GERMANY & SILICON VALLEY: SHAPING A SHARED DIGITAL FUTURE

TRANSATLANTIC SYNC CONFERENCE

CONFERENCE WHITE PAPER

TRANSATLANTIC SYNC

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TRANSATLANTIC SYNC

Transatlantic Sync is Silicon Valley's first German-American conference on the impact of new digital technologies on business and society.

This three-day event brings together thought leaders from digital business, research and policy to discuss how Germany and Silicon Valley can work together to seize the tremendous opportunities of AI, robotics and other emerging digital technologies while effectively addressing the social, economic and political challenges they pose. Transatlantic Sync is supported by the German Foreign Office and is organized by volunteers of the German American Business Association's Young Professionals and Academics group. The organizers would like to express their sincere gratitude to Gerhard Casper, President emeritus of Stanford University, who has provided invaluable guidance for the set-up of this conference.

Conference organizers

Katharina Lix and **Lars Thorben Neustock** are Ph.D. students at Stanford School of Engineering and are the initiators and principals of the conference. They developed the original idea behind Transatlantic Sync, assembled and led the GABA volunteer team that implemented it, and convened leading stakeholders and supporters from academia, business, and policy to participate in the conference.

Cambrian Futures Inc. partnered with Transatlantic Sync to provide thought leadership, media content development, press outreach, and event facilitation. The Transatlantic Sync team would like to thank Cambrian Futures Inc. for spearheading the authorship of this white paper.

Why the Transatlantic Partnership is critical for the emerging Cognitive Era

Co-authored by Olaf Groth, Tobias Straube and Dan Zehr (Cambrian Futures, Inc.) and Katharina Lix and Lars Thorben Neustock (German American Business Association)

The U.S. and Germany (and the EU): Partners to drive economic and human growth

Artificial intelligence (AI) will accelerate global economic growth in the decades to come, generating major efficiency gains across most industrial sectors as it proliferates and evolves into a widely deployed general-purpose technology. By 2030, researchers expect AI to boost worldwide GDP by **14 percent**, with major gains estimated for the world's three largest economic areas: **26 percent in China, 14.5 percent in the U.S., and 9.9 to 11.5 percent in Europe.**[1] Already, the rapid progress in AI research and applications is redefining the balance of economic and political power worldwide, and countries across the world have embraced these technologies with ambitious national strategies.[2] The Obama administration was the first to lift AI to the status of national priority in 2016. This added an additional geopolitical element to the research and development of AI and other advanced technologies, as several countries sought to extend their influence

1 Rao, A. S.; Verweij, G. (2017)
2 Groth, O.; Nitzberg, M.; Zehr, D. Straube, T; et al (2018)

and governance models through the deployment of these innovations. Two nations have emerged as the primary drivers and beneficiaries of this new environment – the U.S. and China. So far, the U.S. holds the pole position on AI innovation. It leads all countries in the development of top talent, with an estimated **3,000 Ph.D. graduates each year** in the field of AI.[3] (In Germany, the figure is around 170.) The U.S. is also home to five of the top 10 and 134 of the 500 most powerful, commercially available supercomputers as of 2019.[4] It hosts the greatest number of AI startups (**roughly 1,400**, compared with Germany's 100).[5] Similarly, almost three-quarters of all internationally enforceable AI patents are filed by U.S.-based actors. (German entities contribute 2 percent.)[6]

While lagging in terms of sheer numbers and commercial successes, Germany possesses key strengths in other facets of the AI ecosystem. It produces groundbreaking fundamental research in an academic system that is well aligned with the U.S. It participates in a globally networked, tech-based economy and plays a key role in shaping the considerable influence of Europe – with **460 million internet users**, Europe is the world's second-largest online "community" after China. Germany also has developed deep governance expertise, relevant in light of the emerging AI governance regimes, thanks to a multilateral approach to foreign policy and its pivotal role in multilevel governance systems, such as the European Union (EU). And the country's public institutions enjoy a high degree of trust from the people. Perhaps more importantly for AI development, though, Europe's industrial sector – and Germany's in particular – sits on a wealth of data from modern factories with world-class automation and robotics capabilities. Europe reached a new peak of more than **75,000 robot units** installed in 2018, with Germany among the top five major markets for robots globally. (By comparison, U.S. organizations installed slightly more than 55,000 units.)[7] The data sphere in

Europe, the Middle East and Africa is expected to grow to **43.3 zettabytes** in 2025 – **22 percent** of that from production and **19 percent** through IoT[8] – compared with **30.6 zettabytes** in the U.S.[9] Although only a fraction of it is currently labeled (3 percent globally) and analyzed (0.5 percent globally), this collection of data and know-how has the potential to change the face of manufacturing and production around the world. Add to that the importance of "smart" physical products in an AI economy – for example, Google's autonomous driving subsidiary Waymo, which relies on partnerships with traditional car manufacturers – and Germany's physical-digital manufacturers retain

3 The estimate is based on the number of scholars at computer science institutes in universities who have been actively researching artificial intelligence, computer vision, machine learning & data mining, natural language processing and robotics since 2016. To determine the annual number of doctorate students, the number of scholars was multiplied by a factor of 4. This factor was determined on the basis of a random sample survey of top AI research laboratories in the U.S.A (regional differences were not taken into account). CSRanking 2016–2018. Available at: http://csrankings.org/#/index?none

4 China is only home to 2 of the top 10 supercomputers, but 220 of the top 500 (https://www.top500.org/lists/2019/06)

5 Lemaire, A.; Lucazeau, H.; Carly, E.; Romain; Rappers, T.; Westerheide, F. (2018)

6 Internationally enforceable patents. We point out, however, that strategically motivated readers should closely and critically follow the further development of China's internal figures in order to be prepared for potential competition among patent regimes. Research by M-Cam (https://www.m-cam.com) for Cambrian Futures, Inc.

7 International Federation of Robotics (2018)

immense value. Their nuanced understanding of physical design, their ability to scale production processes through complex global value chains, and their keen sense for the context, history and demands of the problems to which they apply AI will remain key assets for the foreseeable future. However, leveraging these advantages will not be an easy task. Each will require a wider diffusion of meaningful interfaces between digital and physical products – not only with regard to data exchange, but algorithm development and business models, as well. After all, changing entire supply chains is arguably a more complex endeavor than adjusting the algorithm of a social media feed.

As we move from the waning Internet Era into the Cognitive Era – a future in which AI-powered machines think, make decisions and perform tasks in ways we once considered distinctly "human" – the U.S. and Germany should deepen their partnership and leverage their complementary technological, academic and economic strengths. The two nations already align in many important ways. In 2018, for example, **trade volume between the U.S. and the EU ($1.3 trillion[10])** was larger than either economy's trade with China **(about $737 billion[11] and $670 billion,[12] respectively).** The same year, the U.S. was the main partner for EU high-tech exports and, after China, the second-biggest importer to the EU. As we enter the Cognitive Era, these economic and trading ties provide a foundation on which to build AI applications in areas of common interest. Whether in manufacturing, automotive and mobility services, healthcare, bioengineering, renewable energy technology, education, logistics or infrastructure, the U.S., Germany, and similarly aligned partners can combine America's commercialization power and Europe's large industry data pools to increase efficiency and expand their economies – and do so in a way that enhances the wellbeing of their populations.

8 Reinsel, D.; Venkatraman, A.; Gantz, J. F.; Rydning, J. (2019)
9 Gantz, J. F., Reinsel, D.; Rydning, J. (2019)
10 Office of the U.S. Trade Representative (n.d.)
11 Office of the U.S. Trade Representative (n.d.)
12 Eurostat (2019)

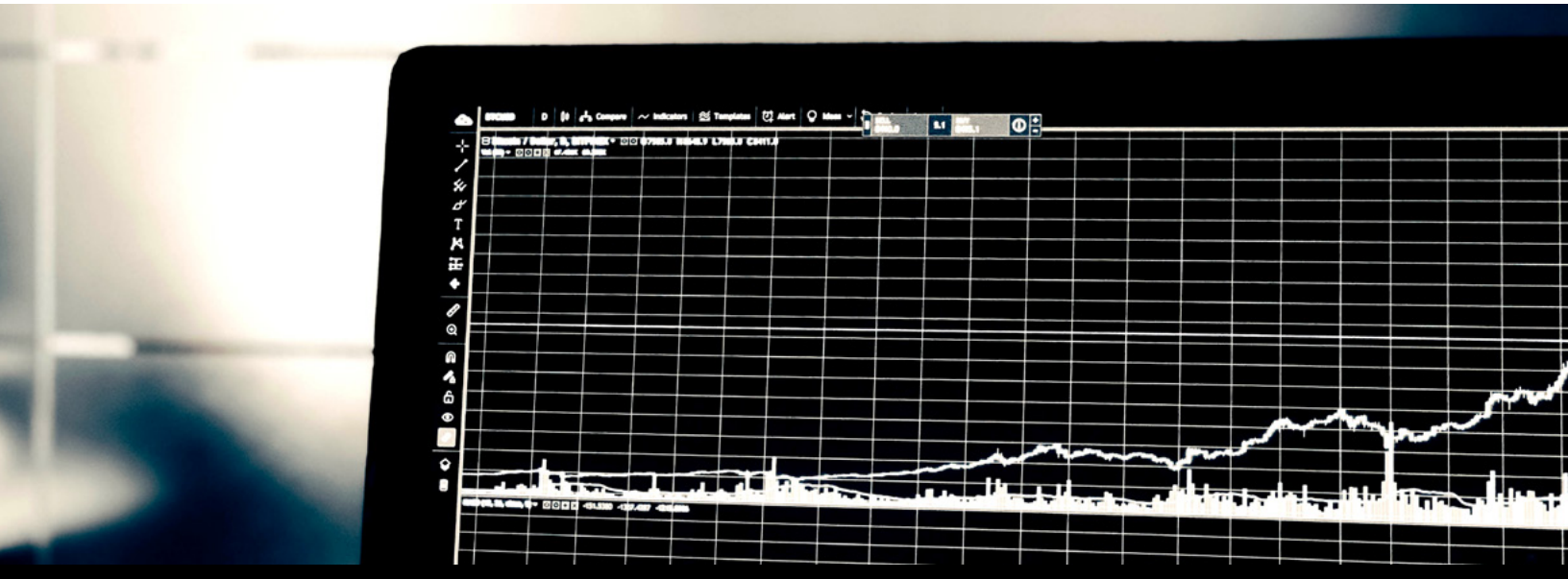
U.S. and German innovation ecosystems need to adapt further

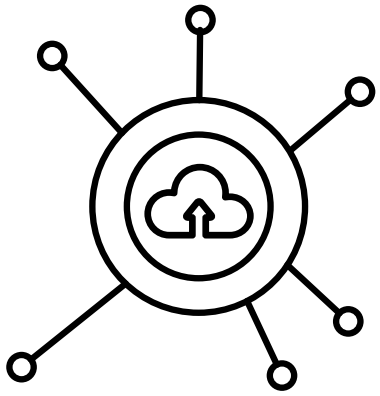
Around the globe, a multi-polar global innovation system has emerged, thanks to the mobility of talent, funding, software, and data.[13] In the U.S., AI development is driven mainly by its West Coast innovation hubs in Seattle and the San Francisco Bay Area, but it's also fueled by academic and commercial innovation ecosystems in Boston, Austin and Pittsburgh. Major strengths in these regions lie in data analysis and in handling both consumer and enterprise data and solutions. Startup hubs in Europe, Asia, Africa and Latin America are ascending, and Europe's established industry players are starting their own collaborative efforts, such as Volkswagen's Industry Cloud, to enhance AI development capacity.[14] By improving bandwidth and communication interfaces between machines across an industry, the VW cloud project facilitates the fast computation and high-speed connectivity needed to generate the types of deeper data insights that help industries reach AI's greater potential.

Nonetheless, significantly larger public investments in an improved physical infrastructure that provides high-speed internet connectivity to SMEs and consumers across the country will be critical for Germany to take full advantage of AI's possibilities.

In addition, our increasingly AI-driven economies will require vastly different commercial and governance structures than what the U.S., Germany and the rest of the world have in place today. The complex factors that power AI – and that AI powers, in turn – cannot be easily isolated. Massive data pools, intensive interdisciplinary collaboration, a higher number of computer science experts and researchers, generally higher levels of digital and technological education, and an appetite for risk paired with significant public- and private-sector funding all combine to create an ecosystem ripe for beneficial AI advancement. Yet, no country has fully optimized on any of these variables, let alone on the intricate equation in which they all play a role. Nor can they: Unilateral approaches to privacy regulation will never work in the longer term given the massive flows of goods, talent and data across borders. A collaborative partnership led by the U.S. and Germany, on the other hand, can begin to work together to establish economies and data infrastructures that facilitate trade, preserve human values and enhance prosperity throughout the world.

For its part, to keep pace with the innovators from the U.S. and China, Europe needs to invest more in multi-stakeholder initiatives that can amass the kind of scale and collaborative expertise that drives develop-





ment in the top innovation hubs. Beyond technological capacities, German actors need to enhance their permeability with broader innovation ecosystems, define the advantage of its hybrid digital-physical players, and increase its data science prowess and institutional agility. To capture what has made Silicon Valley so successful, Germany's public and private sectors also need to speed up the integration of the European single digital market, expand their appetite for entrepreneurial high-risk venturing, increase access to growth-phase venture capital, and develop a „platform way of thinking" – the four major drivers for scaling technology innovation. Most importantly, it must satisfy the preconditions for AI progress, which remain the same: access to advanced AI and computer science talent; clean and usable datasets; transparent guidelines for the ownership and use of data; a well-functioning high-speed internet infrastructure; and significant computing power. While Germany is starting to foster these, the country will also need to embrace and enhance a positive perception of new technologies and startups within society.

The U.S. faces its own challenges. While blessed with commercial and academic powerhouses – along with the large integrated domestic market, the deep data pools and the talent pipelines that fuel those entities – public investment in AI and similar deep technologies has not kept pace with China. Nor has the country developed the types of governance structures that reduce abuses of data privacy and corporate overreach (and thus instill greater trust among consumers). While many American decision makers, researchers and developers have voiced urgent concern about algorithmic bias, voter manipulation, fraud (e.g. deep fakes), cybersecurity and the potential weaponization of AI, the country has taken few concrete steps to address those issues domestically, let alone lead a much-needed global dialogue about them. AI has instead become the purview of for-profit companies, and technological progress in AI is driven mostly by private-sector firms in the U.S. and around the world. This has caused a heightened centralization of control under the large commercial players in the digital and high-tech economy. Notwithstanding the diffusion of digital talent and innovation know-how mentioned above, several key assets reside in the hands of a small set of companies. For example, these companies retain control over a vast share of global computing power through cloud services. The largest cloud providers are Amazon (AWS, with **49.4 percent of the global cloud market** as of 2017), Microsoft (Azure, **12.7 percent**), Alibaba (Alibaba Cloud, **5.3 percent**) and Google (Google Cloud, **3.3 percent**)[15] – none of them from Europe.

Until Germany and Europe close these various gaps, the U.S. and China will retain their grip on the advantages that keep them in their current dominant position for AI. Their large and expanding reserves of data, talent and computing power will continue to intermingle in a reinforcing cycle that strengthens the foundations for innovation and commercial success, accelerates technological advances and secures global positioning. What comes out of the two AI powerhouses will have a major influence on social and economic interactions worldwide. Whether this will advance in an inclusive manner – one that captures global diversity, gives minorities an equal voice in setting AI standards, and closes the gaps between the people who develop AI and those most affected by it – remains one of the most pressing questions for the rest of the world.

13 Randolph, S.; Groth, O. (2012)
14 Volkswagen AG (2019)
15 Gartner (2019)

The rise of China and the long-term challenges and opportunities

Like the U.S., China's wealth of talent and large digital technology companies have helped thrust the world's most populous nation to the forefront of AI development and deployment. While it currently trails the U.S. in most AI-related metrics, it has already surpassed the U.S. in some areas and is rapidly closing that gap in many others.[16] Silicon Valley remains the largest deep-tech hub in the world, but some of the most innovative companies in recent years have risen out of the gladiator-like competition amongst entrepreneurs in China. They also have fed off of some of the Chinese market's inherent advantages. As home to a huge and fairly homogeneous population – **including 802 million internet users as of 2018,**[17] roughly the same as the combined U.S. and EU markets – China generates a massive stream of data to help develop and train AI systems. Its population generally accepts higher levels of surveillance, which aids research on facial recognition and other cutting-edge AI applications. The country's techno-Confucianism and the deep integration of its public and private sectors also provide considerable advantages in terms of commercial execution and wide-ranging data collection (in part due to the population's greater willingness to accept sharing their personal data with the government). Furthermore, policies that once constrained Chinese tech companies to the domestic market are being lifted, allowing Alibaba and Tencent to open research labs across the globe and providing a conduit for the export of techno-

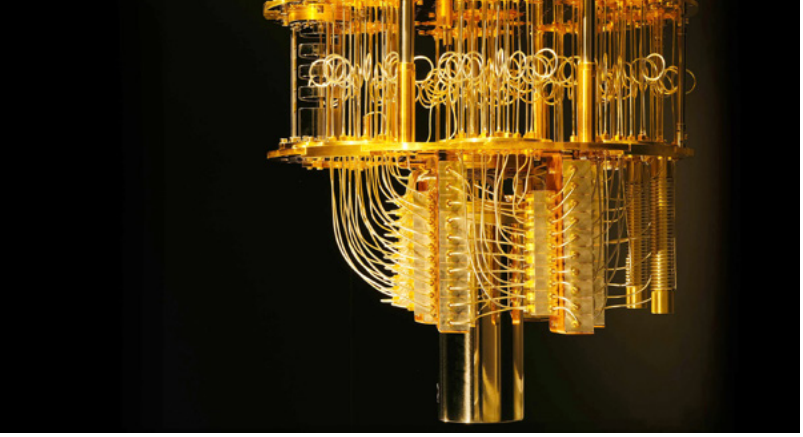
16 Lee (2018)
17 CNNIC (2018)

logy and influence through the Belt and Road Initiative, the country's global expansion plan. This combination of centralized control and military-civilian fusion drives China's AI development in ways not possible in the U.S. and Germany, which place greater value on individual freedom and draw a clearer separation between the public and private spheres.

The U.S. and Germany must confront the fact that China has emerged as a leading producer of many key software and hardware applications that will drive economic and social progress in the decades to come. As the current leader in 5G systems – which themselves provide an indispensable foundation for cloud computing and other deep-tech services – China has already established control over certain fields that will be indispensable to an AI-based global economy. Little wonder, then, that Huawei's advanced 5G network technologies have become such a flashpoint for global trade and political negotiations. Against the backdrop of Chinese military-civilian fusion, the discovery of backdoors in Huawei systems by European intelligence officers quickly raised the specter of espionage. Earlier this month, the EU released a public statement noting that new 5G systems posed a security threat, with one unnamed official calling the vulnerabilities "strategic and lasting in nature." The Trump administration had previously pinned stringent restrictions on U.S. companies' use of Huawei technology, and the systems continue to factor into the ongoing trade negotiations between the two countries.

Similar concerns are starting to emerge around the nascent development of quantum and optical computing. The existing concentration of power to the U.S. and China and their large digital technology companies will continue as quantum surpasses the limited capacity of traditional silicon-based computing in certain tasks – as recent advances announced by Google's and IBM's quantum computing units indicate.[18] The handful of organizations capable of building and running these powerful quantum machines, such as Google,

18 Murgia, M.; Waters, R. (2019)



IBM, Microsoft and Alibaba, are the ones that already set the tone for the digital economy. Any consolidation of a new breed of computing power will require close attention from policymakers and citizens alike, not just in terms of economics and political influence, but in terms of security, as well. Researchers suggest that algorithms executed by a sufficiently large quantum computer will break many current encryption systems.[19] That prompted the U.S. administration to list "leadership in AI" and "quantum information sciences and strategic computing" as its second-highest R&D priorities for fiscal 2020, trailing only national security for the American people.[20] On the other side of the Pacific, the Chinese government has also made quantum computing a top focus, reportedly investing at least **$10 billion** in the field.[21]

These heightened trade, geopolitical and global security concerns are exacerbated by the fact that so many of the same factors that accelerate the rate of deep-tech innovation in China directly conflict with Western values and governance constructs. Unfortunately, though, governments in the West are struggling to track these evolving fields and exert their influence on them, largely because power in these fields constantly shifts across the global economy and between various private- and public-sector entities. For example, Germany is home to some valuable niche players in the value-creation chain for computing power, such as Infineon, but its government would need to initiate a program at the scale of a CERN-like Center for Quantum Computing to become a complementary player in this emerging world of supercomputing. (Ideally, it would build this in cooperation with close allies with which its democratic values align, such as the U.S., Canada, France, India and Israel.) Regardless of the form, the U.S. and Germany need to invest in their own technological capabilities to reduce dependency on Chinese technology and resources. Attempting to take unilateral approach toward managing relations with China and competing in an AI-based global economy will only lead to the fragmentation of trade relationships between the U.S. and Germany as longstanding military and economic allies.

However, at the same time, the U.S. and Germany must remain open to opportunities for collaboration with China in research and trade. Fortunately, these avenues for engagement still exist, as evidenced by the thousands of Chinese researchers studying in the U.S. and the dozens of Western multinationals with major R&D centers in China. Whether in terms of technological development, the drawing of ethical guidelines or the formation of global governance models for AI innovation, isolation will not produce the outcomes necessary to produce technologies that benefit economies, societies and the environment as a whole. The challenge is for the U.S. and Germany to reduce dependency on China by investing more in their own technological prowess in 5G, cybersecurity, quantum, cloud, and AI – all while capitalizing on the potential of research and trade collaborations with leading Chinese developers. As the Middle Kingdom encounters the limits of a domineering approach to globalization, it will continue to learn important lessons that might create incentives for more cooperation (witness the recent Belt-and-Road Summit). As such, a transatlantic partnership established by the U.S. and Germany would create a stronger base for innovation, a more stable platform for collaboration with China, and an appropriate counterbalance as we develop the structures that will govern societies and economies in the Cognitive Era.

19 Mavroeidis, V.; Vishi, K.; Zych, M. D.; Jøsang, A. (2018)20
20 White House (2018)
21 Katwala, A. (2018)

Current digital growth is not as responsible and human-centric as it needs to be

Concerns about potential abuses of AI and other deep technologies are hardly the domain of a single country. The stream of privacy and transparency infractions by American digital service providers raises its own questions about the power of technology platform companies and the sovereignty of modern states. Yet, most governments and civil society actors have only paid lip service to promoting responsible AI, and that lack of concrete action creates a void in which these questionable practices continue to thrive. The myopia of these companies has led to several outcries in society, including negative reactions to the Facebook-Cambridge Analytica data sharing scandal, Google's alleged intent to launch a censored search engine in China,[22] Microsoft's partnership with the U.S. Immigration and Customs Enforcement agency,[23] and controversies around Amazon's Face Recognition Software.[24] It's likely that this is only the beginning of an increasing number of AI-related scandals. High-profile cases of fraud and ethical violations are not caused solely by technology companies, of course, but their expanding use of and reliance on AI exacerbates the risk and broadens the types of potential ethical violations. This happens because AI obfuscates and modularizes processes to the point where a single person can neither see the full picture nor fully comprehend the algorithm's performance at all possible scales and in all potential scenarios. Hence, to sustain healthy economies and societies, it is imperative that businesses contemplate the far-reaching implications of AI and build human-centered business cases that consider and respect customers' privacy, security, and wellbeing. Too often, this approach stands in stark contrast to the business models of the first digital economy wave, which are based on the idea of trading "free" services for data (and are continuing to do so despite the heightened privacy concerns among internet users on both sides of the Atlantic). After all, research suggests that **91 percent of companies in more than 126 countries expect to deliver AI-powered business growth by 2023**, but only 18 percent of firms understood and adopted these technologies in 2018.[25] Although awareness and preparation have increased in recent years, few companies have implemented AI at scale. Even the small set of companies that have broadly integrated AI have tended to approach its use from a purely technological perspective. While companies have started to address the potential negative implications of AI and engage with evolving discussions about AI ethics, research shows that those high-level ethics principles rarely translate into specific, ethically informed decisions in software development itself.[26] This oversight will inevitably lead to more questionable use-case and business models, but it will also spur the development

22 Gallagher, R. (2018
23 Frenkel, S. (2018)
24 Kelion, L. (2019)
25 Ransbotham, S.; Gerbert, P.; Reeves, M.; Kiron, D.; Spira, M. (2018)
26 McNamara, A.; Smith, J.; Murphy-Hill, E. (2018)

of new governance tools around the world – including data-cleaning standards, algorithm audits and business and societal impact assessments, perhaps resembling current FDA clinical trials.[27]

Importantly, these new business and governance models for interactions between service providers and consumers will be accompanied by a reconsideration of employer-employee relationships. Few topics are discussed as passionately as the impact of digital and deep-tech innovation on the labor market. The conventional argument suggests that AI will lead to increases in automation and widespread job losses, even among white collar segments of the labor market. While the specific impacts on the labor market have not been conclusively determined, it's clear we're entering a future in which humans and machines not only work together, but think and learn together, too.[28] Already, examples of the beneficial integration of human and artificial intelligence – symbio-intelligence – are emerging around the world. Innovators in Poland, for example, have explored ways to increase firm revenues through applications that analyze the personalities of sales teams and then provide custom-tailored rewards to boost sales. (Importantly, they also found that the technology works only if employees opt into the system.) Education providers have used AI to develop remote educational systems that can identify elements of a student's physical surroundings and integrate them into his or her lessons, delivering a dynamic combination of people, cognitive machines and real external environments that enhances learning. And social entrepreneurs in Nigeria and Indonesia have developed applications that allow illiterate or blind people to participate in social life through voice and image recognition systems.

Currently, symbio-intelligence reaches its pinnacle in healthcare applications, where AI is augmenting diagnosis, treatment and the doctor-patient relationship. Yet, we are only seeing the first small glimpses of how technology will impact the sector. With commercial brain computer interfaces and quantum computing on the horizon, humans will be able to tap into currently unforeseen capabilities. The "deep-tech" combination of AI and quantum computing will allow pharmaceutical companies to research new molecules for drugs at unprecedented speed and scale, for example. And the combination of machine learning and neuroscience could lead to physical therapies that help treat the **28 million people around the world who suffer from brain and spinal cord injuries.**[29]

AI and other advanced technologies promise great benefits, but they present equally great risks. Some of the risks, such as privacy and security, have found their way into mainstream discussion already. Yet, the influence of AI on our everyday lives and decision-making will unfold in ways that are not entirely clear to us today, particularly as the second- and third-order effects of widespread adoption change the way we sense and engage with our environments and relationships. As a measure of protection, countries can start to translate values into actionable policies, establishing value-based technology governance systems that can impart new deep-tech skills, protect individual data privacy, or test for unintended consequences. Technology will remain a tool in the hands of humans, and whether it is used for good or for harm is up to us to decide. Users and citizens should continue to drive responsible, human-centric technology development in the Cognitive Era. The discussion about what machines should and should not do needs to expand beyond the academic and high-tech spheres in which it is contained today. In democracies such as the U.S. and Germany, where everyone's vote counts, we need to make sure the conversation includes diverse voices from all corners of society.

27 Groth, O. J.; Nitzberg, M.; Russel, S. (2019)
28 Groth, O. J. (2017)
29 Feyissa, G. (2018)

Calling for a transatlantic partnership

Harnessing the full potential of the AI revolution requires a cooperative approach, and the economic, social and scientific ties between Germany and the U.S. provide an ideal foundation for building such a collaboration on a global scale. Despite political differences, it is imperative that we embrace a deeper transatlantic partnership – with the U.S. and Germany leading a collaborative model that serves as an alternative to China's Belt and Road Initiative. We call this a Bridged Networks Model, and we envision it as a developing prototype that would eventually integrate assets and expertise from across the world – and serve as a platform for cooperation with China. The Bridged Networks Model would bring together a wide range of advanced, AI-based platforms to empower local businesses with complementary assets in consumer and enterprise data, IoT infrastructure, automation, and manufacturing. This would further increase the cross-country permeability and the diversity of ideas for innovation and governance. American and European academic institutions should serve as cornerstones for this model, because they align in ways that promise significant, mutually beneficial advances. Europe's rich academic tradition, rooted in the Enlightenment and the value of the individual, has produced a third of all high-quality scientific publications[30] and scientists who rank alongside America's. Both sides of this transatlantic partnership are already seeking ways to enhance these academic ties, including in ongoing discussions under the umbrella of the EU's multibillion-dollar research program, Horizon 2020.[31] It is at the intersections of cutting-edge research in computer science, quantum computing, and cognitive neuro- and brain science that the next round of disruptive innovation will likely emerge. Thus, the Western partners with their proven tradition of taking innovation from fundamental research to commercial product can build on a leading position to shape the next wave of AI capabilities.

For this reason, Transatlantic Sync emphasizes a dialogue around future collaboration opportunities between leading academic and industry researchers from the U.S. and Germany in AI development, applications, and governance. The existing system of transatlantic civic and social institutions can serve as an additional blueprint for institutional, cross-border AI collaboration. A continuing

30 European Commission (2019)
31 Hudson, R. L. (2018)

dialogue between organizations that focus on technology, security, and economic issues – from the OECD to ITU to NATO – will be especially critical. While the current U.S. administration occasionally discusses the ideas of values-based AI governance and multilateralism, American companies, industry groups, civil society organizations and academia continue to drive much of the national and international discourse on the subject – and much of that discussion is fertilized by European ideas and values. The first frameworks to guide responsible technology development and deployment are already in place, including the General Data Protection Directive (GDPR), which finds a parallel in California's recently enacted Consumer Protection Act (CCPA). This has already left an impact. The American track record of "two steps forward, one step back" is beginning to adjust to data security and privacy concerns. While the willingness of U.S. companies to launch imperfect products and then course-correct on the fly is very much at the heart of American innovation, the string of scandals involving almost every large U.S. tech company has caused some to revise their approach and pay greater attention to privacy and stakeholder governance earlier in the process. These adjustments – combined with European dialogue around more privacy-oriented platform models, Germany's plan to establish observatories to monitor the impact of AI on the labor market, and the rising concerns about digital privacy around the world – could set the stage for the creation of multilateral regulatory bodies fordata-driven business models. After all, Europe and the U.S. are also tied by the oft-touted and oft-ridiculed "Wertegemeinschaft" (community of values). Each time the two partners hit a rough streak in their relationship, pundits on both sides of the Atlantic second-guess the model. But as commercial and political values and power are increasingly expressed through algorithms and ever-smarter machines, the transatlantic partnership must build on more than complementary scientific, technological and industrial strengths.

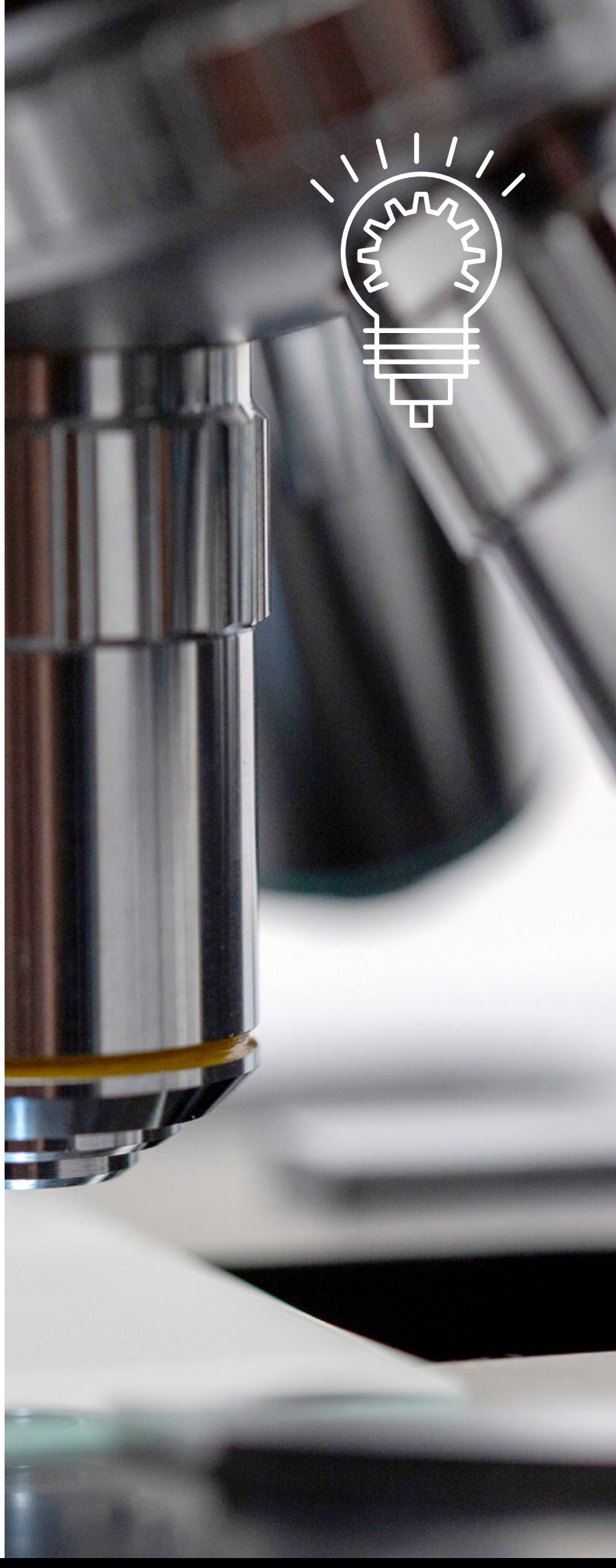
They must build on their shared values and ethical frameworks, as well. As democracies, the U.S. and Germany (as well as the EU) already have the fundamental preconditions upon which to establish this cooperation. Upon that foundation, they can leverage their distinct structures and different levels of trust between citizens, companies and public institutions to bring together diverse perspectives and build stronger, more-actionable AI governance mechanisms.

This combination of aligned values and distinct-yet-complementary strengths will allow both sides of the transatlantic partnership to learn from each other – and it will provide a strong framework from which the U.S. and Germany can jointly influence, collaborate with and learn from China and other countries that bring their own strengths, values, and advantages. This growing interaction will help offset biases in individual data sets, shore up the weaknesses of individual countries or entities, and allow a broader community of partners to share the risks, as well as the gains, in productivity and creativity. To lead this dawning Cognitive Era, the U.S., Germany, and the EU must lead this process, building on their existing ties to safeguard open high-tech markets, develop a responsible data economy, and preserve the democratic institutions that fostered decades of global growth. Anything less would amount to falling asleep at the wheel, foregoing the tremendous potential of this partnership to transform an AI-powered world.The Transatlantic Sync Conference is motivated by the idea that many different people with individual ideas can share a common vision and create a better future when they engage with one another. Against this background, the Transatlantic Sync Conference is a forum for thought leaders from business, the public sector and science to explore the actionable aspects of a new transatlantic bridge – one based on shared values and cooperation for the development of new technologies, the growth of the digital economy, and the wellbeing of humanity.

The age of AI raises questions we intend to answer during the conference:

INNOVATION

- What success factors and key challenges are businesses facing with software-based innovation today? What is different in AI innovation? What are the perspectives from different vantage points?
- What do the current AI innovation ecosystems in Germany and the U.S. look like? What can they learn from each other?
- How can the West Coast and Europe work together to harness American entrepreneurial dynamism and European-style responsible growth? How do we do that without slowing down, especially in the face of Chinese gladiator entrepreneurs? Or should we slow down?
- How can the U.S. and Germany/ Europe cooperate to partner with China and other innovation economies, so as to arrive at values-based growth that is locally appropriate and globally mobile?
- How can governments get smarter on AI and other cognitive and deep technologies to develop frameworks that provide incentives for innovation while securing ethical and secure use of these technologies?
- How do we involve diverse stakeholders in AI innovation for the next phase of the digital economy?
- Why does ethical leadership in technology matter and how do we get it right?



DEMOCRACY

- What risks and opportunities do social media, mobile technology, and advances in AI (e.g. „deep fakes") present for democracy? What can we learn from the StaSi past and current events?
- To what extent are governments, corporations, and citizens each responsible for keeping democracy and /or citizens safe?
- In Germany, we find considerable trust from people in the government to 'take care of things' and to 'protect them'. Could we harness that trust in the age of AI? If yes, how can we facilitate strengthening this trust?
- How can we transition from business models of the first digital wave to business models that are more human-centric and ensure privacy, transparency, equity, and purpose?
- What role can civil society play in promoting human-centered and ethical use of AI?
- Regarding transatlantic policies for protecting privacy and democratic values online, what opportunities and challenges lie ahead?
- What is the role of governance in the future? Should we make it agile to enable experimental approaches, and if so, how? How do we govern without letting aversion against risk and uncertainty get the better of us?

WORK AND SOCIAL POLICY

- What is the future of work? What can we learn from case studies on the future of work?
- How can big data, machine learning and causal inference inform social policy decisions? What are challenges in research and practical policymaking?
- How can the U.S. and Germany work together to leverage these methods for better social policies?

HEALTHCARE

- What is the status of digital health today, and where do we go from here?
- What are the hurdles and opportunities in translating research insights into hospital applications?
- How should we think about the proliferation of remote and home-based care?
- What critical questions are we not asking about privacy and ethics in deep-tech health care?
- How can we ensure human agency, privacy, safety, and security of medical/health data and decisions without impeding the potential for generating novel insights and health breakthroughs?

SUPPLY CHAIN SECURITY

- What are the key challenges facing the transatlantic partners in securing access to key technologies, such as 5G, Quantum Computing, autonomous systems, and AI?
- What are the costs of the U.S. and Germany going separate ways in the Huawei/ China question?
- How can we ensure and safeguard the global integrity and prosperity of high-tech value chains?
- How can the U.S. and Germany work together to develop economic and trade policies that are effective and consistent with both partners' values?

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