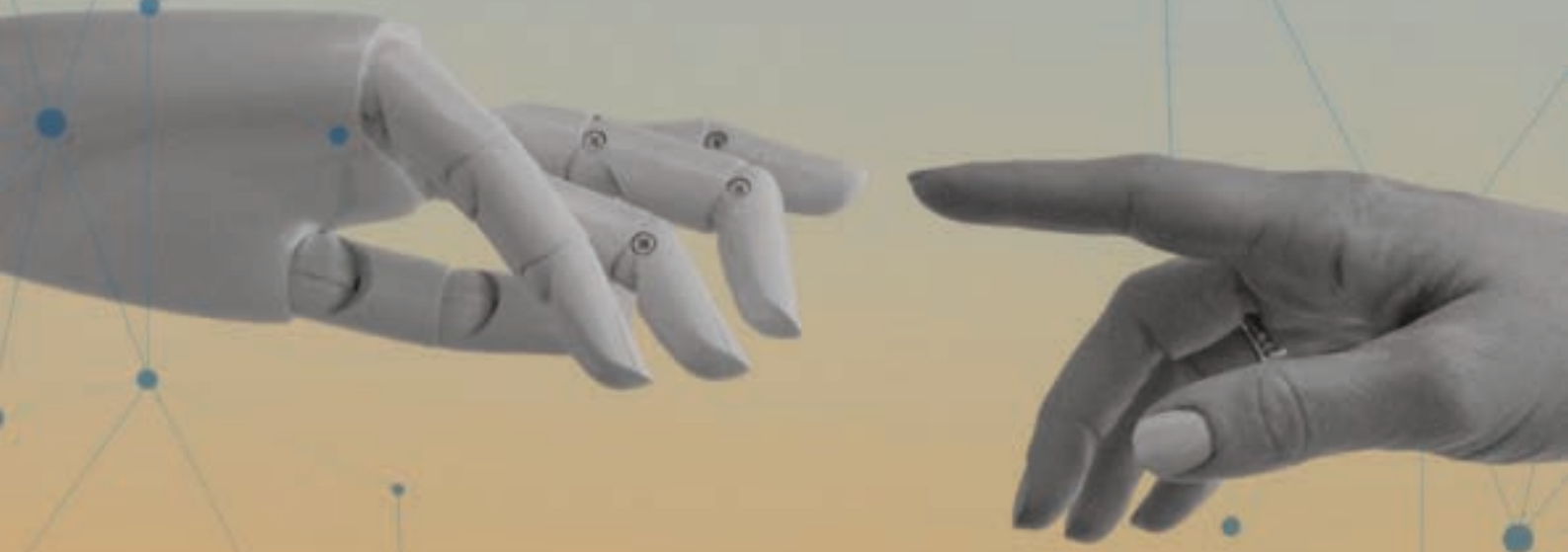
Humanity Empowered: Building Resilience with AI

December 1-2, 2021
Hybrid Aspen Berlin AI Conference



Conference Report

Aspen Institute Germany

Key Take Aways

As part of the *Aspen Berlin AI Conference* on December 1 and 2, 2021, an interdisciplinary group of international speakers gathered at the State Representation of Baden-Württemberg to engage in high-level and interactive discussion formats on how societies and economies can be made more resilient and what role artificial intelligence (AI) plays in this context. Due to current events, the conference was held in a hybrid format (under the appropriate COVID-19 measures), and the number of participants was strictly limited.

The COVID-19 pandemic not only accelerated the digitization of public services, businesses, work, and education, but also raised the question of how AI can be used to make societies and economies more resilient to crises. The central questions of the conference therefore were: *How can the resilience of complex socio-technical and socio-economic systems – also across national borders and especially in the transatlantic relationship – be strengthened? And what role can artificial intelligence play in this?* Other key questions addressed at the conference were: How well prepared are governments, companies, and is civil society to react to future crises? How quickly can a crisis be responded to? How effectively can adjustments be made? And how well are lessons learned from crises and systems modernized?

Based on these questions and considering current political and social discussions, the Aspen Berlin AI Conference, titled *Humanity Empowered: Building Resilience with AI*, focused on the following key topics:

1. AI, resilience, and ethics
2. Global supply chains
3. The climate crisis and sustainability
4. Health care and pandemic response
5. Innovation policy and digital public services
6. Geopolitics and strategy autonomy
7. Cybersecurity
8. Digital infrastructure, professional qualifications, and education

The topics were addressed from an interdisciplinary and non-partisan perspective, taking national, European and international aspects into consideration. This holistic approach was applied to the entire program planning and allowed for a multifaceted and differentiated discussion of the individual topics. In order to explore as many facets as possible, but equally reflect upon the topics in depth, the program included a variety of formats such as larger panels, keynotes, bilateral and trilateral discussions.

It is Aspen's tradition to take on the biggest political and societal issues and provide a platform to bring together diverse points of view, spark debates that generate broad interest, and advance policy debates. In this effort, policy-makers, business leaders, innovators, philosophers, and representatives from major tech companies, civil society, and academia came together to discuss the potential, but also the risks, of AI. Ten key findings emerged.

1 Crises are increasing in frequency and severity; AI can contribute to improving resilience

The international community faces multiple crises – health, environmental, economic, migration, geopolitical crises. Often, they occur simultaneously, amplify each other, or create unprecedented new risks. These risks are of systemic nature, complex, and characterized by a high degree of uncertainty. Efforts to manage such crises often fail to target the underlying, interconnected causes. The goal must be to make societies and economies more resilient. Resilience in this context means: 1. the ability to recognize a crisis at an early stage; 2. the capacity to respond to and recover from a crisis quickly; 3. the flexibility to adapt to a crisis; 4. the ability to transform and thus become less vulnerable to future crises. AI can contribute to all four pillars of risk management. By rapidly analyzing, clustering, and mining vast amounts of data, crises can be detected earlier. An AI-based analysis of interdependencies can, furthermore, increase political and economic decision-makers' responsiveness. AI can help to build structures that are more resistant to crises and improve systemic sustainability.

2 Health risks are serious; AI can help improve healthcare

The COVID-19 pandemic demonstrated that global crisis response has not worked quickly or effectively enough, despite existing containment measures and currently available vaccines. The collective capacity to respond to global health crises needs to be strengthened. Coordination, efficient risk assessment technologies, information sharing, combating misinformation, and solidarity approaches such as access to health technologies and medical equipment are indispensable. Pandemics do not stop at borders, rendering unilateral approaches ineffective. This is even more true considering the numerous health risks the world faces today, such as antibiotic resistance. AI can contribute to improving and lowering the cost of healthcare. It can help detect diseases earlier, provide better care to people, and reduce healthcare spending. AI also played a crucial role in containing the COVID-19 pandemic and can be used in future pandemic preparedness and containment strategies.

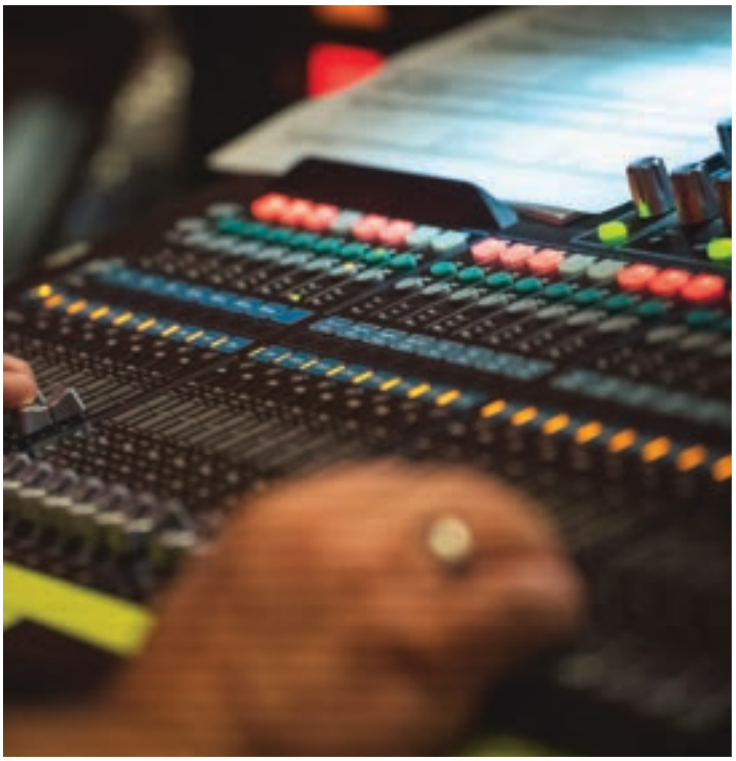
However, the road to a comprehensive and effective use of AI in the healthcare sector is challenging. First, extensive databases must be created. Second, regulatory issues, for example in the area of data protection, must be clarified. Third, ethical questions must be answered. Fourth, mistrust and resistance to AI must be decreased. Fifth, in the future the exchange of data for scientific purposes must be possible across countries, quickly, and openly. To combat worldwide pandemics, a global set of rules is needed that replaces uncoordinated and selective measures by individual countries.

Improving administration through AI 3

AI can contribute to enhanced efficiency and cost savings. There is a great potential in automating routine tasks in administrations with the help of AI. By using AI, public authorities can master the growing flood of data more efficiently and optimize services for citizens. Employees can be relieved and would have more time for other activities such as personal consultation. However, the use of AI in administration is not without risks. AI systems can learn discriminatory decision-making practices or make unjust decisions due to insufficient or biased data.

Mitigating climate change and its impacts; AI holds potentials and risks 4

Climate change is arguably the greatest challenge to the resilience of societies and national economies. All countries are affected by climate change. However, poorer countries suffer disproportionally from its impact as they simply do not have the means to adapt to climate change. Research and development play a key role. Only with innovation will it be possible to reduce carbon emissions and organize the green transformation in an inclusive and forward-looking fashion. AI can contribute to both mitigating climate change and adapting to its impacts. In agriculture, for example, AI can help manage the use of water, fertilizers, and pesticides better, making them more climate-friendly. AI-powered systems can also be used, for example, to deduce which tree species should be planted to help a forest area adapt to climate change. Traffic can be managed more effectively and thus more climate-friendly, with AI-based methods. Deep learning methods can help to interpret satellite images, enriched with data from social media, to record the effects of natural disasters and allow for a more effective response.



However, the high consumption of electricity and resources that the use of AI is associated with, for example in data centers, should not be ignored. In order to effectively employ AI as a problem solver and prevent its negative side effects, considerable investment in research and development is required. Additionally, the social and ethical aspects of the use of AI must be considered holistically.

5 Optimizing supply chain security with AI

The COVID-19 pandemic significantly put the resilience of global supply chains at a test. On the supply side, for example, measures such as the lockdowns contributed to a temporary reduction in production and transportation capacity. The pandemic exposed chronic as well as structural problems. Transportation, for example, especially shipping, experienced significant bottlenecks, which manifested themselves in long waiting times and skyrocketing transportation costs. Geographic specialization allows for innovation and cost reduction, but has also led, in some cases, to market concentration and associated vulnerabilities. This applies to, for instance, many minerals and metals, as well as semiconductors – both of which are indispensable to the green transition and digital revolution. The geographic concentration of the semiconductor supply makes the supply chain vulnerable to geopolitical threats and environmental risks. AI can help make supply chains more resilient. This includes production planning, demand forecasting, inventory planning, and stockholding. In addition, big data analytics can be employed to make more accurate forecasts of supply chain developments. Companies can thus respond to changes in a more agile and flexible manner. Greater diversification, more redundancies, and stockholding can increase the resilience of supply chains — and AI can aid companies to make appropriate decisions.

6 Improving trustworthiness of AI

A prerequisite for the successful use of AI is the development of ethical and trustworthy AI models. Transparency and traceability play an important role in this context. In addition, an open, common good-oriented data infrastructure for AI innovations must be created. AI algorithms are only as good as their underlying database. Biases, meaning systematic, repeatable errors, must be eschewed in AI-based decision-making systems.

Preventing abuse and discrimination 7

Currently, many places are looking for a standardized solution for the use of AI that prevents abuse and discrimination. However, due to the enormous complexity and the great differences in the use of AI, it is impossible to apply the same solution to all cases. There is therefore a need for a discussion that does not only assess AI in purely technical terms, but follows a holistic approach. In this context, it is essential to develop an ecosystem of solutions and to involve civil society more thoroughly in the debate.

AI and cyber risks 8

According to the World Economic Forum's Global Risk Report (2022), digitization gained significant momentum during the COVID-19 pandemic, and dependence on digital systems has increased. Concurrently, cybersecurity threats are on the rise. Home office work and, in particular, the use of private hardware and software have significantly augmented the risk of malware infections and phishing attacks. According to the WEF report, malware attacks increased by 358 percent, ransomware attacks by 435 percent in 2020. The risk of cyber-attacks on critical infrastructure has also increased significantly. As the SolarWinds attack or the attack on the Colonial Pipeline in the United States has demonstrated, cyber-attacks pose a significant threat to public order and security.

Another threat to democracy and society also derives from the increasingly widespread disinformation on the internet. Disinformation, originating from domestic actors and third countries, is a problem in two respects. For one, it undermines trust of citizens in politics/politicians and can thus contributes to a disenchantment with political decision-making. And secondly, it may harm social cohesion by promoting polarization.

AI, if not employed properly, can exacerbate these problems. AI-supported cyber-attacks can be much more harmful, as they can be executed faster, in a more coordinated and efficient manner, and on multiple targets simultaneously. However, AI can also be put at use as a shield, both in threat detection and defense.

9 AI, WORK AND EDUCATION; AI CAN ACHIEVE A LOT, BUT NOT EVERYTHING

New digital technologies like AI are changing the working environment in numerous ways. They are impacting the scope, content, and framework of work, as well as compensation, issues of control, administration, and distribution. While automation will lead to both the loss and creation of new jobs, the potentially redistributive effects that accompany it must not be ignored. Without appropriate countermeasures, vulnerable groups are at risk being further marginalized.

One key to prevent such an effect is education. Digitization not only requires new professional qualifications but also new skills: adaptive and numerical thinking, management of cognitive load, virtual collaboration, design mentality, a new level of media literacy, and transdisciplinarity. This needs to be taken into account more extensively in schooling, education, and training. AI enables an improvement of education through new learning methods, including chatbots, AI-based task evaluations, as well as personalized and automated learning content. However, the use of AI is still in its infancy in the German education system. To counteract the lack of digitization in schools, there is a need for a standardization of systems, better training of teachers, and the reduction of bureaucratic hurdles. The EU should support this process by promoting best practices and supporting plans for digital transformation in schools.

10 MORE AI GOVERNANCE IS NEEDED – NATIONALLY AND INTERNATIONALLY

The pandemic has demonstrated that people's lives have never been more dependent on access to real-time data and technology. At the same time, individual countries and a few platforms dominate the global market, leaving economically less developed countries and smaller companies with significantly less opportunity to take advantage of technological and data advances. *Global digital governance* is therefore essential to boost confidence in the digital economy and counter the market dominance of digital platforms. Regulatory measures taken by individual countries will always only have limited impact. An international dialog on global structures and approaches is therefore crucial.

Aspen Institute Germany
Baden-Württemberg
DÜRR STIFTUNG

The Conference in Detail

Day 1

Opening of the Conference

The conference was opened by Dr. Stormy-Annika Mildner, Executive Director of the Aspen Institute Germany, and Rudi Hoogvliet, State Secretary for Media Policy and Representative of the State of Baden-Württemberg to the Federal Government.

In their opening presentations, both highlighted that AI was a transformative force in the economy and a driver of innovation, which could make a significant contribution to improving the resilience of societies and economies. Rudi Hoogvliet pointed to the "Cyber Valley" in Baden-Württemberg, which promotes forward-looking ideas. However, both speakers also emphasized that the introduction of new technologies entails risks. They stated that the use of AI, for example, creates new risks for cybersecurity.

Setting the Scene

The introduction was followed by a discussion between Joanna Bryson, Professor of Ethics and Technology at the Hertie School, and Dr. Stefan Heumann, Member of the Executive Board of Stiftung Neue Verantwortung (SNV), which was moderated by Kim Larsen, Director of Bressler, Amery & Ross and member of "Friends of Aspen Germany". Professor Bryson and Dr. Heumann argued that the COVID-19 pandemic exposed numerous weaknesses in national and international governance. Multifaceted crises also required multifaceted solutions. AI could be used to an even greater extent for this purpose, which would, however, require better framework conditions. Accordingly, the two panelists discussed trustworthy AI systems that rely on transparency and traceability. Another focus of the discussion was the education system, which required a much more extensive adaptation to the changing framework conditions. The COVID-19 pandemic clearly exposed its weak points, both speakers argued.

Panel Discussion: "Under Pressure: International Supply Chains in a Post-Pandemic Era"

The first panel was dedicated to supply chain resilience and the potential and risks of AI in supply chain management. The panelists were: L. Daniel Mullaney, Assistant U.S. Trade Representative for Europe and the Middle East at the Office of the U.S. Trade Representative; Martin Barkman, Senior Vice President and Global Head of Solution Management and Digital Supply Chain at SAP; Marion Jansen, Director of the Trade and Agriculture Directorate at the OECD; Sandra Weeser, Member of the German *Bundestag* and Member of the Federal Executive Committee of the FDP; Hasit Thankey, Head of Enablement and Resilience Section, Defence Policy and Planning Division of NATO; Denis Redonnet, Deputy Director General and Chief Trade Enforcement Officer at the Directorate General for Trade of the European Commission. The panel was moderated by Dr. Stormy-Annika Mildner, Executive Director of the Aspen Institute Germany.

"The key to resilient supply chains is diversification. Governments must support the private sector - by opening doors and providing infrastructure. We also need easier rules for working visa and migration, e.g. for truck drivers."

– Sandra Weeser

The panelists noted that the pandemic had clearly exposed the vulnerabilities of global value chains, particularly in the area of medical goods and equipment. These vulnerabilities had also slowed down economic recovery due to shortages of labor, ships, containers, air cargo space, and congested ports. In addition, protectionism has been back in vogue for years, they explained. Especially at the beginning of the pandemic, many countries had resorted to export restrictions. Geopolitical tensions and conflicts posed a significant problem particularly for those supply chains which were characterized by high supplier concentration. These included supply chains for certain metals and minerals as well as semiconductors.

Based on this problem description, the speakers discussed various strategies to improve the resilience of supply chains. Important components, they said, included better risk identification but also diversification and inventory management. Sustainability was additionally mentioned as a significant element. Sandra Weeser also highlighted the importance of good infrastructure. According to Martin Barkman, AI could help to better analyze large amounts of data and identify vulnerabilities more rapidly. It could ad-

ditionally help companies respond more quickly and effectively to shocks and optimize logistics. However, companies could not manage this on their own. Instead, the state had an important role to play in improving the legal and regulatory framework – especially across borders. However, there was a tension between the private and public sectors, Marion Jansen described. The private sector, she explained, for example, demanded more transparency from the government, and the government demanded more data from the private sector. Hasit Thankey emphasized that stress tests and exercise maneuvers at NATO were important to improve supply chain resilience. For this to work, he said, trust between countries needed to be fortified.

"Digitalized supply chains and operations are critical to enabling resilient, customer centric, and sustainable enterprises."

– Martin Barkman

The panelists agreed that more international cooperation was needed. The debate focused primarily on the transatlantic partnership. Dennis Redonnet and Dan Mullaney praised the progress made in the Transatlantic Trade and Technology Council (TTC). Both emphasized that a joint approach to regulating AI was indispensable to prevent new barriers from arising in the transatlantic market.

Spotlight Talk: "Global Digital Governance and International Trade"

In the Spotlight Talk that followed, Dr. Stormy-Annika Mildner spoke with Rebeca Grynspan, Secretary General of the United Nations Conference on Trade and Development (UNCTAD) about global digital governance and international trade.

First, Rebeca Grynspan reported on the massive impact the COVID-19 pandemic had. According to the World Trade Organization (WTO), global trade in goods had declined by eight percent in 2020 and trade in services had shrunk by 21 percent in comparison to the previous year. While global economic growth and trade were expected to rebound in 2022, the global recovery was very uneven, and poorer countries, in particular, would take years to return to pre-crisis levels, she stated. The crisis not only cemented existing inequalities within and between countries, it exacerbated them.

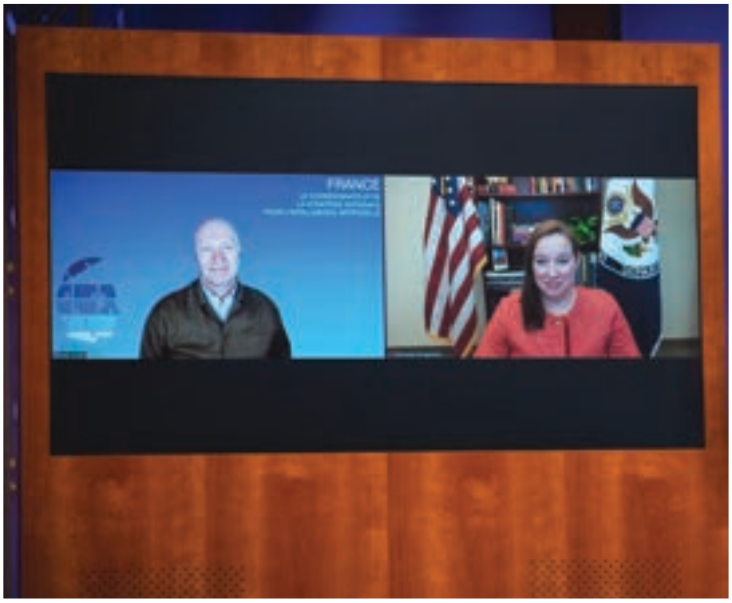
One lesson that arose from the crisis demonstrated that people were never more dependent on access to real-time data and technologies. Rebeca Grynspan underlined that while digitization received a significant boost during the pandemic, the digital divide within and between countries did not diminish. According to Grynspan, AI could make a significant contribution to breaking down barriers to trade, making supply chains more resilient, and preventing or containing pandemics more effectively. However, she also pointed to a variety of critical issues that needed to be addressed: the right to privacy, misuse of data, data protection, and tracking of activities. She urged that these issues were addressed multilaterally. Less-developed countries also lacked adequate data protection laws and the skills to take advantage of technological and data transformations, she explained. They would, therefore, require additional support.

"Global supply chains are under strain. Coordination and coherence among governments and consultation and cooperation between the public and private sector will be key to keep trade flowing for a resilient economic recovery."

– Dr. Marion Jansen

Global governance was essential to prevent further fragmentation, boost confidence in the digital economy, and counter the market dominance of certain digital platforms. This endeavor would not be an easy one, Grynspan claimed. Each party would have to compromise to develop a structure, policy, and dialogue that would enable progress in this area.

Three-on-one Conversation: "Friends or Faux? Digital Sovereignty and the EU-U.S.-China Triangle"



Under the title "*Friends or Faux? Digital Sovereignty and the EU-US-China Triangle,"* Renaud Vedel, Ministerial Coordinator for Artificial Intelligence of France; Molly Montgomery, Deputy Assistant Secretary at the Bureau of European and Eurasian Affairs of the U.S. State Department; and Roderich Kiesewetter, Member of the German *Bundestag* for the CDU, discussed the U.S.-EU relationship and the risks posed by China. The conversation was moderated by Matthew Karnitschnig, chief European correspondent at POLITICO.

The three panelists noted that the geo-economic and geopolitical environment had significantly changed. Competition on international markets had become fiercer. In particular the rapid rise of China, with its state capitalist model and techno-authoritarianism, posed growing challenges to the established global economic order. With its "Made in China 2025" strategy, Beijing was actively promoting key sectors of the economy in order to become a technological superpower – at the expense of others. Not only did China not abide by international rules, the Chinese government also massively subsidized the development of future technologies while protecting its own market from foreign com-

petition. This led to increasingly unfair competition on an international level. Additionally, China tried to export its values internationally, including through free trade agreements, the Belt and Road Initiative, and the appointment of key positions in international standard-setting organizations. Furthermore, increased cyber risks emanated from China.

Against the backdrop of this observation, the three panelists discussed the state of transatlantic cooperation. They noted that the election of Joe Biden had opened a window of opportunity for a new start in transatlantic relations, which both partners wanted to take advantage of. They said this had been showcased at the EU-U.S., G7, and NATO summit in the summer of 2021. They underlined the Trade and Technology Council as a particularly important initiative. This initiative could be used to agree on joint strategies vis-à-vis China, while also breaking down barriers in the transatlantic market. One paramount topic that had not been taken on to the common agenda so far, however, was data transfer between the United Sattes and the EU. There had been no sustainable solution in reach in this regard since the European Court of Justice (ECJ) declared the EU-U.S. Privacy Shield decision invalid in its "Schrems II" ruling. Data transfers across the Atlantic are, however, indispensable for a functioning transatlantic market.

"In this moment, we have a unique opportunity together with the EU to build and enhance a more prosperous and durable transatlantic relationship that benefits workers on both sides of the Atlantic."

– L. Daniel Mullaney

The three panelists also discussed the EU's efforts to become more sovereign, meaning strategically more independent, in terms of digitization — including from the United States. Various surveys showed that a large part of the European population was critical of its dependence on foreign countries. Accordingly, the EU wanted to promote digital skills and infrastructure with the help of large investment packages, advance research and development in key technologies, and set international standards through comprehensive regulatory measures. Both Roderich Kiesewetter and Renaud Vedel stressed that this should not be at the expense of the transatlantic partnership. Molly Montgomery underscored that the United States had an interest in a strong EU that was capable of countering China's practices more convincingly. However, Montgomery also warned that the EU's aspirations for more sovereignty would also be observed critically from the United States and emphasized that new laws should not be discriminatory.

State-to-State Dialogue: "Future of Digital Cooperation"

The last panel of day 1 of the Aspen AI Conference focused on transatlantic digital cooperation at the state level. The panelists were Joschka Knuth, Member of the Schleswig-Holstein State Parliament for Alliance 90/The Greens; Cecilia Aguiar-Curry, Assemblymember in California; Christian Flisek, Member of the Bavarian State Parliament for the SPD; Reuven Carlyle, Member of the Washington State Senate; and Andrea Lindlohr, Member of the State Parliament of Baden-Württemberg for Alliance 90/The Greens. The panel was moderated by Wiebke Wartenberg, Program Officer of the Transatlantic Program at the Aspen Institute Germany.

The panelists noted that recent groundbreaking innovations in machine learning fueled hopes that AI could significantly boost the resilience of societies and economies. At the same time, new digital technologies like AI also presented new challenges: They were changing the world of work, production, education, and mobility. This required new laws and regulations, not least on data protection and privacy. While not all of them would be enacted at the federal level, Wartenberg explained, it was in particular the sub-federal level that played an important role in this context. This was especially the case in the United States where many legislative initiatives on data privacy, regulation of social media platforms, and competition issues made little headway at the federal level. States were thus important agenda setters and could serve as laboratories of democracy. Therefore, it was also crucial to strengthen transatlantic cooperation on digital issues at the state level.

The panelists were members of the Aspen Germany project *Laboratories of Democracy Initiative*, which brings together representatives of U.S. state parliaments and German state parliaments. It serves to facilitate a values-based discussion and exchange ideas on how to address current international policy challenges at the subnational level. The first cohort focused on discussing the risks and potentials of digitization and, more specifically, AI. Four topics were addressed in particular detail: 1. workforce and education; 2. digital infrastructure and mobility; 3. cybersecurity; 4. climate change. The panelists presented the recommendations they had jointly developed for these four areas.

Day 2

Spotlight Talk with Gabriela Ramos, Assistant Director-General for the Social and Human Sciences, UNESCO

Day 2 of the Aspen AI Conference began with a Spotlight Talk with Gabriela Ramos, Assistant Director General for the Social and Human Sciences at UNESCO. The conversation was moderated by Eva Deininger, Managing Director of the xtracake GmbH; and President of the Friends of Aspen Germany.

Gabriela Ramos highlighted that the future of AI must always be about empowering people. This aspect was at the heart of her work at UNESCO, she explained. There was no doubt that AI made a great contribution to society, not least in the fight against the COVID-19 pandemic. At the same time, however, AI could only ever be as good as the data on which it was based, and the assumptions underlying the algorithms. Gabriela Ramos warned that AI could, among other things, entrench social inequalities. If self-learning systems "learned incorrectly" based on biased data, policy-makers would be inclined to draw the wrong conclusions. She highlighted several areas for action, including: data collection, processing, and privacy; algorithm development; transparency, and traceability; business models; competition issues; and digital divides within and between countries.

In addition, she emphasized that AI had to follow an ethical code of values, taking essential core values such as human rights, human dignity, and democracy into account. Accordingly, she presented the Recommendations on the Ethics of Artificial Intelligence (AI), which 193 UNESCO Member States had adopted at the end of November 2021. She explained that the text defined clear ethical guardrails and translated them into concrete policy design tasks. Gabriela Ramos praised the UNESCO recommendations for providing a guideline in international law for AI that not only respected human rights and fundamental freedoms, but also defended and promoted them. The values and ethical principles mentioned in the UNESCO recommendations included privacy, transparency, explicability, and non-discrimination, which ought to be respected in the development and use of AI. Only in this way could digital transformation promote human rights and contribute to the Sustainable Development Goals of the United Nations.

Panel Discussion: "Burden or Benefit? Environmental Sustainability in the Age of AI"

The second panel of the day was dedicated to the topic of sustainability and AI. Dr. Grischa Beier, Research Group Leader at the Institute for Advanced Sustainability Studies (IASS); Dr. Benedetta Brevini, Journalist, Media Reformer and Associate Professor of Communication at the University of Sydney, as well as Author of "Is AI Good for the Planet?"; Alexander Britz, Head of Digital Business Transformation and Artificial Intelligence at Microsoft; Dr. Anna Christmann, Member of the German *Bundestag* for Alliance 90/The Greens; Vladimir Rakhmanin, Assistant Director General and Regional Representative for Europe and Central Asia at the FAO; and Cécile Huet, Acting Head of Unit Robotics & Artificial Intelligence Innovation and Excellence for the European Commission, shed light on the topic from different perspectives. Vérane Meyer, Head of Digital Policy Division at the Heinrich Böll Foundation, moderated the panel.

"'AI made in Europe' is the key to build AI that serves our society and which we can use to protect the environment. For this, we need strong research networks, a good application environment and an open mind for innovation"

– Dr. Anna Christmann

All the panelists agreed on the significant potential of AI to address climate change and mitigate its impacts. They debated different cases in the context of this topic. Vladimir Rakhmanin outlined that AI could, for example in agriculture, help improve the management of water, fertilizers, and pesticides, making them more climate-friendly. AI could also help optimize the ability to plan and control value creation in the food industry and thus avoid food waste. Another case discussed by the panelists was traffic. Traffic could be controlled much more effectively and in a more climate-friendly manner with AI-based processes. The same applied to industry, where AI could contribute to more resource-efficient production. Here it had the potential to produce energy more sustainably and reduce energy consumption.

While the panelists emphasized the potential of AI, they also warned about its high consumption of electricity and resources, for example in data centers. The CO2 emissions associated with its implementation were sub-

stantial. According to various studies, data centers accounted for two percent of total global electricity demand. They emitted as much CO2 as the aviation industry. Accordingly, Anna Christmann suggested that data centers should be located where electricity could be produced cheaply from renewable energy sources. Finally, the panelists agreed that significant investment in research and development would be needed to effectively use AI as a problem solver and mitigate the negative side effects.

Panel Discussion: "AI, Innovation & Space"

The next panel of the day was dedicated to AI and space. The panelists were: Matthias Johannes Wachter, Head of International Cooperation, Security Policy, Raw Materials and Space at the Federation of German Industries (BDI); Dr. Andrej Heinke, Vice President for Corporate Foresight and Megatrends at the Robert Bosch GmbH, Lars Zimmermann, Board Member of Govtech Campus Deutschland e.V.; Sabine von der Recke, Board Member of the OHB System AG; Kristina Nikolaus, Co-CEO and Founder of OKAPI Orbits. The panel was moderated by Helmut Kranzmaier, Partner, Bridgemaker, and Member of the Management Board of Friends of the Aspen Institute Germany.

The panel first addressed the question of the greatest challenges concerning space policy and the use of AI. The panelists identified two contradictory trends: on the one hand, the trend suggested more and more young, innovative startups in Germany looking for AI-based solutions for space. On the other hand, the growing competition between the major powers and geopolitical tensions made modern governance of space much more challenging. Bringing all the main players – civil society, government institutes, technology companies and research – to the table would require a high level of networking expertise. In view of smoldering geopolitical conflicts, this was not likely to become any easier in the future, the panelists warned.

They also debated various possible applications of AI in space travel. One important area of application, for example, was Earth observation from satellites. It provided important information for a wide range of geo-relevant issues (including climate and environmental research, disaster relief, recording of food production, monitoring shipping traffic). With the help of AI, Earth observation could become even more accurate. Another area of application, the panelists addressed, was space infrastructure. AI could help better operate, network, coordinate, and protect it. This is urgently needed considering the large number of satellites and the growing amount of space debris. AI would also play an important role in the further exploration of the solar system in the future, the panelists explained. Astronauts, for example, would be increasingly working together with intelligent machines in the future.

"NewSpace is a game changer. It makes our societies more digital, green and connected."

– Matthias Johannes Wachter

Despite the optimism, the panelists also emphasized that more basic research was needed and that the necessary research funding had to be provided for this purpose. In addition, holistic strategies had to be developed to create sustainable and long-lasting innovations. The panelists underscored both the European dimension of such strategies as well as cooperation between government and industry.

Spotlight Talk: "Sleeping Giant: The Potential of Innovation in Public Administration"

In the Spotlight Talk "Sleeping Giant: The Potential of Innovation in Public Administration", Corinna Krezer, Senior Managing Director and Health & Public Service Client Group Lead (Austria, Germany, Switzerland) for Accenture, and Lars Zimmermann, Board Member of Govtech Campus Deutschland e.V., discussed the potential of AI for modern administration.

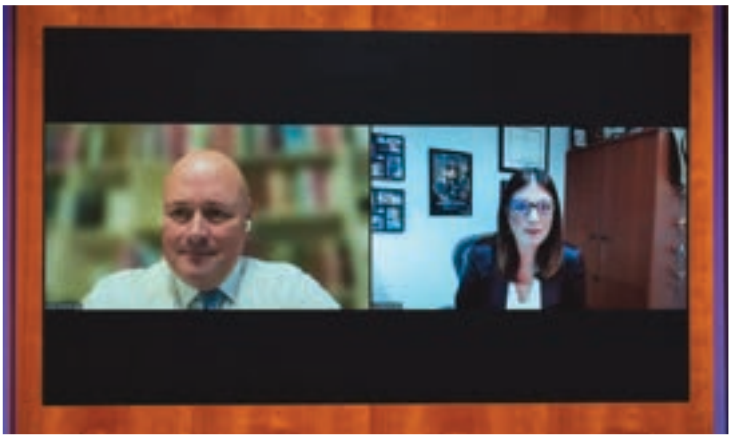
The two experts stated that AI could contribute significantly to efficiency gains and cost savings in public administration. Employees, for instance, could be freed from cost-intensive and repetitive routine tasks. AI additionally had the potential to help them cope better with the increasing flood of data. This would give employees more time for personal consulting or planning activities.

Corinna Krezer and Lars Zimmermann also questioned why AI was not already being used more extensively in administration. One reason was poor data quality – namely, incomplete and inconsistent data sets, separate data silos, and low data quality – which made meaningful AI evaluations difficult. Other factors included unresolved liability issues in

the event of erroneous decisions made by AI, as well as the lack of trust-building standards and quality controls. Mistrust of AI was also a stumbling block to its implementation in government, they explained. In addition, the two panelists noted that there was often a lack of employees with relevant technical understanding and skills in administration.

The two panelists also agreed that the use of AI in administration came with risks. AI systems could learn discriminatory decision-making practices or make unjust decisions based on incomplete data. However, they shared the conviction that the potential of AI clearly outweighed the risks. To leverage this potential, comprehensive investment and a change in the "mind set" would be required.

Two-on-Two Conversation: "Transatlantic Perspectives on Cybersecurity – Challenges and Paths of Cooperation"



In a two-on-two conversation on "Transatlantic Perspectives on Cybersecurity – Challenges and Paths of Cooperation", Arne Schönbohm, President of the Federal Office for Information Security (BSI), and Liesyl Franz, Acting Deputy Coordinator in the Office of the Coordinator for Cyber Issues for the U.S. Department of State, took a look at transatlantic relations and cybersecurity. The conversation was moderated by Johannes Steger, Editorial Manager "Background Cybersecurity" for the Tagesspiegel.

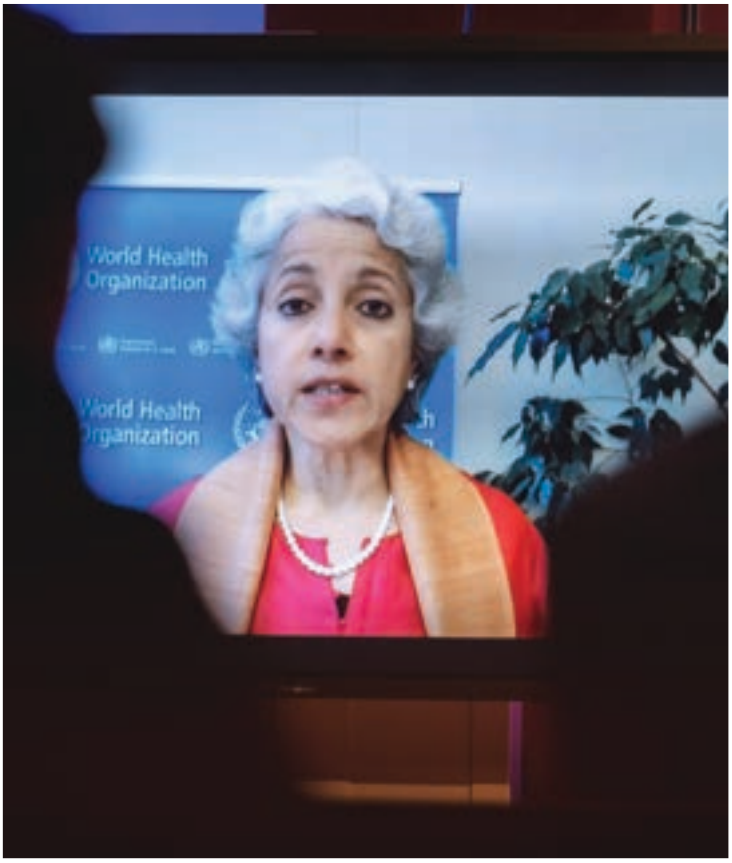
The panelists began their discussion by noting that cybersecurity risks had increased significantly during the pandemic. This applied both to the economy and to states. For example, they said, the risk of malware infections as well as phishing attacks had increased significantly, particularly due to home office work and the use of private hardware and software. In addition, there were more and more cyberattacks from abroad on critical infrastructures.

According to the two panelists, cybersecurity policy was therefore gaining in importance both in the EU and the United States. New regulations were currently being discussed on both sides of the Atlantic. This made it all the more important for the transatlantic partners to work closely together to develop pragmatic, forward-looking solutions.

The focus should be even more on AI, the two panelists underlined. On the one hand, AI was a driver of the above-mentioned risks; on the other hand, it offered considerable potential for containing them. The panelists explained that cyberattacks supported by AI could be many times more damaging, as attacks could be carried out much faster, more coordinated, and more efficiently. However, AI could also be used as a shield, both in threat detection and defense.

Spotlight Talk: "Risks and Remedies of Artificial Intelligence in Healthcare"

In the Spotlight Talk on "Risks and Remedies of Artificial Intelligence in Healthcare," Dr. Soumya Swaminatha, Chief Scientist at the WHO, described the potential uses of AI for healthcare and pandemic response. Dr. Stormy-Annika Mildner, Director of the Aspen Institute Germany, moderated the conversation.



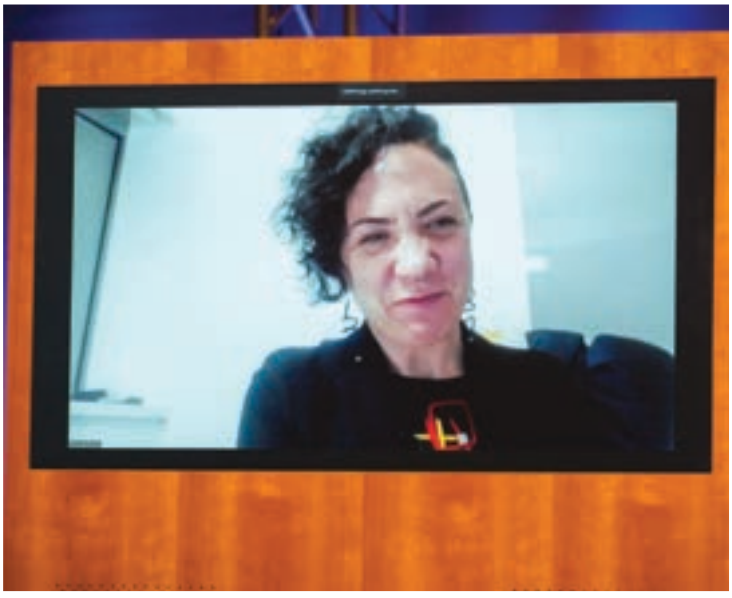
Dr. Soumya Swaminatha emphasized that the COVID-19 pandemic presented the world with unprecedented challenges and warned that it is far from over. The WHO health expert went on to say that AI was an important tool to effectively manage the impact of a pandemic. Already, she said, it was being used in monitoring the spread of the virus, researching and developing tests, vaccines and treatments, and for secure networking and communications. AI-assisted diagnostics could help detect diseases faster, she said. Many healthcare companies were using AI and machine learning to develop new drugs and vaccine candidates to treat COVID-19, she said. In addition, AI was being used to predict the formation of potential mutations as well as their severity, she underlined.

Like several panelists before her, Dr. Soumya Swaminatha emphasized that there were also risks in the use of AI. She therefore pointed out that, first, comprehensive data of good quality had to be built up. Second, regulatory issues, such as data protection, would have to be clarified. Third, ethical questions had to be answered. Fourth, mistrust and resistance to AI had to be reduced. Fifth, the exchange of data for scientific purposes across countries had to be facilitated.

Three-on-one Conversation: "Intrinsic Inequality? Sources and Solutions to Bias in Artificial Intelligence"

Ivana Bartoletti, Global Data Privacy Officer at Wipro, and Visiting Policy Fellow of the Oxford Internet Institute; Carla Hustedt, Director of the "Center for Digital Society" at the Stiftung Mercator; and Gabriela Ramos, Assistant Director-General for Social and Human Sciences at UNESCO discussed the opportunities AI offers to reduce structural inequalities as well as the risks of AI. The discussion was moderated by Merle Uhl, Officer for Artificial Intelligence & Digitalization at Bitkom e.V.

The panelists agreed that problems of human bias, such as gender discrimination, could in the future be avoided through AI. In reality, however, the opposite often happened today. Both, the assumptions underlying the algorithms and the data used, often reflected biases endemic and systemic in society, the panelists said. Ivanna Bartoletti spoke of coded bias in this context.



Carla Husted explained that there was now greater awareness of this problem in politics. AI had long since been discussed not only from a technical perspective. More and more attention was being paid to the ethical aspects of AI. Nevertheless, the road to a holistic approach was still long. Gabriela Ramos agreed that more attention needed to be paid to the collection and processing of data in order to avoid bias. The same applied to the development of algorithms, she said. In her opinion, this could only be achieved if the relevant staff teams were more diverse.

The panelists agreed that the current regulations were not sufficient to ensure the protection of fundamental rights. In the current regulatory efforts, it was also important to keep in mind that the same solution could not be applied to all use cases. Finally, the panelists agreed that civil society should be even more involved in the debates.

"If we want to grow with the AI, we need to set the rules of the game: trust, privacy, fairness, redress, contestability, and meaningful transparency. These are the ingredients we need, and fast."

– Ivana Bartoletti

Panel Discussion: "The New Normal: Obstacles on the Path to Digital Skills and Education"

The final panel of the Aspen AI Conference was dedicated to AI and education. The panelists were: Kathrin Röschel, Head of School of the German International School of Silicon Valley, United States; Bettina Stark-Watzinger, MdB, Head of the National Parliamentary Group for the FDP, and Board Member of the Friedrich Naumann Foundation for Freedom; Prof. Dr. Niels Pinkwart, Head of Research Department Educational Technology Lab at the German Research Center for Artificial Intelligence; Dr. Wolf Prieß, Director for the Program Area Economics at the Heart Foundation; and Georgi Dimitrov, Head of Digital Education of the European Commission. Dr. Johanna Börsch-Supan, Director for Strategy and Program at the Vodafone Germany Foundation, moderated the discussion.

The discussion began with the observation that digitization had clearly picked up speed during the Covid-19 pandemic – also in the education system. At the same time, the crisis had shown the weaknesses of the education system more clearly than ever. Germany was still far behind in terms of digitization of schools, the panelists said.

They also agreed that digitization required not only new professional qualifications but also new skills: adaptive and numerical thinking, management of cognitive load, virtual collaboration, design mentality, new media competence, and transdisciplinarity. This, they argued, needed to be taken into account more thoroughly in education and training. On the other hand, AI allowed to improve education and support teaching with new learning methods such as chatbots, task evaluations, personalized, and automated learning content, the panelists said. Examples were learning apps that adapted the task program to the learner's competency profile. AI, however, could not replace the teaching and learning of social skills. The panelists were of the opinion that the need to equip educators and students with a fundamental understanding of new technologies was also increasing with advancing digitization.

The risks of AI were also discussed on this panel. For example, the panelists warned about the problem of disinformation and hate speech on the Internet, especially on social networks. They also pointed out that AI could exacerbate the phenomenon of echo chambers. They agreed that media literacy should be taught in schools to a greater extent than it was now.

Finally, they felt that the use of AI in German education was still in its infancy. In order to counteract the lack of digitization in schools, standardization of the systems and better training of teachers as well as the reduction of bureaucratic hurdles were needed.

Agenda Day 1

12:30 - 13:30 Small Lunch Reception and Registration

13:30 - 13:50 Welcome Remarks by **Stormy-Annika Mildner**, Executive Director, Aspen Institute Germany and **Rudi Hoogvliet**, State Secretary for Media Policy and Representative of the State of Baden-Württemberg to the Federal Government

13:55 - 14:25 Setting the Scene with **Prof. Joanna Bryson**, Professor of Ethics and Technology, Hertie School and **Dr. Stefan Heumann**, Member of the Management Board, Stiftung Neue Verantwortung (SNV)

Moderated by **Kim Larsen**, Principal, Bressler, Amery&Ross; President, Friends of Aspen Germany, Washington, D.C.

14:30 - 15:30 Panel Discussion on "Under Pressure: International Supply Chains in a Post-Pandemic Era" with

L. Daniel Mullaney, Assistant U.S. Trade Representative for Europe and the Middle East, Office of the United States Trade Representative

Martin Barkman, Senior Vice President and Global Head of Solution Management and Digital Supply Chain, SAP

Dr. Marion Jansen, Director of the Trade and Agriculture Directorate, OECD

Sandra Weeser, Member of the German Bundestag and Member of the federal executive committee, FDP

Hasit Thankey, Head of Enablement and Resilience Section, Defence Policy and Planning Division, NATO

Denis Redonnet, Deputy Director General and Chief Trade Enforcement Officer, Directorate General for Trade, European Commission

Moderated by **Stormy-Annika Mildner**, Executive Director, Aspen Institute Germany

16:00 - 16:30 Spotlight Talk on "Global Digital Governance and International Trade" by **Rebeca Grynspan**, Secretary-General, United Nations Conference on Trade and Development (UNCTAD)

Moderated by **Stormy-Annika Mildner**, Executive Director, Aspen Institute Germany

16:35 - 17:20 Three-on-one Conversation on "Friends or Faux? Digital Sovereignty and the EU-US-China Triangle" with

Renaud Vedel, Ministerial Coordinator for Artificial Intelligence of France

Molly Montgomery, Deputy Assistant Secretary, Bureau of European and Eurasian Affairs, U.S. State Department

Roderich Kiesewetter, Member of the German Bundestag, CDU

Moderated by **Matthew Karnitschnig**, Chief Europe Correspondent, POLITICO

17:25 - 18:30 State to State Exchange: Future of Digital Cooperation

Joschka Knuth, Member of the Schleswig-Holstein State Parliament, Alliance 90/ The Greens

Cecilia Aguiar-Curry, Assemblymember, California

Christian Flisek, Member of the Bavarian State Parliament, SPD

Reuven Carlyle, Member of the Washington State Senate

Andrea Lindlohr, Member of the Baden-Württemberg State Parliament, Alliance 90/ The Greens

Moderated by **Wiebke Wartenberg**, Program Officer, Transatlantic Program, Aspen Institute Germany

Agenda Day 2

09:00 - 09:30 Coffee and Registration

09.30 - 10:15 Spotlight Talk by **Gabriela Ramos**, Assistant Director-General for the Social and Human Sciences, UNESCO

Moderated by **Eva Deininger**, Managing Director, xtracake GmbH; President, Friends of Aspen Germany

10:20 - 11:25 Panel Discussion on "Burden or Benefit? Environmental Sustainability in the Age of AI"

Dr. Grischa Beier, Research Group Leader, Institute for Advanced Sustainability Studies (IASS)

Dr. Benedetta Brevini, Journalist, Media Reformer and Associate, Professor of Communication at the University of Sydney; Author, Is AI Good for the Planet?

Alexander Britz, Head of Digital Business Transformation and Artificial Intelligence, Microsoft

Dr. Anna Christmann, Member of the German Bundestag, Alliance 90/The Greens, Germany

Vladimir Rakhmanin, Assistant Director General, Regional Representative for Europe and Central Asia, FAO

Cécile Huet, Acting Head of Unit Robotics & Artificial Intelligence Innovation and Excellence, European Commission

Moderated by **Vérane Meyer**, Head of Digital Policy Division, Heinrich Böll Foundation

11:40 - 12:40 Panel Discussion on “AI, Innovation & Space“

Matthias Johannes Wachter, Head of Department, International Cooperation, Security Policy, Raw Materials and Space, Federation of German Industries (BDI)

Dr. Andrej Heinke, Vice President Corporate Foresight and Megatrends, Robert Bosch GmbH

Lars Zimmermann, Board Member, Govtech Campus Deutschland e.V.

Sabine von der Recke, Board Member, OHB System AG

Kristina Nikolaus, Co-CEO and Founder, OKAPI Orbits

Moderated by **Helmut Kranzmaier**, Partner, Bridgemaker; Member of the Management Board of the Association of Friends of the Aspen Institute Germany

13:40 - 14:15 Spotlight Talk on “Sleeping Giant: The Potential of Innovation in Public Administration” by **Corinna Krezer**, Senior Managing Director, Health & Public Service Client Group Lead (Austria, Germany, Switzerland), Accenture, with **Lars Zimmermann**, Board Member, Govtech Campus Deutschland e.V.

14:20 - 15:05 Two-on-one Conversation on “Transatlantic Perspectives on Cybersecurity – Challenges and Paths of Cooperation”

Arne Schönbohm, President, Federal Office for Information Security (BSI)

Liesyl Franz, Acting Deputy Coordinator in the Office of the Coordinator for Cyber Issues, U.S. Department of State

Moderated by **Johannes Steger**, Editorial Manager “Background Cybersecurity”, Tagesspiegel

15:40 - 16:15 Spotlight Talk on “Risks and Remedies of Artificial Intelligence in Healthcare” by **Dr. Soumya Swaminatha**, Chief Scientist, WHO

Moderated by **Stormy-Annika Mildner**, Executive Director, Aspen Institute Germany

16:20 - 17:05 Three-on-one Conversation on “Intrinsic Inequality? Sources and Solutions to Bias in Artificial Intelligence”

Ivana Bartoletti, Global Data Privacy Officer, Wipro; Visiting Policy Fellow, Oxford Internet Institute; Author, An Artificial Revolution: on Power, Politics and AI (Mood Indigo 2020)

Carla Hustedt, Director “Centre for Digital Society”, Stiftung Mercator

Gabriela Ramos, Assistant Director-General for the Social and Human Sciences, UNESCO

Moderated by **Merle Uhl**, Officer Artificial Intelligence & Digitalization. Bitkom e.V.

17:10 - 18:10 Panel Discussion on “The New Normal: Obstacles on the Path to Digital Skills and Education”

Kathrin Röschel, Head of School at German International School of Silicon Valley, United States

Bettina Stark-Watzinger, MdB, Head of the National Parliamentary Group, FDP; Board Member of the Friedrich Naumann Foundation for Freedom

Prof. Dr. Niels Pinkwart, Head of the Research Department Educational Technology Lab, German Research Center for Artificial Intelligence

Dr. Wolf Prieß, Director Program Area Economics, Herz Foundation

Georgi Dimitrov, Head of the Digital Education Department, European Commission

Moderated by **Dr. Johanna Börsch-Supan**, Director Strategy and Program, Vodafone Germany Foundation

18:15 - 18:30 Closing Remarks and Reception

About the Aspen Institute Germany

The Aspen Institute Germany is an independent, non-partisan organization that promotes values-based leadership, constructive dialogue between conflicting parties, and transatlantic cooperation to strengthen a free and open society. Founded in 1974 in Berlin, the Institute has been bringing together decision-makers and experts from politics, business, academia, media, culture, and civil society for 48 years to address the challenges of our time.

The Aspen Institute Germany would like to tank its co-hosts for their generous support of this conference:

This conference has also been generously supported by our partners:

Imprint

Publisher: Aspen Institute Deutschland e.V.
Friedrichstraße 60 | 10117 Berlin
Deutschland

Project Management: Dr. Stormy-Annika Mildner, Eva Mattes

Editors: Dr. Stormy-Annika Mildner, Eva Mattes

Design & Layout: Moritz Ludwig

Publication: April 2022

Pictures: Jens Ahner