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**FRIEDRICH NAUMANN
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**INTERNATIONALE
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TAGESSPIEGEL DIGITALISIERUNG & KI
BACKGROUND

Executive Summary

The Aspen Berlin AI Week 2020 brought together a highly interdisciplinary group of international speakers who contributed to a series of rich, high-level, and interactive discussions on the evolution of Artificial Intelligence (AI) as a general-purpose technology and the complex ways in which AI is triggering changes in the workplace, industry, and the economy as a whole. As in past industrial revolutions, these changes come with their own set of societal challenges. Just as the industrial revolution of the late 19th century led to the liberalization and socialization of work, current technological advances demand a major rethink of an increasingly outdated “social contract.” In order for society to benefit from the potentially massive productivity gains of AI and platform-driven economies as a whole, these changes must take place with commensurate reforms to our infrastructure, welfare systems, benefit schemes, and educational institutions.

Tackling both the opportunities and challenges of AI requires a whole-of-society approach, which is only just beginning. It is the Aspen tradition to take on society’s biggest policy questions and to use its platform to bring together disparate views that trigger debate, spark broad interest, and advance political discussions. In this spirit, local policymakers, business leaders, innovators, philosophers, and representatives from major tech companies, civil society, and academia came together over the course of five days to offer a free and open forum for deliberation. Too often, debates on AI take place in closed, exclusive, and for-profit formats. Aspen Germany sought to change this trend when it launched the Berlin AI Conference series three years ago. This year’s conference was the first of its kind at Aspen Germany and demonstrated that hybrid formats are especially effective in creating the level of diversity, inclusion, and participation this topic demands.

A mix of formats, ranging from keynotes and two-on-one conversations to seminar-style presentations and fireside chats, afforded participants with various opportunities to engage with the thought-provoking input offered by over 40 speakers. Looking back at the five days of discussions, there were several key takeaways:

1. **To be a leader in AI, the European Union must develop a “third way” that is rooted in humanism and trust but also embrace the globalized and interconnected nature of data and technology that is essential to driving innovation.** Europe’s comparative advantage lies within its industrial data, which it must leverage to remain competitive. To this end, it will be critical for the EU to harmonize its regulation when it comes to digital services and the digital market and to have a system in place that allows for the secure transfer of data not only within the EU but across the world, given that European industrial data is global data. Initiatives such as the G7’s global partnership on AI, the OECD’s principles on AI, and the European Commission’s proposed Transatlantic AI Agreement show great promise for a multilateral approach in spite of fierce competition. At the same time, the EU must take care not to stifle innovation by overregulating and risk losing out to less restrictive players. Points of contention were how far the EU can go in protecting its strategic autonomy given that Europe’s national champions are in fact international, and the extent to which AI and Machine Learning benefit the biggest tech players versus an entire ecosystem.
2. **For the economies of liberal democracies to thrive on AI, its application must be built into a viable ecosystem in which major industries, technology companies, SMEs, and startups grow and profit together.** The global pandemic has demonstrated how resilient the biggest technology companies are compared to small and medium-sized enterprises. A key to creating a more equitable system is by changing the current ownership structures of personal data. Although cloud computing makes it possible for data to be accessed by a widespread number of players, there is currently a lack of structures and portability to facilitate this. When it comes to being a technology leader, the United States enjoys several advantages, namely the best funded research programs, a well-developed venture capital industry, and a harmonized internal market. Another key advantage is the comparatively high proportion of investments that go into marketing, which is critical to raising the acceptance of AI among citizens. Next to the EU’s goals of establishing ecosystems of excellence and trust, there must also be an ecosystem of agility if startups are to become more competitive.

3. **Companies, governments, and citizens must all play a role in tackling the market failures with regard to education and skills.** Although AI is not yet developed to the point where it has a significant impact on productivity and growth, a decoupling of labor from productivity has been underway for several decades, which technologies like AI risk exacerbating. While automation will lead to both the loss and creation of jobs, it will have potentially devastating redistributive effects that could lead to the increased marginalization of vulnerable groups unless adequate countermeasures are taken. These may include the availability of funding or interest-free loans for lifelong learning, a greater investment by companies into the long-term skills of their employees, and a social safety net that includes a guaranteed livable income for those who are structurally unemployed. The uncertainty around which jobs and skills will be most relevant going forward makes both government intervention and employer investments in workers particularly challenging. A debate was struck up not only on which areas of the market should be regulated but also on the extent to which increased productivity from automation can lead to more leisure time and whether this would undermine competitiveness.

4. **Europe's quest for digital sovereignty is not about protectionism or autarky but about breaking free from dependencies while securing enough market power to be able to set its own standards and norms.** Covid-19 revealed just how dependent and even vulnerable European markets are to volatile supply chains and foreign software providers. In China, the pandemic triggered a surge of innovations, from AI-driven diagnostics to disinfecting and quarantine-enforcing robots. In Germany, there were small advances, such as the Corona-tracing app, but a risk-averse mentality and a much larger emphasis on data privacy has indeed slowed innovation. Given the speed at which AI is progressing, the EU is not likely to catch up with China or the United States, but it does have the potential to be a player and to have a seat at the decisions-making table. Speakers disagreed about the extent to which AI made in Europe must be developed for the common good, given that many technologies such as GPS were developed for niche areas before they became broadly available to citizens. The EU was encouraged not only to focus on values-driven, but also opportunity-driven AI.

Overall, the Aspen Berlin AI Week attracted over 550 viewers, representing a diverse group of high-level participants both selectively invited by Aspen Germany and from registrations made possible on the conference landing page. Mirroring the diverse group of speakers, there was a balanced group of participants from the public, private, and non-profit sectors. Participants were also able to follow highlights under #AspenAI20 on Twitter, where it garnered 84,705 impressions, 425 likes, and 60 retweets. All sessions were recorded and posted on Aspen Germany's YouTube Channel, where the AI Week gained about 550 views (January 2021). This conference was only possible thanks to the generous support of Aspen Germany's co-hosts, the Heinz and Heide Dürr Foundation and the State Representation of Baden-Württemberg in Berlin, as well as its partners, the Friedrich-Naumann-Foundation for Freedom, Google, Microsoft, Dell, and DNV GL. Aspen Germany also appreciates the support of its media partners, Tagesspiegel Background *KI & Digitalisierung*, *Internationale Politik*, and IPQ.

Conference Summary

The third annual Berlin AI conference – entitled "Humanity Enabled: AI & the Great Economic Acceleration" – took place throughout the second week of December 2020 (Dec. 7-11). The conference, which was in a "hybrid" digital format, brought together more than 40 policymakers, entrepreneurs, computer scientists, as well as philosophers, sociologists, academics, and other members of the transatlantic community. As with prior AI conferences in 2018 and 2019, Aspen Germany hosted the in-person proceedings from the State Representation of Baden-Württemberg in Berlin, but this time with the majority of panelists and other guests participating remotely via videoconference, for public-health reasons. To allow for a true transatlantic discussion, the conference was held over the course of five days, in three-hour blocks. The languages of the conference were English and German.

The conference was generously supported by Aspen Germany's co-organizers: the Heinz and Heide Dürr Foundation and the State Representation of Baden-Württemberg, in addition to the support of its partners – the Friedrich-Naumann-Foundation for Freedom, Google, Microsoft, Dell Technologies, and DNV GL. Media partners consisted of Tagesspiegel Background *KI & Digitalisierung*, *Internationale Politik*, and IPQ.

Opening Themes

Then Executive Director of Aspen Germany, Rüdiger Lentz, opened the Conference by emphasizing the theme of "digital acceleration" and pointing out that Germany remains behind the two principal leaders in AI – the United States and China – which are adopting technologies at significantly faster speeds. Andre Baumann, Representative to the state of Baden-Wuerttemberg, also welcomed participants and touted the achievements of his region in southwest Germany, in which private industry, academic institutions, and government are cooperating to advance Germany's position in AI and digitalization. Baumann noted that the doctoral program in "Cybervalley" (located in the Stuttgart-Tübingen region) is attracting record numbers of applications. Nevertheless, Baumann said that more professorships are needed, as well as more emphasis on cross-border research and cooperation. Baumann agreed with Lentz that "acceleration" is a timely topic, as the global pandemic of 2020 has acted as a catalyst of digital acceleration around the world.

Heinz Dürr, Chairman of the Heinrich and Heide Dürr Foundation, also made brief welcome remarks, noting that digitalization and AI are preconditions of globalization, and that in his estimation China remains the chief driver of these trends.

Dialogue with Jaan Tallinn, Co-Founder of Skype and Kazaa

In an opening conversation moderated by Ulrike Franke, Policy Fellow at the European Council on Foreign Relations, tech founder Jaan Tallinn described his realization a decade ago that the long-term effects of AI are "the most underappreciated topic in the world," prompting a new focus in his work. Tallinn suggested replacing the term "AI" with the term "delegating human decisions to machines," and focused in particular on the risks of artificial general intelligence ("AGI"), which is meant to perform cognitive human abilities (as opposed to more narrowly tailored AI that is meant to perform tasks within specific domains). Tallinn's thesis was that by delegating ever more control to machines without any guard rails, humanity is investing in a future with a random outcome – a poor societal choice.

Instead, society should be focused on building more "docile" AI that yields control back to humans as soon as it encounters unforeseen circumstances. In an additional provocative comment that was picked up in later sessions during the conference, Tallinn stated that data is "overrated" and that the cliché about data being "the new oil" is also becoming "an old idea." He illustrated by pointing out that you do not

teach children to draw by showing them 10,000 pictures; instead, you teach them the techniques of drawing.

European Leadership on the Cutting Edge

The conference's first panel discussion was entitled **"AI Typhoons and Tech Tycoons: Channeling New Forces into Economic Productivity and Inclusive Growth."** Participating panelists were five European decisionmakers: Björn Böhning, Permanent State Secretary in the German Federal Ministry of Labor and Social Affairs; Carl Benedict Frey of the University of Oxford; Casper Klynge, Vice President of European Government Affairs for Microsoft; Eva Maydell, member of the European Parliament; and Andrew Wyckoff, Director of the OECD Directorate of Science, Technology and Innovation. The moderator was Stormy-Annika Mildner, Head of Foreign and Economic Policy at the Federation of German Industries (BDI) and incoming Director of the Aspen Institute Germany.

The panel touched upon several threads that ran throughout the conference, including how AI would impact the future of work. According to Björn Böhning, AI and job loss are inevitable, and the ultimate challenge for governments will be to retrain workers. He highlighted Germany's "Corona-Warn-App" (mobile phone app) as an example of Germany innovating quickly and successfully. Professor Frey emphasized that policymakers must think more holistically about "innovation policy" rather than about merely regulating AI. He pointed out that the United States' strengths flow from "the best funded research institutions by far," a well-developed venture-capital sector, and a harmonized retail market. He added that Europe's single market is a success – but is still largely limited to goods. He used the example of industrial policy in Japan as a trap that Germany and Europe should not fall into as it regulates innovation – as it left Japan underprepared for the digital age.

MEP Eva Maydell described the European Commission's regulatory leadership in digital and AI; she and Casper Klynge disagreed on the scope of regulating industrial data in Europe. Maydell framed the debate of digital sovereignty as regulating "European data"; Klynge pointed out that big industrial firms cannot actually monetize their data without transferring it around the world. Klynge also praised the European Commission's new transatlantic proposal, emphasizing that "ring fencing our values" is critical as a new U.S. administration takes office. Andrew Wyckoff highlighted the OECD's AI principles from 2019, which are more than platitudes; they have "real teeth" in terms of ensuring accountability and robustness. He stated that governments and big firms are taking the effort seriously and "want to resolve it."

"Lightning Talks" with European Tech Entrepreneurs

The last panel of Day 1 featured four European tech entrepreneurs at the forefront of applied AI: Anna Lukasson-Herzig, the Founder and CEO of Nyris; Leif-Nissen Lundbaek, Co-founder and CEO of XAIN AG; Dagmar Schuller, CEO and Co-founder of audEERING; and Pavel Konecny, CEO of Neuron Soundware. Aspen Executive Director Lentz led them in discussion, after each presented their company via a slide deck.

Lukasson-Herzig's firm has designed a "visual search engine," that searches the internet for images that match one entered by the user. She pointed out that many users might struggle to put certain images (say a lamp or an auto part) into words, thus the need for a visual search tool. Konecny's software is a "predictive maintenance algorithm" that "listens" to machines in order to predict mechanical failure. This allows users to get appropriate repairs before failures occur. Schuller's start-up has developed a speech-analysis tool that (like facial or gait recognition software) can identify traits based on vocal "biomarkers" like crying, sighing, hesitating, or laughing. The traits include a speaker's state of mind, emotions, and health status. Finally, Lundbaek's company – arguably the most abstract and widely applicable software of the four – is developing a way to apply AI to personal data





that resolves the “privacy dilemma” inherent in the mass collection of personal data. Lundbaek said that instead of collecting data in a central place, his tool brings AI algorithms to the end-user’s device instead.

Technological Leadership in German Politics

Day 2 began with a one-on-one interview with Saskia Esken, co-chair of Germany’s Social Democratic Party (SPD) and member of the Bundestag, conducted by Michaela Küfner of Deutsche Welle. Esken, a trained IT specialist, has also served on the Bundestag’s “digital agenda” committee. She said that the Bundestag is filled with misconceptions about AI as “the Terminator” or “I, Robot.” She believes that part of her efforts must be to educate colleagues and help design political frameworks that reflect core values like privacy and the prevention of bias. She said that the EU is also building its framework, which seeks a “middle way” through the United States and China.

Küfner prompted Esken for reactions on the future of AI, whether it could simply replace workers. Esken responded that a lot of menial tasks could be replaced, but that essential workers cannot be allowed to be replaced. She added that Germany must “be a shaper of future technology, not a follower.” Esken admitted that Germany has been “slightly asleep” in terms of developing alternatives to combustion engines and other technologies. She emphasized that Germany has always managed to create jobs over the years, and that people move to Germany from other countries to find work. That said, she warned against a future where half the population is working 60 hours a week, while the other half is not working at all. She marveled at the technological transformation of the last ten years and admitted the challenges of predicting the future beyond a year or two.

AI and the Future of Work

The main panel for Day 2 was entitled: “**From Proletariat to Precariat? Labor in the Age of Automation.**” It was a transatlantic group, featuring Janina Kugel, former Chief Human Resources Officer of Siemens AG; Johannes Vogel (FDP), member of the German Bundestag; Andy Stern, President Emeritus of the Service Employees International Union (SEIU); and Roger Bootle, Chairman of Capital Economics.

The panelists offered differing visions of the impact of AI and other technologies on the future of work. The most prominent gap emerged between Roger Bootle and Andy Stern. While Bootle expressed mostly optimism that innovation would yield more productivity gains and ever more jobs, Stern pointed out that most new jobs created by innovation now are in home care, childcare, and other similar fields and are “often done by women of color, with poor wages and benefits.” Bootle conceded that there should be some role for the state in preparing future generations for labor transformations so as to overcome basic market failures, but that it should not play the role of “deciding where the new jobs will be and promoting and subsidizing those sectors.” To illustrate the absurdity of knee-jerk resistance to change, Bootle brought up the example of Ned Ludd, who led a popular movement during the industrial revolution to vandalize and destroy new machines.

Stern lamented the disappearance of unionized work, adding that “being a greeter at Wal-Mart” is no substitute for a middle-class union job. He said that in the United States, even new college graduates are being churned out through a system that has “failed them and made them undervalued.” The McKinsey study shows just how many jobs can be automated, which Stern pointed to as a warning. Bootle agreed that putting more young people into liberal-arts college educations would not produce people with sufficient adaptability to “carry on learning new skills.”

Janina Kugel opined that employers bear too much of the responsibility of retraining and “upskilling” workers, and that only governments are in a position to perform the appropriate long-term thinking and planning in this area. By way of example, in her estimation under the American system it is “scary” how unproductive people are

when they finish secondary or post-secondary school; it is entirely up to the employer to provide the necessary training they need for their careers. Kugel also asserted that Germany in particular would have to become more flexible as work changes, particularly as Germany remains more tied to rigid employment rules and to 9-5 jobs. Stern, on the other hand, expressed grass-is-greener admiration of Germany as being “in a different universe” in terms of workplace protections and social support.

Like Bootle, Johannes Vogel cautioned against too much hand wringing about the future, pointing to the 1990s when many in Germany believed that industrial robots would destroy German industry. At the same time, Vogel also acknowledged the new acceleration, and suggested establishing a “second education system” that would accompany people throughout their lives, to account for the fact that in Germany, two-thirds of the workforce receive no additional training after they are qualified for their jobs. This proposal aligned with one area of general agreement among all the panelists: that employers often are unfairly faced with a dilemma, in that investing in their employees often makes them more marketable and thus harder to retain over the long term.

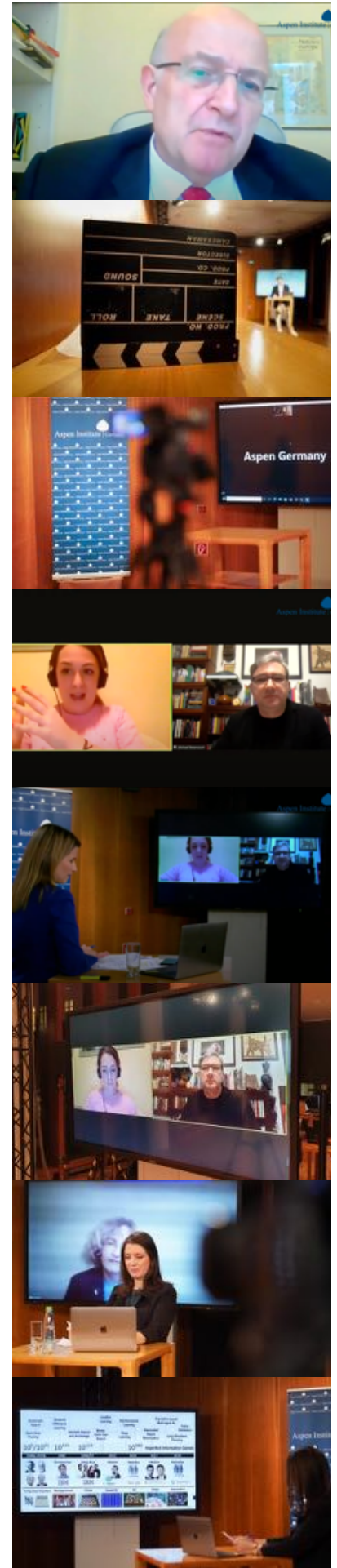
Deep Thinking about a Future Automated World

The final item of Day 2 was a seminar called “**AI: Cultural Impacts and Impediments to the Post-Labor Society,**” with the American academic and philosopher Michael Betancourt of the Savannah College of Art and Design, moderated by founder and AI thought leader Sara Polak of the Czech firm prg.ai. In contrast to many of the other contributions through the week, the seminar was more conceptual, focusing less on the technology and more on the consequences of AI and automation on society.

Professor Betancourt’s seminar was guided by seven principal points. First, automation will cause human labor to no longer be the foundation of value. As unskilled labor becomes more automated, the underpinnings of the capitalist system will be laid bare. Second, at least some aspects of skilled labor will remain impervious to automation; while we can already in a sense “automate” a Rembrandt painting, per his example, there must still be creative choices that go into designing that process. Third, currency will become “a title to initiate production, rather than a receipt for past production.” This flows from the fact that in a post-labor economy, human labor can be replaced by unpaid digital computers, eliminating the costs of wages. Fourth, the role of cultural authority held by “gatekeepers” will increase; the platforms for human engagement will become ever more driven by profit generation, incompatible with other demands. Fifth, lost jobs will necessitate ever more layers of social support (e.g., universal basic income); Sixth, the means of production will in itself become a commodity. Finally, traditional cultural ideologies are structural impediments to the transition and emergency of a society of leisure through their demonization of inactivity and justification of the historical societal hierarchy that emerged in an agrarian society dominated by subsistence production.

The Science behind Artificial Intelligence

Day 3 began with a Keynote Presentation by Jana Koehler, Scientific Director of the Algorithmic Business and Production Research Department, German Research Center for Artificial Intelligence (DFKI). The moderator was Olivia Knodt, Program Officer at Aspen Germany and Co-lead of the Aspen Berlin AI Week. Professor Koehler traced the origins and the field of AI back to Alan Turing, who in the 1940s famously wondered whether machines could think. His conclusion – that there were few meaningful boundaries between the human thought process and the possibilities of machine computation – gave rise to the field of AI, which was mostly developed in the United States in the post-war decades. One of the measures of AI progress has been the increasing complexity of games that AI algorithms can master – from checkers to chess, to AlphaGo – as well as “imperfect information games” like poker. Prof. Koehler also pointed out how AI is embedded in many everyday





applications like GPS route planning, translation software, digital assistants like Alexa, as well as industrial applications like drone-assisted photography.

Koehler also gave a thumbnail sketch of some of the models underlying AI, for example “training” a neural network on a set of data, which can extract patterns and apply them to concrete cases (e.g., disease detection in a single patient based on large sets of population health data). She also illustrated how stochastic computation used in the gaming space can also be applied to improve certain logistics processes, including in the apparel and automotive manufacturing industries. She explained that the use of algorithms will ultimately allow industries to shorten their supply chains and “reshore” jobs in Europe, as more labor is automated. This will create some high-skilled jobs domestically, as well as reduce waste and environmental degradation.

Homegrown Innovation – Challenges and Opportunities

The panel discussion for Day 3 was entitled “**Big Players, Startups, and the Innovation Paradox**” and featured Nadine Schön (CDU), member of the German Bundestag; Johann Strauss, Director of Technology Alliances at Dell; reappearing were Dagmar Schuller, CEO and co-Founder of audEERING, and Anna Lukasson-Herzig, Founder and CEO of Nyris. The panel was moderated by Tyson Barker, Head of the Technology and Global Affairs Program at the German Council on Foreign Relations (DGAP). The discussion focused on identifying specific ways Germany could accelerate and improve its international competitiveness in technological innovation.

The panelists agreed that financing is the factor that most separates the German innovation ecosystem from its aspirations. Lukasson-Herzig used neither China nor the United States to measure Germany’s startup climate but rather Estonia and Israel – two countries much smaller than Germany but with far more investment pro capita in technology start-ups. She also drew a direct line to the number of “unicorn” firms produced by those countries, positing that their success in creating such firms is attributable to the financial commitment. Nadine Schön touted the rollout of a new 10-billion Euro “future fund” that is designed to leverage at least as much in private financing and would begin to meet this unmet need. She pointed out that this outpaces France’s commitments. Dagmar Schuller opined that financing is indeed a critical Achilles’ heel for Germany, but also the mentality that products must be perfected before they are marketed; she said that the very nature of AI-based products is based on probabilities, not certainties. She noted that her own company relied on a Danish backer to support their rollout, exemplifying that the issue of risk aversion is a German, rather than European, phenomenon.

Johann Strauss was asked to reflect on the success of “Siri” – based on technology financed by the U.S. government, then purchased by Apple and installed on smart-phones worldwide. Strauss pointed out that his firm uses a spectrum of different approaches to development – it is not a question of startups and “hyperscalers” on one hand, versus old-fashioned company laboratories on the other. Nowadays the ecosystem for R&D is much more fluid and dynamic. “Clusters” of researchers, academics, industry, government, etc. have formed in various regions now that break down many of the traditional barriers, and that process is developing. The classic German engineer who never leaves the laboratory will not be the model long-term.

The panel also discussed some barriers of perception in Germany. Strauss said that his Silicon Valley experience showed him that a great deal of “success” in technology is driven by marketing, which Germany could focus on more. Lukasson-Herzig agreed that VC funding is often heavily used for marketing rather than building products and services; the less VC is available to German companies, the less marketing they can do – creating a disadvantage. Dagmar Schuller also noted that her firm had difficulty recruiting Germans to participate in “donating” data for their Covid-19 initiative; the public apprehension about invasion of privacy is large and

must be dealt with in order for the public to realize that AI and other innovations are a net positive for German society.

A Conversation with DeepMind Founder Mustafa Suleyman

The final event of Day 3 was a one-on-one conversation with Mustafa Suleyman, Vice President of Artificial Intelligence at Google and Co-Founder of DeepMind. Jana Koehler led the conversation, which focused first on evaluating where the field of AI stands and where it is headed. Suleyman said that AI in some ways is only now catching up to the enthusiasm generated in recent years; that the underpinnings of using deep learning (e.g., collecting, cleaning, and labeling vast troves of usable training data) is much more time- and labor-intensive than designing and applying the algorithms. He is “very optimistic” about AI’s ability to “revolutionize health care.” He pointed out that as globalization continues, people in developing countries will demand ever more Western-style health care. At the same time, the cost of such care becomes more and more exorbitant. AI will help fill this gap by performing tasks that are traditionally done by highly trained humans (e.g., diagnosis of cancer from advanced imaging, etc.).

Mustafa Suleyman suggested that developers need to continue focusing on end users so that they do not fall into the “hammer looking for a nail” trap. He noted that he and his team spent lots of time in medical facilities, with doctors and patients, as they developed their diagnostic algorithms. They also worked on using AI to radically improve Google’s data center efficiency, which necessitated the team spending lots of time with data engineers – understanding their problems as finely as possible. In the case of health care in particular, it will be important to demonstrate cost savings; the marketplace does not always reward quality, but it rewards cost efficiency.

Suleyman also focused on the need to boost research and development. He noted a direct correlation between funding and effectiveness (pointing to the United States and Germany as more successful than the United Kingdom, but Israel and South Korea as even more effective, based entirely on the level of funding). But he also described the importance of funding new types of initiatives, which he labeled public-interest engineering to solve society’s “grand challenges” (e.g., farming, climate, population health, and so forth). These should be large multi-billion-dollar funding facilities with high tolerance for failure. Only these sorts of initiatives can ultimately fund 500-person teams over five years, for example. The people involved need to be fully invested, rather than splitting time among projects. He stressed that there will always be an important role for traditional academic research – including tenure-track faculty – but that the existing R&D infrastructure does not support the “moonshot” challenges he is referring to, which are also too longitudinal and risky to be supported by VC or private equity.

The Choice Between Innovation and Strong Labor Markets

Day 4 began with a keynote presentation by David Autor, Professor of Economics at the Massachusetts Institute of Technology. The moderator was Tobias Jerzewski, Program Officer at Aspen Germany and Co-lead of the Aspen Berlin AI Week. Autor presented a recent report that he co-authored as part of an MIT task force entitled: “The Work of the Future: Building Better Jobs in an Age of Intelligent Machines.” The task force’s thesis is that we do not need to choose between economic growth and strong labor markets. Professor Autor accepts that automation will continue to displace jobs with new types of work, as it has throughout history. He noted that 63 percent of all jobs in 2018 did not exist in 1940. In 1940, the largest occupational groups were farming and mining. Today, the largest occupational groups are in professional services, managers, clerical work, and personal services. The task force concluded that the core problem is not automation, but rather a polarization of the occupational structure that relegates certain jobs to lower wages and fewer opportunities for advancement. He and the task force showed that this problem has



occurred across advanced economies, but that the United States has done particularly poorly. They attribute it to the weakening of labor unions, as well as outdated employment regulations (including minimum wage rules). Autor pointed to one statistic of the “purchasing power adjusted hourly earnings of low education workers” across various OECD countries. The average United States worker in this category earns \$10.33 per hour compared to the average German worker, who earns \$18.18 per hour. In sum, the solution is to continue to lean into the future, but also to modernize labor and employment rules that prevent innovation from exacerbating economic inequality.

Digital Sovereignty at the Close of Germany’s EU Council Presidency

The panel on Day 4 focused on German perspectives on digital sovereignty, in a discussion entitled: **“Still Processing? The German Council Presidency and Europe’s Quest for Digital Sovereignty.”** The panel included Andreas Liebl, Managing Director at UnternehmerTUM; Hinrich Thölken, Director for Climate and Energy Policy and Digital Transformation, German Federal Foreign Office; Yvonne Hofstetter, Publicist and Managing Director, TERAMARK Technologies GmbH; Annette Mühlberg, Head of Task Force “Digitization” at ver.di; and Mario Brandenburg (FDP), Member of the German Bundestag and Speaker, Special Commission on AI. The panel was moderated by Henning Hoff of the Berlin Policy Journal.

Yvonne Hofstetter and Andreas Liebl represented a business-oriented perspective. Hofstetter conceded that Germany has relied too much on the United States to innovate, and instead of innovating has “put its wealth into the social system.” She acknowledged that Gaia-X was an achievement of the German presidency, but also pointed out the failure to deliver the Digital Services Act and the lack of a coherent European approach to the security of 5G networks. Liebl very soberly appraised Germany as failing to lead, even as China has used the pandemic as an opportunity to radically innovate (e.g., by testing all manner of AI and innovation on identifying infection chains, using robots for disinfecting, using AI for advanced medical imaging, and more). Meanwhile the hidebound German health offices are overrun with traditional work of fielding phone calls. Liebl noted that “sovereignty” and “leading” are synonymous with risk-taking and regretted that among EU countries, France is exercising more vision than Germany through a willingness to “jump into less comfortable waters.” He stressed that because AI “learns,” it’s a completely different type of technology and must accordingly drive a much stronger policy vision.

Hinrich Thölken admitted that his agency (the German Federal Foreign Office) is not built to tackle issues like “disruption” or “innovation” – and that Germany’s traditional strengths come from values like “reliability,” “planning,” and so forth. He believes, however, that the European Union is taking the correct approach with a twin focus on digital and climate; that things are going in the right direction but that they only need to accelerate. Mario Brandenburg also conceded that Germany has missed out on some innovation, but that it is not a fatal misstep; Germany must catch up and play to its legacy strengths. Germany still is too focused on the “status quo” and not on the future. He used the example of the Corona-Warn-App as illustrating a “checkmark mentality,” as German policymakers simply mark the project as “done” rather than constantly updating and improving it. Annette Mühlberg played the role of the tech-skeptic, suggesting that a rush to embrace all manner of innovation is jeopardizing democratic and European values. She stressed the need for a “social partnership” with technology that allows people to clearly understand and evaluate the growing role that technology is playing in society.

Views from a former European Commissioner

Day 4 ended with a one-on-one conversation with Günther Oettinger, former European Commissioner for Digital Economy and Society. The interviewer was technology journalist Janosch Delcker, most recently with Politico.



Oettinger praised the work of the European Union in setting standards like GDPR; he said that although GDPR can be criticized, it also contains certain principles (e.g., the “right to be forgotten”) that reflect core values which are now being adopted around the world. This allows the West to retain its influence vis-a-vis China. He explicitly emphasized that Europe’s leverage in the global technology debate is the size of its marketplace: “no tech company will want to avoid Europe, and therefore we can use it to set basic ethical standards. Then the companies realize that if they can make it work inside Europe, they can also do so outside Europe.” He praised the continuation of regulatory leadership from Commissioners Breton, Vestager, and others currently serving in Brussels. He agreed that European technology companies missed the B-to-C revolution (e.g., social media), but could catch up in the B-to-B marketplace.

When asked to opine on German-level progress, Oettinger lamented the shortage of scientific students, pointing out that the need for scientific workers outpaces the number of students being trained domestically. He also admonished legacy German companies that are not thinking enough about digital: “If you are producing goods, you have to care about AI. Data are going to be part of your production process; your machines will collect, use, and store data. If you manufacture and do not have a digital strategy, you are not going to make it.”

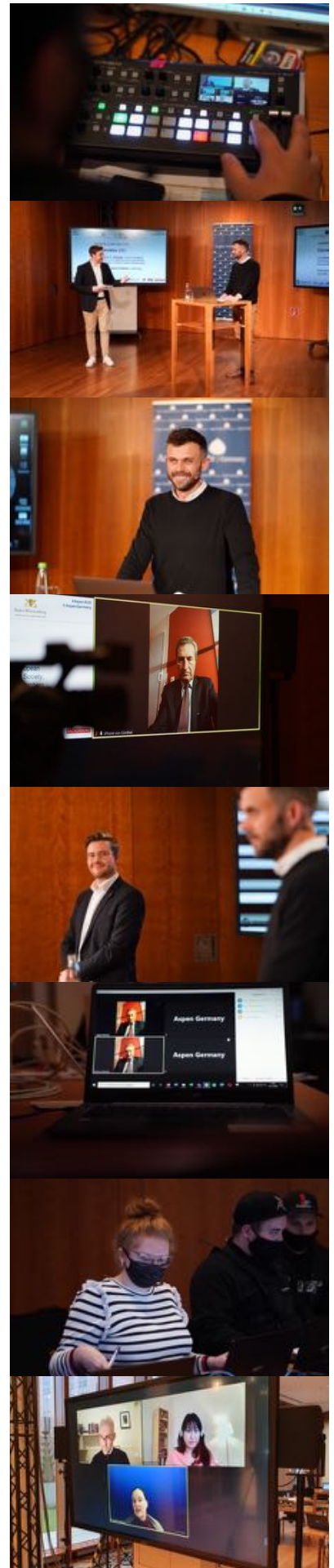
He defended the progress on Germany’s national AI strategy – particularly when asked about the goal of creating 100 new professorships, versus the 28 created up to now. Oettinger said that these things take time, and that Germany is ultimately competing in a global market against Stanford and Berkeley, which pay more. Germany must keep in mind that many scientific professors do not want to be “civil servants” – they want to ping-pong between academia and industry. When challenged about the linkages between German AI research and Amazon, Oettinger said: “We are an open society. Others can participate, but they must follow our rules.”

Losing Humanity through the Accelerated Pace of Change?

Day 5 featured two-on-one conversations rather than the large panel format of the previous conference days. The first such conversation, entitled “**How AI Challenges our Understanding of Humanity and Human Rights,**” featured Tobias Rees, Founding Director of the “Transformations of the Human” program at the Berggruen Institute, and Karen Yeung, Professorial Fellow in Law, Ethics and Informatics at the Birmingham Law School. The conversation was moderated by Anja Mihr, Visiting Professor at the Politics and Security Program, OSCE Academy Bishkek, Kyrgyzstan.

Tobias Rees noted that all human inventions are full of human norms: buildings, for example, reflect the physical dimensions of humans, as well as how much heat and light they need, and so forth. AI in a sense could destroy all these norms through bias, through surveillance, and other phenomena that subvert the human-centered engineering we have done up to now. Rees declared that the current institutions governing civil society can’t regulate these new phenomena; there must be new approaches. Rees pointed out that some of the popular concepts like “explainable AI” are oxymoronic: machine learning is actually not explainable! The advances in this area are not about computing power or speed; they reflect non-human ways of thinking. Therefore, it will not be possible to build AI without giving it some degree of human agency.

Karen Yeung’s points ran mostly parallel to Rees’s. She pointed out that machine learning per se is not alone a game changer; it is machine learning plus access to all the data on the Internet that makes it so powerful. She regretted, however, that the initial excitement over the advent of the Internet has turned to anxiety, as it has been taken over by human power dynamics: humans crave power and now many have learned how to amass new types of power on the Internet. The average person does





not understand software and other results that they receive from an algorithm. This explains why the development of “trustworthy” societies on the Internet are so important now. Rees amplified this point, noting that he distinguishes between “information” and “intensity” – platforms like Twitter and Parler are best for spreading the latter, not the former. He stressed the need to develop and introduce a “shared reality framework,” which will not be created through AI. Yeung also raised a host of ethical issues, for example whether it was acceptable for tasks performed by autonomous weapons or vehicles to be only marginally better than human performance. She also noted that Google and Facebook are “some of the world’s most secretive companies,” and that society will be “stuck” if these black boxes are not “pried open.”

Evaluating the Trustworthiness of AI

Next, Aspen Germany’s then Executive Director Rüdiger Lentz turned to Asun Lera St. Clair, Senior Principal Scientist, AI Governance, Ethics & Society at DNV GL, for the final seminar of the conference entitled “**Trustworthy Human-AI Interrelations.**” St. Clair, who is also a sociologist and philosopher, presented DNV GL’s vision of what makes up Trustworthy AI, namely five “clusters” of characteristics: (1) legitimacy, (2) transparent impact on stakeholders, (3) ability to perform and capacity to verify, (4) a clearly defined motive and purpose, and (5) human-machine interdependency.

St. Clair elaborated on some of these elements, pointing out that trusting an AI algorithm, ultimately, should be the same as trusting a leader, an expert, or an organization. In other words, the process of determining if an algorithm can be trusted to make decisions should be the same. AI should be subject to all quality assurance methods used of any other technology. Of the three types of AI (knowledge-based, experience-based, and reinforcement learning), the third type is the most challenging to evaluate for trustworthiness. St. Clair also emphasized the importance of evaluating trustworthiness in the context of the sector for which the AI is designed (e.g., in the health sector). Algorithms cannot be evaluated in the abstract – they must be measured against the real-world frameworks for which they are designed.

Is the Glass Half Full or Half Empty?

The final event of the conference was also a two-on-one conversation with Martin Ford, author and futurist, and Wendy Hall, Regius Professor of Computer Science at the University of Southampton. The moderator was Isabella Hermann, Research Coordinator of the Project “Responsibility: Machine Learning and Artificial Intelligence,” Berlin-Brandenburg Academy of Sciences and Humanities. The conversation highlighted the split between an optimistic and skeptical vision of the AI-enabled future.

Professor Hall’s main point was that automation and AI will continue to enhance productivity and create more work for those who need it, and more leisure time for those who want it. Governments will need to manage the “short term” losses. Martin Ford opined that job creation would not counteract job destruction, and ultimately those in society who are not equipped to do creative or intellectual tasks would simply be phased out of the workforce. Ford advocated for the universal basic income (UBI) and pointed to the U.S. government’s decision to send Americans such payments during the pandemic as an example of what is to come. He believes that like the financial sector caused the Great Depression and led to programs like unemployment insurance and social security, so too will the tech industry ravage workers’ lives and create an outcry for UBI and other supports. Many of the new jobs created by automation are those at the bottom of the scale (he specifically pointed to people whose job it is to review social-media feeds to identify obscene images – a job that itself may soon be automated). Prof. Hall pointed out that the financial regulation emanating from the Depression created a massive amount of new employment, and that a coming backlash could do the same. She said that the proliferation of AI

regulations will create the need for massive amounts of disclosures, auditing functions, and so forth. Auditors will need to review and test AI algorithms against benchmarks and certify that it is not biased that it is working properly, and so forth. Mr. Ford agreed in the sense that there will have to be regulatory bodies for AI (like the FDA regulates drugs). Ford also devoted some remarks to educating young people; he said that young people must be educated to be creative, to work with others, to come up with genuinely new ideas – these are things that cannot be automated away.

Closing Remarks

To close the conference, then Executive Director Rüdiger Lentz noted that the event represented his “swansong” after seven years at Aspen’s helm. This led to a heartfelt and spontaneous tribute led by Aspen’s board chair Eckart von Klæden, who thanked Lentz for his contributions and congratulated him for the end of his successful tenure.





BACKGROUND: THE ASPEN INSTITUTE GERMANY

The Aspen Institute Germany was founded in 1974 as the first Aspen Institute outside the United States. Its mission is to foster values-based leadership, encouraging individuals to reflect on the ideals and ideas that define a good society, and to provide a neutral and balanced venue for discussion, acting on critical issues. The individual and social values of the humanistic tradition are promoted through long-lasting networks as well as a continued open-minded and critical discourse among top executives from Europe, America, and the whole world. Since its foundation in 1974, Aspen Germany has established a unique track record in building German-U.S. cooperation and in fostering the East-West dialogue with representatives of the former Soviet Union during the Cold War. Until today, Aspen Germany facilitates non-partisan, substantive dialogues on sensitive international policy issues.

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