Kaler



The Atlantic Council GeoTech Center works to shape the global future of data and technology together.

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ISBN-13: 978-1-61977-151-2

Cover: *Das gekrümmte Schachbrett (The Warped Chessboard)* ©Sandro Del-Prete/sandrodelprete.com. “For all intents and purposes, the chess board is seen to curve or warp in the middle, since on one side, the pieces are placed under the board, while on the other, they are placed on the board. However, all of the lines are perfectly straight and parallel.” — Sandro Del-Prete

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January 2021

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Preface

*Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world*

The Second Coming, William Butler Yeats

Artificial intelligence (AI) and other emerging technologies are developing at an exponential pace, and the discussion about their use as well as their implications for society and international relations is shaped by uncertainty. Whether it is the future of work, the collection and application of data, or new means for surveillance and social manipulation—AI will most likely influence every aspect of modern life. Change that is coming no matter whether people like it or not, and decision makers are under pressure to prepare for a new world in the digital age.

In order to establish forums, enable discussions about opportunities and challenges of modern technologies, and evaluate their implications for US-China relations, the Atlantic Council was awarded a Rockefeller Foundation grant that helped lay the groundwork for a new GeoTech Center, launched on March 11, 2020. Over the course of one year, we organized meetings in Paris, Brussels, and Berlin; traveled to Beijing and Shanghai; and held virtual conferences with India and Africa, all the while trying to answer one question: How can countries successfully collaborate on big data, AI, and other modern technologies amid the widening political gyre?

The following report captures key takeaways from these roundtable conversations, identifies the challenges and opportunities that different regions of the world face when dealing with emerging technologies, and evaluates China's role as a global citizen. In times of economic decoupling and

rising geopolitical bipolarity, it highlights opportunities for smart partnerships, describes how data and AI applications can be harnessed for good, and develops scenarios on where an AI-powered world might be headed. Given the experimental nature of emerging technologies, it will come as no surprise that the emphasis is thereby put on the need for regulatory cooperation, even as we recognize that AI development has become a new playing field for great power competition.

As a matter of fact, during the conversations, it often seemed as if the political winds have changed so dramatically that America's win-win approach towards China and international cooperation has turned into a lose-lose situation, with globalization being the prime casualty, as Ed Luce wrote so eloquently in the *Financial Times* about the Paris meeting last year.¹ In worrying about the growing Sino-US rivalry and being reluctant about picking sides, countries and state conglomerates around the world have started to pursue their own digital sovereignty.

Yet optimism prevails in many places. Throughout all of the workshops, there was universal agreement that AI and other emerging technologies are critical for social progress. While advanced economies may have seen the greatest gains so far from integrating modern technologies, poorer societies won't be able to leapfrog into much more advanced stages of development without using them. Within societies, no ethnic, racial, or minority group should be disadvantaged, and ideally, new tech should be a tool for reducing class divisions instead of intensifying them. Paving the way for such an uplifting process, cooperation within and among countries at a global, national, and sub-national level is necessary. Despite everyone allegedly sharing the same positive goals and principles, international cooperation on mutually agreed regulatory AI-frameworks remains unlikely, not least because the global governance system is under immense pressure.

¹ Edward Luce, "Trump is serious about US divorce from China," *Financial Times*, September 19, 2019, <https://www.ft.com/content/27b0a5e2-dab6-11e9-8f9b-77216ebe1f17>.

A Broken Global Order



Vintage globe close up. Source: Unsplash/Artem Beliaikin (<https://unsplash.com/photos/FWzxSkTS7v0>)

Skepticism and distrust in emerging technologies are both a cause and an effect of a world in disarray. Popular hostility in the United States towards China has grown significantly, with influential voices citing Beijing’s use of intellectual property (IP) theft or forced handover of technology from US companies as the means by which the People’s Republic of China (PRC) has caught up with the West.² Furthermore, many decision makers in Washington believe that China’s rapid progress threatens the United States’ traditional leadership role.³ Resentment that is partly fueled by the fact that globalization and China’s

growing economic role has coincided with a decline of American middle-class living standards and a public fatigue with the US’ global engagement.⁴

On the other hand, Chinese interlocutors hold the opinion that the United States is using the allegations to push down China and deny the country its rightful place in the world. At the Berlin workshop, one Chinese expert explained that decision makers in Beijing, as well as many in the public, never refer to the “rise” of China, but rather see it as a “restoration.” Metaphorically speaking, the PRC might have

2 Mike Pompeo, “Communist China and the Free World’s Future,” US Department of State, July 23, 2020, <https://www.state.gov/communist-china-and-the-free-worlds-future/>.

3 Robert O’Brien, “How China Threatens American Democracy,” *Foreign Affairs*, October 21, 2020, <https://www.foreignaffairs.com/articles/china/2020-10-21/how-china-threatens-american-democracy>.

4 Richard Haass, “How a World Order Ends,” *Foreign Affairs*, January /February 2019, <https://www.foreignaffairs.com/articles/2018-12-11/how-world-order-ends>.

been able to play at the high table, but it has always been reminded who owns the casino. From Beijing’s perspective, however, China deserves to be a rule maker, not just a rule taker.⁵

Even though the East Asian country is not close to eclipsing US dominance yet, any sort of cooperation is difficult to implement as long as the legitimacy of China’s rise is in dispute in Washington and other Western capitals. Ideological questions as well as different narratives further complicate the situation. Beijing sees AI and other emerging technologies primarily as a critical tool for preserving domestic stability and improving its defense capabilities, while US decision makers feel increasingly pressured to get tough on Beijing “before it is too late.” US State Department officials at the Paris meeting, for instance, explained that as long as China remains undemocratic and expands its authoritarian control, the United States won’t pursue any kind of cooperation on AI and other emerging technologies. Furthermore, they called on other democratic countries in Europe not to engage with China on tech either—leaving European participants not just in disbelief but in fear of a great power competition that can easily spiral out of control.

Despite the subsequent Sino-US trade talks and settlements, tensions over AI and other emerging technologies have grown worse over the course of last year—particularly in light of the ongoing COVID-19 pandemic. In response to the PRC’s decision to impose a national security law on a semi-autonomous Hong Kong, the Trump administration announced retaliatory measures, including the restrictions on Chinese students and researchers to study certain disciplines at American universities.⁶ Furthermore, the United States has been battling Huawei, China’s telecommunication heavyweight, and continues to threaten friends and foes alike with countermeasures if they allow Chinese tech firms help build respective 5G networks. Beyond the restrictions on Huawei, the Trump administration has outright banned some Chinese companies to operate in the US market.⁷

Unsurprisingly, China’s current and former high-ranking officials strongly object the US position and, at various roundtables, pointed to America’s “imperfect record on human rights” as well as ongoing “illegal interferences” in other countries’ domestic affairs, including China.⁸ As a matter of fact, most Chinese officials we talked to

stressed that they did not favor economic decoupling with the United States and the West, even though some in the circles of Chinese decision making allegedly welcome the decoupling efforts, as it helps Beijing to identify the weaknesses in their domestic systems and the need for remedial action.

Third Parties Don’t Want to Choose Sides

Shocked by the warm dispute, particularly at the Paris meeting, international scientists, academics, business, and think tank representatives not only stressed the importance of cooperation when it comes to AI, but also worried about the negative externalities of wide-ranging competition. German experts at the Berlin workshop, for instance, went so far as to almost agree with the Chinese view that, for the last four years, unpredictability in the global system did not come from China, but more from the United States and the highly erratic Trump administration.

For Europe, a continent that has benefited from the liberal international order like no other, the trajectory of economic decoupling could not be more concerning. Germany in particular exhibits a growing panic in its decision-making circles about being put in a position where the country is forced to choose sides.⁹ Already today, China is starting to create guidelines that are incompatible with international standards. European-made computers sold to the Chinese market, for example, have to include Chinese produced control programs (CPM), which exemplifies the difficult trade-offs between national security concerns and a desire for market access.

Furthermore, many worried about what could follow *Pax Americana*, especially since providing global security has always been a costly endeavor. A European Union (EU) approach talked about in detail at the Brussels and Berlin roundtables was that Europe could serve as a bridge between the United States and China, somehow mitigating the ever-intensifying rivalry. The perceived success of the EU’s privacy law, also known as the GDPR, encouraged some to believe that Brussels could use Europe’s market power to set norms that others would have to follow, if they were to continue doing business in the world’s largest and wealthiest marketplace. Additionally, the countries on the continent have the expertise and infrastructure (talent,

5 Julian Mueller-Kaler, “The price of great power politics,” Smart Partnerships Series, Atlantic Council, March 14, 2020, <https://www.atlanticcouncil.org/content-series/smart-partnerships/the-price-of-great-power-politics/>.

6 Edward Wong and Julian E. Barnes, “U.S. to Expel Chinese Graduate Students With Ties to China’s Military Schools,” *New York Times*, May 28, 2020, <https://www.nytimes.com/2020/05/28/us/politics/china-hong-kong-trump-student-visas.html>.

7 Nicolás Rivero, “Trump banned TikTok and WeChat—what now?,” *Quartz*, September 18, 2020, <https://qz.com/1905706/trump-banned-tiktok-and-wechat-what-now/>.

8 Julian Mueller-Kaler, “Tech cooperation at a precarious junction,” Smart Partnerships Series, Atlantic Council, March 14, 2020, <https://www.atlanticcouncil.org/content-series/smart-partnerships/tech-cooperation-at-a-precarious-junction/>.

9 Christiane Hoffmann et al., “Merkel and the EU Trapped between China and the U.S.,” *Der Spiegel*, June 4, 2020, <https://www.spiegel.de/international/europe/a-foreign-policy-conundrum-merkel-and-the-eu-trapped-between-china-and-the-u-s-a-cd315338-7268-4786-8cf7-dc302c192e5d>.



European Flag. *Source:* Unsplash/Waldemar Brandt (<https://unsplash.com/photos/wRAHbziQfg>)

universities, and regulations) to develop what many call “a Third Way,” separate from China’s state-focused and the US’ free market development of technologies.¹⁰

Experts indicated that the PRC was a complex partner for Europe, which has encountered cooperation, competition, and sometimes confrontation in dealing with China. Not too long ago, the EU named the People’s Republic a “systemic rival”¹¹ and, similar to the United States, European member states worry about IP theft as well as Chinese acquisitions of Western firms with sensitive technology. But there is no black-and-white approach, particularly due to some member states’ economic dependence. Europe’s default would always be cooperation, even if some restrictions on economic ties need to be put in place. China might be destined to become the largest economic power in the world, and it continues to hold sway over export-oriented economies, but the majority of discussants still saw Germany and the EU fully embedded in the Western system. In order

to manage that difficult balancing act, some supported the notion of a three “M-approach” for Europe in dealing with China: multilateral, non-militaristic, and Machiavellian.¹²

Europe’s Hurdles

There was little disagreement over the fact that the systematic collection of data is more difficult for private companies in the West than for China’s tech giants. For that reason, economists and technologists worried about Europe’s ability to reconcile privacy restrictions with a thriving tech economy. The logic is simple: In order to keep up, companies must be able to train AI systems with accessible data, which is why the EU has become more attuned to the need to facilitate data flows, as exemplified by its recent free trade and investment treaty with Japan.

At the Berlin roundtable, which included more private sector representation, there was even greater concern that

10 Julian Mueller-Kaler, “Europe’s Third Way,” Smart Partnerships Series, Atlantic Council, March 14, 2020, <https://www.atlanticcouncil.org/content-series/smart-partnerships/europes-third-way/>.

11 Andrew Small, “The meaning of systemic rivalry: Europe and China beyond the pandemic,” European Council on Foreign Relations, May 13, 2020, https://ecfr.eu/publication/the_meaning_of_systemic_rivalry_europe_and_china_beyond_the_pandemic/.

12 Mueller-Kaler, “Europe’s Third Way.”

Europe is falling behind in the global AI race. For German entrepreneurs in Europe's leading economy, the lack of essential EU funding, nonexistent unity among member states, and a difficult environment for the collection and application of data are all indications that Europe is not living up to its full potential. Examining proficiency in emerging technologies from a foreign policy perspective has, unlike in the United States, never had strong traction in Europe, and it is only slowly starting to change. But many agreed that the EU risks becoming even more dependent on external players if it does not develop a stronger policy stance on emerging technologies altogether.

Divisions among EU member states, however, make this a very difficult endeavor, with regards to both a coordinated tech and China policy. It is no surprise that southern and eastern EU member states want to be more accommodating to the PRC, given the fact that their economies have benefitted greatly from Chinese investments, adding to their recovery from the 2008 financial crisis. Alongside the geographical splits, there's an ideological one, too. While some believe that Europe should look at China through more cooperative lenses, understanding the relationship as a healthy competition; others were more critical and urged caution, highlighting the importance of infusing algorithms with democratic and liberal norms.¹³

Cooperation in a Bipolar World

Taking into account China's growing influence around the world, discussions often alluded to an uncomfortable truth: In order to avoid catastrophe, even rivals must cooperate, which is why participants, particularly at roundtables in Europe, were keen to identify a number of areas that could lower the tensions and help build trust among antagonistic stakeholders. By emphasizing the global nature of the challenges at hand, French leaders pointed to lessons learned from the United Nations Framework Convention on Climate Change (UNFCCC) process. Allegedly, consultations at the expert level could help establish a universally agreed baseline on the harms versus the benefits of the AI revolution. Such an acknowledged picture of the total effects from modern technologies might then inform policy makers as to the needed regulatory steps to minimize negative externalities, while maximizing potential benefits. Individual countries and multilateral organizations such as the Group of Twenty (G20), the International Monetary Fund (IMF) and the World Bank, or regional organizations like the European Union could then all start from the same set of agreed facts

concerning AI and the various aspects of the emergence of modern technologies—and coordinate on needed social, economic, data, and ethical protections.

Cooperation, however, needs to begin at the domestic level by building trust and confidence first between governments, companies, and consumers on AI and related technologies. In many cases, the public trust does not exist, due to concerns over job insecurity, privacy, and the future of work. To avoid such negative public perceptions, governments and private companies should share their failures as much as their successes in employing AI. Regulatory efforts to build public trust will require experimentation, and lessons learned would certainly benefit from comparisons with attempts elsewhere. Such sharing, across multiple efforts, could then help establish international guidelines to define the rules of the game, prevent escalating conflicts, and enable reconciling social needs with uses of the new technologies.

With the enactment of binding rules for all players, collaboration could further help erase fears of falling behind in the global AI race. Such an approach was advocated particularly by European roundtable participants, while Chinese and US discussants highlighted a level playing field as more important for tempering the ongoing competition. Interestingly enough, Chinese officials that contributed to this project were open to developing regulatory frameworks, though many Western counterparts believed that they could stifle innovation and hamper economic growth.

China's Ambiguity

Speaking more broadly, interlocutors in Beijing emphasized that international cooperation has always been important to China's economic development, alluding to the fact that the most successful innovations and AI advances often come from international research collaborations. At least on paper, the PRC's eight AI principles emphasize collaboration, knowledge sharing, and a reliance on open source methods.¹⁴ One might question the sincerity of such proclamations, but the issuance of similar AI statements by the United States, the EU, and other countries are a sign of hope that a potential baseline could one day be established. In that regard, the Chinese viewed the G20 meeting in 2019 as a milestone, since it at least signaled global agreement on the guiding principles for AI.¹⁵

Pre-pandemic, Chinese experts suggested that irrespective of the growing bilateral tensions, there are indeed shared

13 Ibid.

14 Lorand Laskai and Graham Webster, "Translation: Chinese Expert Group Offers 'Governance Principles' for 'Responsible AI,'" *New America*, June 17, 2019, <https://www.newamerica.org/cybersecurity-initiative/digichina/blog/translation-chinese-expert-group-offers-governance-principles-responsible-ai/>.

15 G20 Ministerial Statement on Trade and Digital Economy, June 2019, <https://www.mofa.go.jp/files/000486596.pdf>.



Financial District in Shanghai, China. *Source:* Unsplash/Li Yang (https://unsplash.com/photos/5h_dMuX_7RE)

views between the United States and China that could enable cooperation. Allegedly, both countries put emphasis on talent and research, which is why contributors to this project thought that both governments could undertake joint investments in digital infrastructure and/or develop binding political guidelines for the use of AI in order to ensure the improvement of applications for the general public.¹⁶ People in the tech world continue to emphasize the importance of an open source community and many Chinese organizations remain keen on cooperating with international and American entities such as think tanks or universities—channels that must be kept open to lay the groundwork for government-to-government talks in the future. Many agreed that dialogue between civil organizations can enable government cooperation in the long run, as decentralized governance will be key anyway, given the fact that modern technologies have already surpassed the regulatory capacity of most national and international entities. Even though no governance needs to be mutually exclusive, good and reliable frameworks

are getting more complicated from year to year, due to the growing dual-use capabilities of the new technologies and the chaotic state of global cyber regulations. To put it bluntly, the world is running out of time.

Worries About AI Externalities

There is no doubt that emerging technologies have gained significant importance over the last couple of years, but a sense of caution is required when it comes to the hype surrounding AI. Technologies have so far remained a tool and their applications won't be solving all of humanity's problems anytime soon. Of course, underestimating the tech revolution is not the right way forward either, as speakers at roundtables in China suggested that AI applications will have very similar effects to the internet—disrupting societies on the one hand, but creating huge markets on the other. Mitigating risks along with efforts to exploit opportunities will be the challenge of the coming decades because it is only a question of time until social

¹⁶ Julian Mueller-Kaler, "The dangers of decoupling," Smart Partnerships Series, March 14, 2020, <https://www.atlanticcouncil.org/content-series/smart-partnerships/the-dangers-of-decoupling/>.

tensions arise. The Chinese government already creates around 16 million jobs annually—many of them without commercial purpose. In order to keep the social peace, that number will likely have to grow as unskilled labor becomes automated.¹⁷

Irrespective of social externalities, the greater accessibility of big data, which is needed to train smart algorithms, puts China at an important advantage. In the West, the public's desire for privacy, democratic accountability, and a clear differentiation between the private and public sectors hamper the availability of big data for tech entrepreneurs. Due to the lack of infrastructure and data regulation in India, for example, software engineers have to train their algorithms with European or American data sets, making it rather difficult to adapt AI applications to local conditions.¹⁸ Health experts at the India roundtable also talked about the lack of financial incentives for AI development and use in their sector. In advanced economies, market conditions, such as the high cost of labor, have been a spur to develop automated systems using AI. In developing countries where labor is cheap and widely available, the same incentives don't apply and lead to different effects. Without the market pull, Indian state authorities need to find ways to boost AI in order to improve services and ensure India's ability to plug its extensive software industry into the global economy.¹⁹

India's Quest for Digital Sovereignty

Similar to Europe's "Third Way Approach," and in order to navigate between the US and the Chinese models, India is also trying to develop a concept of digital sovereignty, all the while mitigating negative externalities of great power competition. While some argued that the time is right to take sides in the geopolitical contest, many Indian experts dislike the idea that investment decisions are going to be binary choices in the future.²⁰ Skepticism towards the PRC, however, is rising: while Chinese money was welcomed until recently, there are growing security concerns in light of increased Indo-Chinese tensions, as well as worry over too much influence from India's biggest neighbor. Chinese companies already have a large say in India's digital space, and the balance between security and economic interests

has yet to be struck—a similar situation to other places in the world.

Another thought-provoking concept brought forward by participants at the India roundtable, was the suggestion to alter international law and adjust respective jurisdictions for private data ownership. Similar to the EU's GDPR, Indian participants spoke about the desirability of the universal individual right to privacy being upheld, with secondary data ownership still allowed—irrespective of the data's geographical location and a country's sovereignty and jurisdiction. It would guarantee that consumers have primary ownership of their personal information, while acknowledging the respective government's secondary ownership.

Technology for Good

By focusing on healthcare, food security and agriculture, education, or infrastructure, global AI competition could be given a very different spin, mitigating the rivalry aspect of politics. How modern technologies should be centered on serving those broader global interests was at the core of the discussions in the roundtable focused on Africa. Participants underlined that AI applications are not yet constrained by extensive legal systems, presenting many opportunities, but also raising challenges. The fact that African countries provide a good testing bed for AI applications is exactly the reason why governments need to be careful. If there's no framework, digital infrastructure, or laws and regulations, it is an open playing field without security measures and necessary consumer protections.²¹

Missing regulatory frameworks are already a challenge in Western countries, which highlights the fact that African states are experiencing even further difficulties with developing laws and regulations. Similar to the lessons learned from India, capacity building will be essential for the development of modern technologies and their potential application to developmental challenges. Across the continent, Africa will need to invest much more to educate tech practitioners for the dynamic environment and the future of broader AI usage. There is overall confidence, however, that African societies are well-positioned to leverage their strengths, taking into

17 Ibid.

18 Abhinav Verma et al., "Building a collaborative ecosystem for AI in healthcare in Low and Middle Income Economies," GeoTech Cues, Atlantic Council, August 27, 2020, <https://www.atlanticcouncil.org/content-series/smart-partnerships/building-a-collaborative-ecosystem-for-ai-in-healthcare-in-low-and-middle-income-economies/>.

19 Julian Mueller-Kaler, "AI, an accelerator of change?," Smart Partnerships Series, Atlantic Council, June 16, 2020, <https://www.atlanticcouncil.org/commentary/ai-an-accelerator-of-change/>.

20 Ibid.

21 Julian Mueller-Kaler, "Can AI and emerging tech boost African development?," Smart Partnerships Series, Atlantic Council, July 1, 2020, <https://www.atlanticcouncil.org/content-series/smart-partnerships/can-ai-and-emerging-tech-boost-african-development/>.



Taj Mahal in India. Source: Unsplash/Sylwia Bartyzel (https://unsplash.com/photos/eU4pipU_8HA)

consideration favorable demographics and the fact that the consequences of the ongoing pandemic do not seem to be as devastating in Africa as they are elsewhere.

Smart Partnerships for Global Challenges

Smart partnerships on the international and domestic levels, particularly between governments and private sectors, could play an essential role in ensuring AI is geared towards solving global challenges. African scientists in the field of AI, for instance, use game theory models to help stakeholders find contextual policies for dealing with emerging technologies. Other attempts include efforts to localize or regionalize data collections. African contributors were proud to point to examples of modern technologies already working hand-in-hand with infrastructure and human capital investments. Together with Zipline,²² the

Rwandan government, for instance, administers drug and blood testing through drones; Zindi, the first data science competition platform in Africa, offers opportunities to solve specific challenges identified by companies, civil society organizations, and governments, based on best practices; a company named Lydia bridges the credit gap in many African markets by helping small businesses access credit within short periods of time, using trained algorithms instead of traditionally onerous financial screening; and all over the continent, modern technologies are also used in the fight against the novel Coronavirus.²³ Closing the gap between expectation and reality, of course, remains the biggest challenge but there is reason to be hopeful that with the right incentives and government policies, African countries can move quickly to exploit emerging technologies, accelerate economic development, and host an increasing number of tech hubs in the future.

²² Zipline is a drone delivery company that specializes in providing access to vital medical supplies.

²³ *Africa's digital solutions to tackle COVID-19*, European Investment Bank, July 2020, https://www.eib.org/attachments/country/africa_s_digital_solutions_to_tackle_covid_19_en.pdf.

Key Areas for Cooperation

- 1) Governments must establish universally agreed baselines on the harms versus the benefits of the AI revolution, which could inform multilateral and national institutions as to the needed regulatory steps to minimize negative externalities, while maximizing potential benefits. An effort that could be modeled on the United Nations Framework Convention on Climate Change (UNFCCC) process that is broadly recognized as providing the objective and factual basis for considering necessary climate change policies. Using the broad agreements on AI principles completed by the United States, the European Union, China, and others can be a first step towards developing such common guidelines on AI implementation.
- 2) We call for a mechanism for sharing failures as much as successes in the employment of AI. Such sharing across multiple efforts could help establish international guidelines to define the rules of the game, prevent escalating conflicts, and enable the reconciliation of social needs with new technologies. International organizations and non-governmental bodies could help develop such platforms of exchange while simultaneously providing for a regional emphasis. Some African and Indian technologists thought they could learn more from other developing countries and their experiences in employing technologies than they would from advanced economies.
- 3) With countries at odds with one another, non-governmental track-two exchanges, particularly between the United States and China, on governing approaches towards emerging technologies are key for building trust, developing effective policies, and laying the groundwork for future government-to-government negotiations.
- 4) Bringing together multi-stakeholder groups within countries to lay the groundwork for governments to develop capacity-enabling regulations is essential, too, as technologies develop faster than governments can absorb. Hence, decision makers are slow everywhere to help in optimizing the benefits of emerging technologies and leave populations vulnerable to negative externalities.
- 5) In order to give the global AI competition a different spin and emphasize the “technology for good” approach, it would be wise to highlight organizations that focus on AI applications in healthcare, education, food security and agriculture, or infrastructure endeavors, particularly in a post-Covid-19 recovery.

Scenarios for a Future AI World



Vintage globes. Source: Unsplash/LB (<https://unsplash.com/photos/mluSdDeOksc>)

Decision makers, non-government actors, and private companies are constantly being tasked with anticipating the next crisis and exploiting future opportunities, which is why scenario analysis can be a key tool. It helps those involved think through possible futures and the respective policies that help shift trajectories one way or the other. Based on the key trends, observed by the discussion groups and highlighted in this report, the following three scenarios discuss different futures; distinguish between the good, the bad, and the ugly; and help us think about what lies ahead.

1) **An Unequal World** is probably the base case, exacerbated by the social and economic effects of the ongoing pandemic. In this future, emerging technologies have deepened divisions and inequalities instead of leveling the playing field domestically and internationally. With

governments struggling to understand the social impacts of the new technologies, there have not been enough initiatives to counter the invidious effects of technological advances. The economic slowdown due to Covid-19 is likely to have further incapacitated governmental efforts, as they are starved of the resources needed to invest in raising education and skill levels, for example. With opportunities drying up at home, more of India's AI developers have emigrated to the United States and Europe, where there is increased demand for their expertise, irrespective of tightening immigration policies. Those that remain at home build applications for Western firms, have only their wealthy customers in mind, and create a two-level economy and society. Given the aftermath of combined health and economic crises, governments do not have the bandwidth to move ahead on data-sharing regulations that would boost responsible AI use and development.

With Covid-19, low-skilled workers have been hit the hardest and their overall wealth has declined as income inequality worsens and businesses try to automate further to recapture profit margins. At the same time, AI-based automation is moving up the value chain and more skilled professions see increasing disruption and fears of job insecurity. For the lucky ones, comprehensive algorithms will add to human-machine partnerships, but many will see their professions disappear—a process accelerated with increased digitalization efforts due to the pandemic.

In this world, the United States and China are still in an AI race, but not to the point of eliminating all cooperation with each other. Consumed by growing domestic instabilities, there's an incentive for both to cooperate minimally. There is more norm-setting led by the European Union, which builds on its privacy standards (GDPR), and the EU Commission and member states push for international regulation of dual-use AI-based technologies, such as autonomous weapons. The G20 develops benchmarks for AI safety and security at the front end, with the hope of preventing future cybersecurity problems that occurred in earlier internet days. Because of the provisions for norm-setting, standards on e-commerce, and increasingly AI-based technologies, more countries, even outside of the Pacific region, are joining the Comprehensive and Progressive Agreement for Trans-Pacific Partnerships (CPTPP). There remains competition nevertheless and the United States and Europe worry about the expansion of Chinese 5G technology to Belt and Road countries. Once the US-developed ORAN software becomes competitive, Huawei's attractiveness is diminished for many countries outside of the Chinese orbit and the United States further increases its investments in AI technologies, consolidating its traditional leadership role.

2) **A Bipolar World** is where Sino-US competition edges out any possibility of cooperation—not just on data and AI. Countries in Europe and Asia are forced to choose between Washington and Beijing while desperately trying to develop their own digital sovereignty. The United States announces publicly, as well as behind closed doors, that the adoption of Chinese 5G by other countries means a loss not only of US intelligence assistance but also potentially economic or security partnerships. European, Japanese, South Korean, Middle Eastern, and Indian tech firms are further threatened with (secondary) sanctions if they do not end their collaboration with Chinese and Russian counterparts. For economic reasons, Southeast Asian countries refuse US strictures and lean more towards Beijing, while the EU tries to push back but has mixed success in protecting its businesses from US punitive measures. As the Gulf countries now export the bulk of their oil to East Asia, they are also pushing back against Washington, despite their reliance on US security protection. A Biden administration

continues the United States' decoupling efforts and tries to isolate China on the global stage—the consequence of which is an intensification of great power competition.

The PRC boosts its tech and other assistance to Belt-and-Road countries, and most remain loyal to Beijing. Others want to be neutral and stay out of the Sino-US fight, but risk falling behind technologically if they cannot get tech assistance from either the United States or China. The free flow of knowledge is hampered by new firewalls erected not only by the PRC but also by the United States. Amongst growing security concerns, Chinese students are pushed out of Western universities and innovation slows down globally. AI development becomes more focused on military uses and quantum, and each side vows to be first. Multilateral institutions lose even more power, and a sophisticated tech reform remains a distant hope in a divided world. De-globalization is the new normal and the likelihood of conflict increases significantly over time.

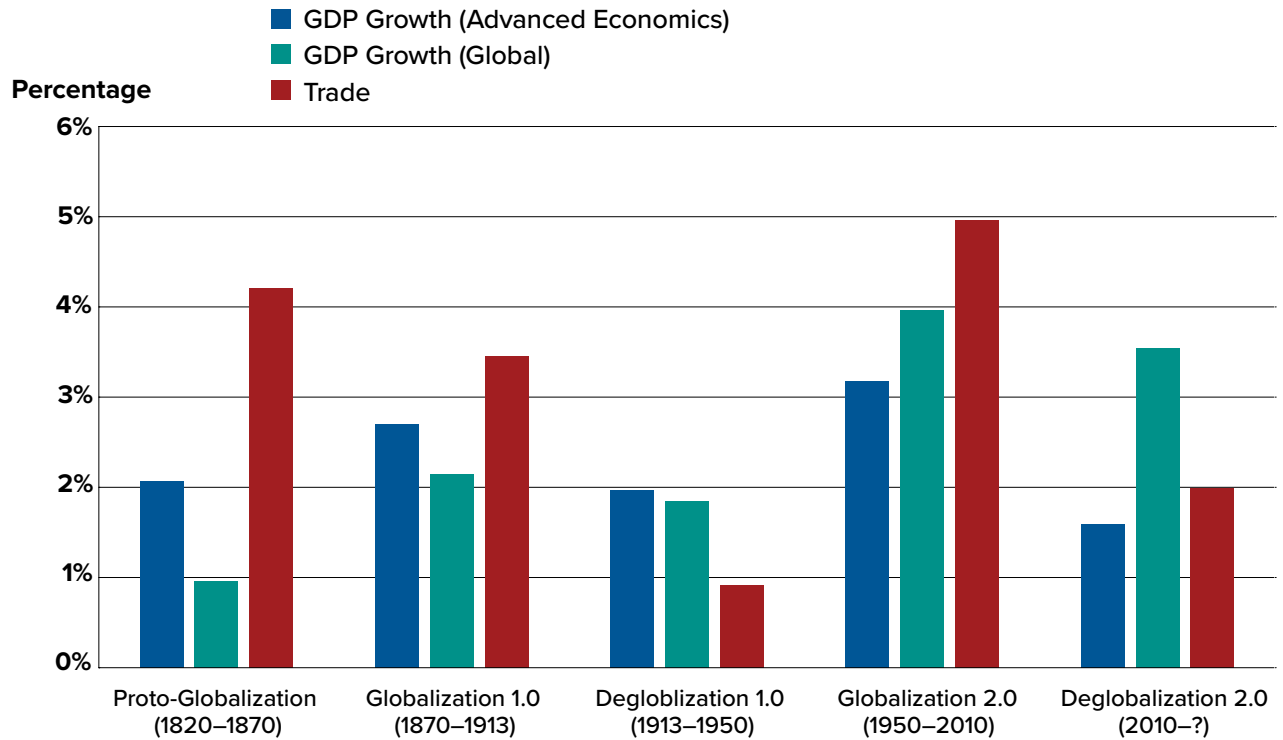
3) **A Multilateral Resurgence** is a world that evolves after significant Sino-US confrontations occur on the scale of the 1963 Cuban Missile Crisis. Post-pandemic, both the United States and China step back from the precipice, realizing that their unrestrained, full-spectrum competition with one another could lead to disaster and mutual destruction. Technology becomes an area for gradually increased cooperation, and trust is developed with the help of confidence-building measures such as mutual high-level delegation visits. Multilateral agreements are renegotiated, the United States and China cooperate on sophisticated World Trade Organization (WTO) reform, and international frameworks for AI regulations are passed. There is increased transparency between the two superpowers on technology development. Chinese researchers are welcomed back into the United States, and China allows US academics to work in some of their institutes, too. Similar to arms control agreements with the Soviets, Washington and Beijing enter into negotiations with each other on standards for autonomous weapon systems plus ethical, safety, and privacy guidelines for the deployment of modern tech—later, additional partners also ascribe to them. These agreed rules and regulation standards boost research and development and the diffusion of new technologies, including to the developing world.

The years of protectionism, competition, and confrontation following the pandemic have taken a toll, ushering in a long economic recession for the developing world, an era of the impoverishment of the middle classes, and widespread political upheaval. A new phase of globalization begins slowly, yet thoroughly. Rules and fair regulations increase global trade, and the taxation of big multinational corporations enables growing state capacity. China and the United States back an effort for ensuring

universal 5G for the whole world, enabling developing countries to leapfrog into a new age, sharing in the advantages of the Internet of Things (IoT). Steps are taken to mitigate resource scarcities, all the while engendering safer and more secure urbanization. Green technology becomes more the norm and biological breakthroughs,

enabled by AI, facilitate increased food supplies and better healthcare, including protections against diseases. Tech researchers in emerging markets have access to international data and expertise, allowing them to develop applications that are tailored to their countries' special needs and contexts.

The Cycle of Globalization and Deglobalization



SOURCE: Bob Swarup, Macro Matters, Camdor Global Advisors, July 2015.

A Justified Worry

“Everything we see can be seen in another way. Therefore, I ask myself; isn’t everything an illusion anyway? Reality is but a question of perception, and perception inevitably varies according to one’s viewpoint. Different viewpoints lead to different dimensions.”

Sandro Del-Prete

One would think that the magnitude of potential disruptions for society and the speed at which modern technologies are developing incentivizes governments to cooperate, somehow trying to mitigate negative externalities, maximize opportunities, and achieve a multilateral resurgence. However, reality appears to be moving towards quite the opposite and roundtable participants warned of a new *Cold War* on tech. With tensions rising and collaborative efforts declining, the world is headed toward geopolitical bipolarity and conflict might only be a question of time.²⁴ In a globalized world where economies have become intertwined, decoupling efforts will not only be painful for businesses, particularly in export-oriented countries, they will also hamper the

benefits of scientific exchange—putting decades of progress at risk.

Businesses, philanthropies, or other non-government actors might want to step in and lead the way toward technological cooperation, but braving political storms at the same time will be a difficult endeavor. Particularly concerning is the potential ideologization as well as securitization of the debate. Once decision makers see the tech issue primarily through lenses of national security and political supremacy, any sort of collaboration will be much harder to incentivize, let alone implement. Though time is running out—AI and other emerging technologies are developing at an exponential pace. Many interlocutors worried that it might take a catastrophe for humanity to realize the potentially disruptive effects and see the need for international regulation. The future, of course, is uncertain and foresight remains an art rather than a science, but building smart partnerships might help navigate global challenges and lay the groundwork for a multilateral resurgence, so that technologies can be a force for good, help societies progress, and lead the world toward a better future.

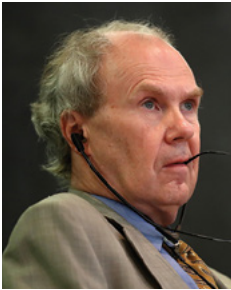
Acknowledgements

The authors are grateful to **The Rockefeller Foundation** and to the many local partner organizations around the world. Without their support, this project would not have been made possible. For the Paris conference, we thank the **BOAO Forum for Asia**, the **Fondation pour la Prospective et Innovation (FPI)**, and **Lennar International**. In Brussels, our local partner was the **European Parliamentary Research Service (EPRS)**, while in Berlin, the **German Council on Foreign Relations (DGAP)** generously hosted the Atlantic Council’s roundtable. We greatly appreciate their support

and hospitality. For China, significant help was provided by **Lanxin Xiang**, professor of international relations at the Graduate Institute in Geneva. Despite the inability to travel due to Covid-19, the **International Innovation Corps (University of Chicago Trust)** and the **Observer Research Foundation (ORF)** helped organize the digital India roundtables. The relationships and networks developed over the last year will outlast this project and continue to inform future studies on the subject at hand. Lastly, special thanks to the Atlantic Council’s **GeoTech Center** and **Foresight, Strategy, and Risks Initiative**.

²⁴ Gideon Rachman, “A new cold war: Trump, Xi and the escalating US-China confrontation,” *Financial Times*, October 5, 2020, <https://www.ft.com/content/7b809c6a-f733-46f5-a312-9152aed28172>.

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