GLOBAL DATA ALLIANCE
TRUST ACROSS BORDERS

October 16, 2020

Minister Buddhipongse Punnakanta
Ministry of Digital Economy and Society
Thailand

Dear Minister Punnakanta:

We write to introduce you to the Global Data Alliance,[i] a cross-industry coalition of companies, headquartered in different regions of the world, that are committed to high standards of data responsibility and that rely on the ability to transfer data responsibly around the world to create jobs and make local industries more competitive. Global Data Alliance members share a deep and long-standing commitment to supporting economic development, building trust in the digital economy, and protecting personal data across regions, technologies, and business models.[ii]

The global outbreak of COVID-19 presents one of the most complex challenges governments have faced in modern times. With many governments implementing measures to increase the physical distance among populations to reduce spread of the virus, the pandemic has rapidly forced many aspects of public life to a remote environment. In today's "distance economy," removing barriers to cross-border collaboration has become increasingly important to economic recovery plans and to sustaining and advancing remote health, work, and education.

Cross-border data transfers, which contribute trillions of dollars to global GDP[iii] and offer economic benefits in all sectors,[iv] should be an element of every country's economic recovery plan. Cross-border data transfers can help workers and citizens maintain their health, jobs and skills because those transfers enable them to access cloud-based software solutions with remote work, remote medicine, or remote learning functionalities, which we in turn below.

- Remote work: To harness the benefits of the global remote economy in today's environment, governments should continue to allow cross-border data transfers to optimize workforce productivity. For many small and medium-sized enterprises (SMEs) and other companies, realizing the benefits of a remote workforce often depends on cross-border data transfers, which permit employees to do their jobs by accessing the digital tools and software solutions stored on servers abroad. The data transfers also enable improvements in worker health, safety, and productivity based on analytics of internal operational data sourced from around the world. In numerous ways, cross-border data transfers are directly determinative of effective and productive remote work, and thus contribute to keeping employees safe and healthy, and improving employee quality of life, morale, and retention. Governments should therefore avoid unnecessary restrictions on the transfer of data across borders.

- Remote health: Remote health services have proven critical in many countries' responses to COVID-19, as governments seek to expand the use of remote technologies to keep vulnerable patients and those with mild symptoms in their homes while maintaining remote access to the care they need. In many countries, remote health services offered by a provider to a patient within the same country may nevertheless involve cross-border access to a secure, state-of-the-art remote health technology hosted in another country. Remote

health services also involve cross-border collaboration among experts—e.g., cross-border R&D and consultations among researchers or specialists located in different countries; cross-border transfer of technical laboratory data for analysis or testing; or cross-border consolidation of anonymized data sets from around the world for purposes of real-time statistical tracking, analytics, and monitoring of aggregated anonymized data—e.g., to identify health trends, epidemiological patterns, or localized disease outbreaks. Cross-border data transfers are also critical to remote humanitarian assistance to underserved populations—e.g., in cases involving remote consultations for local physicians needing advice from experts or health educators in another country about the clinical management of difficult cases.[v]

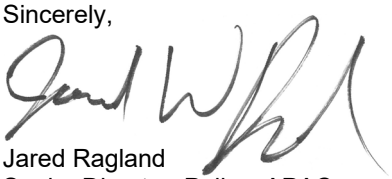
- Remote education: Social distancing mandates have also closed thousands of schools around the world to millions of school-age students. To avoid setting students back in their studies by months or years, many countries school districts are increasingly relying on remote education technology tools, as well as online textbooks and other resources, often stored in the cloud on a server in another country. Cross-border data transfers are critically important to ensure that students around the world can maintain progress in their schooling during this extraordinary time.

The Global Data Alliance notes that Thailand had approved the Personal Data Protection Act in May 2019 with the implementation of the Act expected to take place by May 2021. We are encouraged by this development given the pivotal role which data protection legislations will have on building a trusted and robust digital ecosystem. We also note with interest that the Act contains a provision which allows personal data to be transferred outside of Thailand, subject to relevant conditions, and would welcome the opportunity to engage further with you on data flows issues.

We have attached as Appendices to this letter two background primers explaining the importance of cross-border data transfers to these critical tools of each country's COVID-19 response and recovery strategy.[vi]

The Global Data Alliance is at your disposal to provide additional information or guidance regarding these important policy issues. Please do not hesitate to reach out with any questions or comments that you may have.

Sincerely,



Jared Ragland
Senior Director, Policy, APAC
BSA| The Software Alliance

[i] The Global Data Alliance (globaldataalliance.org) is a cross-industry coalition of companies that are committed to high standards of data responsibility and that rely on the ability to transfer data around the world to innovate and create jobs. The Alliance supports policies that help instill trust in the digital economy while safeguarding the ability to transfer data across borders and refraining from imposing data localization requirements that restrict trade.
Alliance members include BSA members and American Express, Amgen, AT&T, Citi, ITB360, LEGO, Mastercard, Panasonic, Pfizer, Roche, United Airlines, Verizon, Visa, and WD-40 Company. These companies are headquartered across the globe and are active in the advanced manufacturing, aerospace, automotive, consumer goods, electronics, energy, financial services, health, supply chain, and telecommunications sectors, among others. BSA | The Software Alliance administers the Global Data Alliance. *See* Global Data Alliance, *About the Global Data Alliance* (2020), at https://www.globaldataalliance.org/downloads/aboutgda.pdf (Appendix I).
[ii] *See generally,* Global Data Alliance, *Position Paper on Cross-Border Data Transfers & Data Localization* (2020), at https://www.globaldataalliance.org/downloads/02112020GDAcrossborderdata.pdf. The trusted movement of data across borders is important to protecting the security and privacy of data. The ability to transfer data across borders also contributes to: (1) a country's global connectivity and its access to the international marketplace and supply chains; (2) the ability of companies of all sizes to use software-enabled technologies, including cloud computing, data analytics, and digitally connected industrial processes, to create jobs, boost productivity, and reach new markets; (3) the workforce's ability to remain productive through teleworking, virtual collaboration, and online training, as well as remotely delivered health care and other services; (4) the ability of companies to comply with regulatory requirements in sectors ranging from transportation and logistics to financial services.
[iii] *See* Global Data Alliance, *Cross-Border Data Transfers Facts and Figures* (2020), at https://www.globaldataalliance.org/downloads/gdafactsandfigures.pdf.
[iv] *See* Global Data Alliance, *The Cross-Border Movement of Data: Creating Jobs and Trust Across Borders in Every Sector* (2020), at https://www.globaldataalliance.org/downloads/GDAeverysector.pdf ; See Global Data Alliance, *Jobs in All Sectors Depend Upon Data Flows* (2020), at https://www.globaldataalliance.org/downloads/infographicgda.pdf
[v] World Health Organization, Long-Running Telemedicine Networks Delivering Humanitarian Services, *Bulletin of the World Health Organization* (2012), https://www.who.int/bulletin/volumes/90/5/11-099143.pdf.
[vi] *See* Global Data Alliance, Cross-Border Data Transfers and Remote Health Services (2020), at [URL] (Appendix II); Global Data Alliance, Cross-Border Data Transfers and Remote Work (2020), at [URL] (Appendix III).

GLOBAL DATA ALLIANCE
TRUST ACROSS BORDERS

CROSS-BORDER DATA TRANSFERS & REMOTE HEALTH SERVICES

Cross-border access to remote health technologies often allows access to state-of-the-art cybersecurity and privacy protections, along with advantages from a health care cost, timeliness, and patient access perspective.

Few economic sectors have been more impacted by the recent shift to an international remote economy than the health care sector, as evidenced by the rise of telehealth and telemedicine (collectively referred to as "remote health services"), which are often delivered via cloud-enabled remote health technologies and software solutions. Remote health services can take many forms. In many countries, telemedicine services often involve a health care provider and a patient in the same region or locality engaging in medical consultation, yet that consultation frequently requires cross-border access to remote health care technologies that offer security and privacy features needed in the telemedicine context.

International organizations and national governments have highlighted the importance of access to these technologies during the COVID-19 crisis, underscoring the "urgency to expand the use of [remote] technology to help people who need routine care, and keep vulnerable [patients and those]…with mild symptoms in their homes while maintaining access to the care they need."[1] The scale and pace of the shift to remote health services are unprecedented: One recent study in a large municipal hospital system shows non-urgent telemedicine visits increasing by more than 4,000 percent in a short period–jumping from 95 daily telemedicine visits in early March 2020 to 4,209 daily telemedicine visits by mid-April 2020.[2] More broadly, telehealth services are expected to grow seven-fold growth by 2025.[3]

WHAT ARE REMOTE HEALTH SERVICES?

Remote health services comprise both telemedicine and telehealth–terms with different meanings. Broadly understood to involve the provision of remote clinical services to support patients, "telemedicine" includes "the use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, and patient and professional health-related education."[4] "Telehealth" has been defined to cover a broader scope of remote health care services, including remote non-clinical services, such as provider training, administrative meetings, and

continuing medical education.[5] An example of a telemedicine service is an online consultation with a local doctor who makes a diagnosis and treatment recommendations after (often AI-enhanced) analysis of images of suspicious skin tissue.[6] An example of a remote telehealth service is the WHO's efforts to make available remotely to health care providers worldwide information relating to the classification of illnesses, their causes, and symptoms.[7]

Effectively providing remote health services depends on cloud-enabled connected devices, which can include:

> real-time, audio-video communication tools [to]…connect physicians and patients in different locations; store-and-forward technologies that collect images and data to be transmitted and interpreted later; remote patient-monitoring tools such as blood pressure monitors, Bluetooth-enabled digital scales and other wearable devices that can communicate biometric data for review; verbal/audio-only and virtual check-ins patient portals, messaging technologies, etc.[8]

Thus, even in a private, online consultation between a primary care physician and his/her patient, the underlying technology often requires the cloud-based integration of provider-side technologies (such as clinical telemedicine hubs and laboratory testing equipment), and patient-side technologies (such as health-related Internet of Things (IoT) devices integrated with personal computers or smartphones). Even in the case of providers and patients located in the same country, both provider and patient often require cross-border access to overseas-based remote health platforms, portals, or other technologies that can offer the highest levels of security, privacy, and functionality.

CROSS-BORDER DATA TRANSFERS ARE CRITICAL TO REMOTE HEALTH SERVICES

In many countries, cross-border access to cloud-based solutions undergirds remote health services. These cloud-based solutions allow doctors, nurses, researchers, laboratory specialists, pharmacists, and other health care providers to seamlessly support human health at the highest possible levels of security and functionality. We outline several relevant contexts below.

First, in many countries, telemedicine services offered by a provider to a patient within the same country may nevertheless involve **cross-border** access to a secure remote health technology hosted in another country. Such cross-border technology access may be necessary to offer a secure provider-patient interaction, to comply with legal requirements regarding the custody, storage, and disclosure of patient data, and to add new insights and functionality to diagnoses and treatment recommendations via AI-enhanced data analytics.[9] This includes:

- **Cross-border** access to state-of-the-art cyber, encryption, authentication, and blockchain technologies provided from cloud-based servers in another jurisdiction—protecting the privacy of patient data and guarding against unauthorized monitoring, intrusion, or data exfiltration; and
- **Cross-border** access to health care data analytics solutions that can analyze local data samples against databases of relevant information gathered from all over the world—enhancing the reliability and accuracy of diagnoses and treatment recommendations.[10]

Second, telehealth collaboration and research may be conducted among medical researchers and other professionals through:

- **Cross-border** collaboration, research, or expert consultations among providers or other specialists located in different countries;
- **Cross-border** exchange of data with laboratories or advanced research facilities with particular expertise in different types of analysis or testing; and
- **Cross-border** consolidation of anonymized data sets from around the world for purposes of real-time statistical tracking, analytics, and monitoring of aggregated anonymized data–e.g., to identify health trends, epidemiological patterns, or localized disease outbreaks.

Telehealth services are expected to grow seven-fold by 2025 in the US. One major US regional health system has seen a 4,000 percent increase in demand for such services, from 95 daily telemedicine visits in early March 2020 to 4,209 daily telemedicine visits by mid-April 2020.

Finally, in some jurisdictions, depending upon medical licensure and other legal requirements, telemedicine services may be provided directly to patients and health care information consumers through:

- **Cross-border** provision to patients of consultations, remote second opinions, or other information from a provider in one country to a patient in another; and
- **Cross-border** humanitarian assistance to underserved populations. According to the WHO, "telemedicine networks around the world deliver humanitarian services on a routine basis, many to low-income countries. These networks provide tele-consultations for physicians and other health professionals needing advice about the clinical management of difficult cases, and some also provide education."[11]

Please note that the cross-border provision of provider-to-patient telemedicine services is by no means universally accepted, as the rules governing telemedicine differ by jurisdiction–with varying approaches to regulatory oversight, licensing board requirements, reporting mandates, equipment specifications and other technical regulations, and so forth.

BENEFITS AND LIMITATIONS OF REMOTE HEALTH SERVICE

Telemedicine services, secured and enabled through cross-border access to best-in-class technologies, come with both limitations and benefits. On the one hand, there are inherent limitations to the remote clinical environment: Many conditions cannot be diagnosed or treated by telemedicine services, nor can those services fully substitute for in-person medical treatment. However, telemedicine can help to relieve capacity constraints at hospitals, while reducing the spread of disease. It may be deployed more effectively where, for example, the patient is capable of responding to provider questions in detail and with accuracy; the patient exhibits symptoms that are identifiable through visual inspection (e.g., dermatological conditions); the patient and his/her medical history are already known to the provider; and/or the patient would benefit from treatment options that are standardized and well-established. Within these or other appropriate parameters, telemedicine can offer significant benefits, including:

- Lower costs to provide medical services;
- More coordinated health care workflow, e.g., through fewer unnecessary emergency room visits;
- Improved timelines and speed in responding to patient needs;
- Better safety and quality, particularly for patients in remote areas that may have reliable broadband internet access, yet lack sufficient local health care capacity;

- Access to more specialized types of procedures that might not otherwise be available in a particular locality, including through robotic surgery or remote VR/AR enhanced procedures, where specialists in a central location guide or assist providers to conduct services that might otherwise not be available;
- Real-time monitoring of aggregated anonymized data to monitor for health trends, epidemiological patterns, or localized disease outbreaks;
- Reduced spread of disease (e.g., where possible, by treating some patients with communicable diseases remotely without exposing others, or conversely, by treating patients remotely without exposing those patients to communicable diseases prevalent in hospital settings);
- The ability to address emergency surges in demand for medical services and/or shortages of medical professionals;
- The ability to offer home-based patient treatment, recuperation, and monitoring–improving patient comfort and recovery times, and freeing up space and capacity in clinics and hospitals;
- Added insights and functionality (e.g., by leveraging diagnostics and analysis of patient data submitted to a provider). Such data may include trends in blood sugar, blood pressure, oxygen levels, temperature, heart rate, weight, height, etc. collected and shared with patient consent via sensors in wearables or other health tracking devices.

Real-time aggregation and analytics of anonymized data from around the world is critical to global health–allowing for the rapid detection and response to emergent health trends, epidemiological patterns, and localized disease outbreaks.

These benefits depend, in part, on ensuring that providers and patients within a country have cross-border access to the remote health technologies that enable these important services.

CONCLUSION

Alongside a country's levels of internet access and computer literacy, cross-border connectivity is a critical factor in enabling the benefits of remote health services. Countries can promote diverse health care delivery options for their citizens by ensuring that data transfer restrictions do not unduly interfere with the ability to offer secure and private remote health care services.

Endnotes

[1] See e.g., Center for Medicare and Medicaid Services, Medicare Telemedicine Health Care Provider Fact Sheet (March 2020), https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet; and World Health Organization, Rational Use of Personal Protective Equipment for Coronavirus Disease 2019 (COVID-19) (February 2020), https://apps.who.int/iris/bitstream/handle/10665/331215/WHO-2019-nCov-IPCPPE_use-2020.1-eng.pdf (encouraging patients to "consider using telemedicine to evaluate suspected cases of COVID-19 disease, thus minimizing the need for these individuals to go to healthcare facilities for evaluation.").

[2] Mann et al., COVID-19 Transforms Health Care through Telemedicine: Evidence from the Field (April 2020), https://academic.oup.com/jamia/advance-article-pdf/doi/10.1093/jamia/ocaa072/33120297/ocaa072.pdf (showing increases in daily telemedicine visits from March 2, 2020, to April 14, 2020, of 4,345 percent for non-urgent telemedicine visits and 135 percent for urgent telemedicine visits).

[3] See Mariana Fernandez, Telehealth to Experience Massive Growth with COVID-19 Pandemic, Says Frost & Sullivan (May 2020), https://ww2.frost.com/news/press-releases/telehealth-to-experience-massive-growth-with-covid-19-pandemic-says-frost-sullivan/.

[4] See US Department of Health and Human Services, HIPAA FAQ–What Is Telehealth? (2020), https://www.hhs.gov/hipaa/for-professionals/faq/3015/what-is-telehealth/index.html.

[5] See US Department of Health and Human Services, What Is Telehealth? How Is Telehealth Different from Telemedicine?, HeathIT.gov website (2020), https://www.healthit.gov/faq/what-telehealth-how-telehealth-different-telemedicine; and World Health Organization, Telemedicine–Opportunities and Developments, Report on the Second Global Survey on eHealth (2010), https://www.who.int/goe/publications/goe_telemedicine_2010.pdf.

[6] Michael Rucker, Health Tech Is Successful in Developing Countries, VeryWell Health (March 2020), https://www.verywellhealth.com/digital-health-developing-countries-1739155.

[7] World Health Organization, WHO Releases New International Classification of Diseases (ICD 11) (2018), https://www.who.int/news-room/detail/18-06-2018-who-releases-new-international-classification-of-diseases-(icd-11).

[8] American Medical Association, AMA Quick Guide to Telemedicine in Practice (April 2020), https://www.ama-assn.org/practice-management/digital/ama-quick-guide-telemedicine-practice; Centers for Medicare and Medicaid Services, General Medicine Toolkit (March 2020), https://www.cms.gov/files/document/general-telemedicine-toolkit.pdf (providing links and identifying technical ICT requirements for telemedicine and telehealth service providers); and American Medical Association, Telehealth Implementation Playbook (2020), https://www.ama-assn.org/system/files/2020-04/ama-telehealth-playbook.pdf (identifying relevant ICT equipment needed for providing telemedicine services).

[9] Relatedly, because internet traffic between providers and patients often transits among computing equipment and servers across borders, cross-border data transfers may be relevant to remote health services even in cases in which the remote health technologies are stored on servers in-country. See e.g., Casalini and Lopez González, Trade and Cross-Border Data Flows, OECD Trade Policy Papers (2019), http://dx.doi.org/10.1787/b2023a47-en (explaining that, "[t]he internet is a global network of computers, each with its own Internet Protocol (IP) address. When a file is sent from a computer in Country A to a recipient in Country B it is first broken down into different 'packets' …marked with the IP address of the sender, that of the recipient and a code identifying the sequence in which the packets are to be reassembled at destination. Once the packets are ready, they leave the origin computer, crossing different networks and taking different routes to destination.…In some instances, what might seem to be a domestic transfer involves a cross-border flow.")

[10] For example, algorithms can be trained to distinguish benign and malignant cancers based on a referential analysis of thousands of images of benign and malignant tissue samples, resulting in more accurate detection rates than a dermatological oncologist. See e.g., Computer Learns to Detect Skin Cancer More Accurately Than Doctors, Agence France Presse (May 2018), https://www.theguardian.com/society/2018/may/29/skin-cancer-computer-learns-to-detect-skin-cancer-more-accurately-than-a-doctor; Charles Towers-Clark, The Cutting-Edge of AI Cancer Detection, Forbes (April 2019), https://www.forbes.com/sites/charlestowersclark/2019/04/30/the-cutting-edge-of-ai-cancer-detection/#43acb1b67336; Taylor Kubota, Deep Learning Algorithm Does as Well as Dermatologists in Identifying Skin Cancer, Stanford News (January 2017), https://news.stanford.edu/2017/01/25/artificial-intelligence-used-identify-skin-cancer/.

[11] World Health Organization, Long-Running Telemedicine Networks Delivering Humanitarian Services, Bulletin of the World Health Organization (2012), https://www.who.int/bulletin/volumes/90/5/11-099143.pdf.

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CROSS-BORDER DATA TRANSFERS & REMOTE WORK

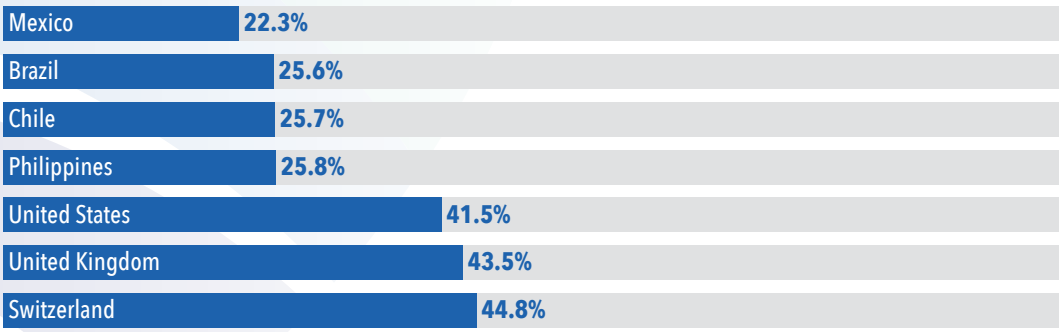
Companies in all sectors increasingly rely on **remote workplace tools and cloud-based technologies enabled by data flows**–especially those companies that compete on the basis of their ability to collaborate and innovate on a cross-border and cross-office basis. **In an era of remote work, cross-border data transfers have enabled more growth, higher productivity, faster innovation, and a stronger and more competitive market position** for these companies.

Although there remain many jobs that still must be performed on premises, companies are making increasing use of remote workplace tools where it is feasible to do so. Companies that operate internationally have long used remote work tools to facilitate cross-border workplace collaboration, online training, and the remote delivery of services. These tools–which include cloud-based libraries and databases, video-conferencing applications, and interactive collaboration platforms–help foster cross-office R&D; build workforce skills; contain costs and carbon emissions; and promote public health and safety.

Countries can build their economic resilience and productivity by maintaining policies that promote cross-border data transfers and adopting remote workplace technologies.

Countries Oriented Toward Remote Work

Estimated Jobs That Could Be Performed Remotely Pre-COVID-19



Note: These figures are extrapolated based data from the International Labor Organization, gathered between 2015 and 2019. Based on more recent surveys indicating remote work participation rates in excess of 50 percent of the workforce, it is likely that updated 2020 data would show higher remote workforce jobs than reflected herein.

Source: Jonathan I. Dingel and Brent Neiman, *How Many Jobs Can Be Done at Home?* University of Chicago, Becker Friedman Institute White Paper (April 2020), https://bfi.uchicago.edu/wp-content/uploads/BFI_White-Paper_Dingel_Neiman_3.2020.pdf

Remote connectivity has only become more important in today's uncertain economic and health environment. The COVID-19 crisis has placed an unprecedented strain on labor markets, with sharply increasing unemployment rates and a disproportionate impact on lower wage workers. Today, the outlook is still severe, although unemployment rates have started to recover in some regions and sectors. Where possible, remote work solutions have also helped to moderate these impacts.

Prior to the COVID-19 crisis, by some estimates, between five and fifteen percent of US employees worked remotely.[1] Today, studies indicate that 50 percent or more employees are working remotely,[2] with even higher percentages in certain regions and certain professions.[3] The durability of these changes may depend upon the length of the crisis; the economic sector; and different companies' initial success in integrating remote work processes into their operations.

The benefits of a well-managed and productive remote workforce are often said to include:

- Resilience in future crises–whether in times of a health-related emergency, natural disaster, political conflict, or other emergent situation;
- Superior carbon footprint–due to reduced energy consumption and air pollution; and
- Improved economic productivity and cost structures–for example, due to reduced travel, energy, real estate, and overhead costs.[4]

Alongside a country's economic profile, level of internet and broadband access, and level of computer literacy, a country's policy on cross-border data transfers is a critical factor in enabling these benefits. Cross-border data transfers play an important role in keeping workers and citizens productive and engaged. These transfers also support the day-to-day operations of companies with international operations and companies that access cloud-delivered virtual workplace and other software tools hosted around the world.

The connectivity technologies, productivity and collaboration tools, videoconferencing solutions, and databases and online document libraries are typically accessed from servers across multiple jurisdictions. Workforces today depend on access to internationally distributed cloud computing infrastructure and software tools, as well as cybersecurity services involving continual cross-border monitoring and real-time data analytics performed across countries. In short, today's economy–and the response to and recovery from the current health crisis–fundamentally depends on cross-border connectivity.[5]

Countries can build their economic resilience by maintaining policies that promote cross-border data transfers and adopting remote workplace technologies that enhance innovation and productivity. Staying connected across borders and computer networks is one important factor in creating and maintaining jobs, because a large share of economic activity already is, and will increasingly be, spurred by technologies that rely on data flows.

Benefits of Remote Work Policies

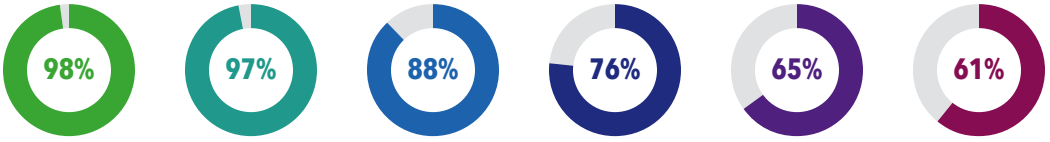
- ✓ Resilience in future crises
- ✓ Superior carbon footprint
- ✓ Improved economic productivity
- ✓ Better cost profiles

Percentage of US Employees Working Remotely

- → Before COVID-19: **5%–15%**
- ↑ After COVID-19: **50% or more**

Share of Jobs that Can be Done Remotely

Occupations That Are in...



Source: Dingel and Neiman, *How Many Jobs Can Be Done at Home?*

Endnotes

[1] See US Bureau of Labor Statistics, *Workers Who Could Work at Home, Did Work at Home, and Were Paid for Work at Home, by Selected Characteristics, Averages for the Period 2017–2018*, Economic News Release (September 2019), https://www.bls.gov/news.release/flex2.t01.htm; and Holly Muscolino, *Remote Work in the COVID-19 Era: Are We Ready?* IDC Blog (March 2020), https://blogs.idc.com/2020/03/16/remote-work-in-the-covid-19-era-are-we-ready/ Clive Thompson, *What if Remote Work Goes on Forever*, NY Times Magazine (June 2020), https://www.nytimes.com/interactive/2020/06/09/magazine/remote-work-covid.html.

[2] See e.g., Erik Brynjolfsson et al., *COVID-19 and Remote Work: An Early Look at US Data*, MIT/Sloan (April 2020), https://mitsloan.mit.edu/shared/ods/documents/?PublicationDocumentID=6321, (indicating that almost half of surveyed workers were working from home in April 2020); Alexander Bick and Adam Blandin, *Real Time Labor Market Estimates During the 2020 Coronavirus Outbreak*, Arizona State University and Virginia Commonwealth University (April 2020), https://alexbick.weebly.com/uploads/1/0/1/3/101306056/bb_covid.pdf (indicating that more than 60 percent of surveyed workers were working from home); Katherine Guyot and Isabel V. Sawhill, *Telecommuting Will Likely Continue Long after the Pandemic* (April 2020), https://www.brookings.edu/blog/up-front/2020/04/06/telecommuting-will-likely-continue-long-after-the-pandemic/ (indicating that nearly 55–75 percent of workers among the top 40 percent of wage earners are working from home, while 35–40 percent of other workers did so in March 2020); *PWC Remote Work Survey* (June 2020), https://www.pwc.com/us/en/library/covid-19/us-remote-work-survey.html (most survey respondents indicated that 60–100% of their office staff were working remotely during COVID); OECD, *Employment Outlook 2020* (July 2020), http://www.oecd.org/employment-outlook/2020/ (indicating that 40% of workers across the OECD could work remotely in April 2020); Gil Press, *The Future of Work Post-COVID-19*, Forbes (July 2020) https://www.forbes.com/sites/gilpress/2020/07/15/the-future-of-work-post-covid-19/#6f2e03aa4baf; Rakesh Kochhar and Jeffrey Passel, *Telework May Save Jobs in a COVID-19 Downturn*, Pew Research (May 2020), https://www.pewresearch.org/fact-tank/2020/05/06/telework-may-save-u-s-jobs-in-covid-19-downturn-especially-among-college-graduates/.

[3] Jonathan I. Dingel and Brent Neiman, *How Many Jobs Can Be Done at Home?* University of Chicago, Becker Friedman Institute White Paper (April 2020), https://bfi.uchicago.edu/wp-content/uploads/BFI_White-Paper_Dingel_Neiman_3.2020.pdf.

[4] See generally, Guyot and Sawhill, *Telecommuting Will Likely Continue Long after the Pandemic* (internal citations omitted); Dave Nevogt, *Are Remote Workers More Productive?* Hubstaff (2016), https://blog.hubstaff.com/remote-workers-more-productive/; Laurel Farrer, *Federal Policy Retraction Will Cost Government Millions* (January 2020), https://www.forbes.com/sites/laurelfarrer/2020/01/23/trump-versus-telework-federal-policy-retraction-will-cost-government-millions/#345e57d1114e; US Office of Personnel Management, Status of Telework in the Federal Government, Report to Congress FY2018 (March 2020), https://www.telework.gov/reports-studies/reports-to-congress/2019-report-to-congress.pdf (indicating that just over 20 percent of federal employees engage in telework, and describing benefits in terms of improved cost, retention, and recruiting outcomes, etc.); Nicholas A. Bloom, et al., *Does Working from Home Work? Evidence from a Chinese Experiment, Quarterly Journal of Economics* 130, no. 1 (2015): 165–218, https://www.gsb.stanford.edu/faculty-research/publications/does-working-home-work-evidence-chinese-experiment (observing a 13 percent improvement in workplace performance due to teleworking); Gallup, *State of the American Workplace,* Gallup Report (2017), https://www.gallup.com/workplace/238085/state-american-workplace-report-2017.aspx (observing that engaged virtual workplaces can claim 41 percent lower absenteeism, 40 percent fewer quality defects, and 21 percent higher profitability than their physical workplace peers); and Global Workplace Analytics, *Latest Work-At-Home/Telecommuting/Mobile Work/Remote Work Statistics* (2020), https://globalworkplaceanalytics.com/telecommuting-statistics (estimating an average savings of $11,000 per year per part-time telecommuter and telecommuters who are 35–40 percent more productive than their office counterparts).

[5] Clare Brown, COVID-19's Impact on the Enterprise and Remote Work, CIO IDG TechTalk Voices (April 2020) https://www.cio.com/article/3532812/covid-19s-impact-on-the-enterprise-and-remote-work.html.