





BSA Policy Recommendations for the Biden-Harris Transition Team

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Priorities in COVID-19 Response & Recovery

The COVID-19 global pandemic presents one of the most complex challenges governments have faced in modern times. As we plan our continued response to the pandemic and begin to plan for recovery, the incoming Administration should seek to build more resilient and flexible economies capable of adapting to future crises. Although not every job may be performed remotely, given the importance of remote work to society's health and vitality during COVID-19 and to ensure the workforce is better prepared to deal with future crises, the incoming Administration should adopt the following policy priorities to enable the country to prepare for and implement increased remote working, resilient education systems, and other remote-based activities wherever possible.

Respond to the Pandemic in the Short Term

The COVID-19 pandemic has put enormous pressure on operations across sectors. Needs for responding to this crisis in the short term are many and diverse, but the incoming Administration should not lose sight of the importance of maintaining and expanding vital IT services that businesses, first responders, health care providers, and other stakeholders depend on to sustain their operations and for economies to reopen. The incoming Administration should prioritize the following measures to ensure continuity and mitigate public health and economic crises:

- ✓ Encourage and enable the use of software and cloud services for continued business and government operations.
- ✓ Maintain strong privacy and security practices, including by updating guidance for robust security practices among the remote workforce.
- ✓ Remove impediments, such as quotas and customs duties, to remote services.

Recover from the Pandemic in the Long Term

As we begin to plan for long-term recovery from the COVID-19 pandemic, the incoming Administration should seek to build more resilient and flexible economies capable of adapting to future crises. The incoming Administration should promote policies based on

the following principles to aid their communities in recovering from the pandemic, and to ensure government operations, businesses, and individuals are better prepared in the long term for future crises.

Invest in Universal, Affordable, Secure High-Speed Internet Access

An easily available, reliable, and secure internet connection is critical for maintaining economic activity under social distancing measures and for economic growth in the aftermath of the current crisis. To address current shortcomings, the incoming Administration should:

- ✓ Invest in broadband infrastructure deployment, particularly in rural areas, and increase broadband access across and within geographies and among income groups.
- ✓ Deploy and secure 5G networks, emphasizing the need for open standards and open-source-driven architectures, and investing in innovative software solutions, like open radio access network and virtualized radio access network, to cybersecurity and supply chain challenges.

Remove Barriers to Cross-Border Collaboration

Connectivity and cross-border data transfers have become essential for countries that wish to secure the benefits the global remote economy can bring in jobs, wages,

productivity, innovation, health, and education. To harness the benefits of the global remote economy, the incoming Administration should:

- ✔ Sustain cross-border data transfers to optimize workforce health, safety, and productivity.
- ✔ Promote cross-border connectivity to help keep economies and employers competitive.
- ✔ Maintain a secure, reliable, predictable IT supply chain; refrain from imposing unreasonable import or export restrictions on the products in the digitized remote economy; eliminate customs duties on IT equipment; permanently ban any customs duties on software, digital services, or other electronic transmissions; and avoid discriminatory taxation frameworks.
- ✔ Grow the size of the digital economy through policies that encourage open markets for economic outputs, including digital products.

Promote Responsible Migration to Cloud Services

Cloud services enable educators, businesses, and government agencies to access, process, and transmit data across diverse geographies and work environments at the push of a button, building in speed, scalability, flexibility, and mobility—which makes them essential for efficient remote work, schooling, and day-to-day organization functions. To lay a sound foundation for the future remote economy, the incoming Administration should:

- ✔ Lead by example in responsible cloud adoption through forward-leaning cloud migration policies, sending powerful signals to the business community about the benefits of cloud.
- ✔ Establish clear, accessible security guidance for cloud migration based on internationally recognized, consensus-based standards.
- ✔ Enforce clear, consistent privacy standards through federal privacy legislation that reflects companies’ roles as either controllers or processors in handling consumer data.
- ✔ Support interoperability and portability, so that information may flow between systems.

Transform the Global Workforce

Job losses resulting from the economic hardship caused by the COVID-19 pandemic are extremely concerning. The digital economy offers new opportunities for displaced workers if they can receive appropriate training on skills necessary to perform jobs that are and will continue to be in high demand. To encourage remote work and prepare workers for the future of work, the incoming Administration should:

- ✔ Improve access to STEM education, including to underrepresented groups.
- ✔ Leverage emerging technologies, like machine learning and blockchain, for workforce development.
- ✔ Remove obstacles in education systems that prevent short, flexible pathways from classroom to work, such as apprenticeships and other earn-and-learn options.
- ✔ Support new approaches to workforce training, re-training, and upskilling, including public-private partnerships, and short-term and nontraditional training and education programs.
- ✔ Provide resources and training to help industries adopt technologies that facilitate remote work and collaboration, and make them more resilient to future disruption.
- ✔ Lead by example in developing and implementing remote work policies, including regularly reviewing remote work policies in need of updating.



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Priorities in AI

Profound breakthroughs over the past decade have transformed AI from an emerging technology into a commercial reality that is now powering our smartphones, our homes, and our businesses. The economic and national security imperatives of US leadership in the development of AI cannot be overstated. To maintain that leadership, the United States must cultivate a policy environment that encourages innovation while also fostering public trust that AI is developed and deployed responsibly. BSA advocates for a policy framework built around [five pillars of responsible AI](#).

Instilling Trust and Confidence in AI

As AI is integrated into business and government processes that have consequential impacts on people—such as their ability to obtain access to credit, housing, or employment—it is imperative that the law keeps pace with the evolution of technology. The public must be able to trust that AI systems will be designed and deployed responsibly and have confidence that existing legal protections will apply regardless of whether a decision is made by a person or a machine. To instill trust and confidence in AI, the incoming Administration should:

- ✔ **Develop a National AI Risk Management Framework.** The incoming Administration should direct the National Institute for Standards and Technology (NIST) to convene a multistakeholder process to develop an AI risk management framework that would help establish a shared conceptual understanding for identifying and mitigating risks in AI systems, including the potential for unintended bias.
- ✔ **Eliminate Uncertainty.** AI is subject to a broad array of existing regulations and consumer protections. Ensuring these rules remain sufficiently clear and enforceable is important both for fostering public confidence in AI and for encouraging its adoption. To eliminate uncertainty as to how current

laws and regulations apply to AI, the incoming Administration should direct agencies to undertake a [comprehensive review](#) of existing authorities to ensure they remain fit for purpose, confirm that civil rights protections continue to apply to the high-risk uses of AI, and identify current laws and regulations that may be unnecessarily impeding AI adoption.

- ✔ **Pursue Risk-Based, Application-Specific Regulations.** Because the risks of AI are inherently use-case specific, new regulations, if needed, should focus on specific applications of the technology that pose high risks to the public. If new regulations are needed, they should account for the unique roles and capabilities of the range of actors that may be involved in an AI system's supply chain, with obligations assigned to the actor that is best positioned to both identify and efficiently mitigate the risk of harm that gave rise to the need for a regulation.
- ✔ **Prioritize International Coordination.** The US should assert leadership in the rules governing AI. Ensuring that the US approach to AI governance is interoperable with our trading partners will be critical priority in the years ahead. To minimize the risk of fragmentation, the Administration should engage bilaterally and multilaterally with like-minded countries to pursue a harmonized approach to AI governance.

Enhancing Innovation

The United States has long enjoyed economic and security advantages from being home to the world's most innovative companies. However, governments around the globe are racing to put in place the right policies, incentives, and infrastructure to close the technological gap with the United States. To ensure that the United States retains its technological advantage, the incoming Administration should:

- ✔ **Bolster R&D Investments.** From the microprocessor to the internet, US investments in R&D have fueled the development of fundamental technologies that have helped launch entire new industries and established America as the hub for global innovation. However, US spending on R&D as a percentage of GDP has steadily declined since 1976. To maintain the United States' long-term leadership in AI, the incoming Administration should act on the recommendations from the [National Security Commission on AI](#) and commit to a doubling of current funding levels for non-defense AI R&D.
- ✔ **Maximize Open Data.** AI innovation depends on the quantity and quality of data that is available for training. The incoming Administration should pursue an [open data agenda](#) that is focused on enhancing access to high-value government data, making it easier for organizations to voluntarily share their own data, and promote the development and use of privacy-enhancing technologies.
- ✔ **Grow the High-Tech Workforce.** Global competition to train and recruit the next generation of tech talent is fierce. There are worrying signs that the United States is falling behind. In 2020 alone, more than one million computer programming jobs in the United States will go unfilled. Solving the high-tech workforce shortage will require an ["all of the above" strategy](#) that includes investments in K–12 STEM education, an expansion of "non-traditional" graduate programs, and an expansion of the opportunities available for high-skilled immigration.
- ✔ **Establish a National AI Research Cloud.** The incoming Administration should quickly convene the National Artificial Intelligence Resource Task Force to begin developing a roadmap for a National AI Research Cloud that would enable the academic research community to harness computational power and shared data resources that are readily available to industry and government.



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Priorities in Privacy

The United States needs a comprehensive federal privacy law that creates new rights for consumers, places obligations on businesses that reflect their role in handling consumers' personal data, and creates strong and consistent enforcement mechanisms.

Enact Comprehensive Federal Privacy Legislation

The incoming Administration should work closely with Congress to develop and enact a new, national privacy law. A national privacy law should ensure consumers, wherever they live in America, have the same strong rights to data privacy.

The United States has no comprehensive federal privacy law, but rather protects privacy through sector-specific laws and through the broad consumer protection authority exercised by the Federal Trade Commission (FTC). A comprehensive national law is needed to protect the privacy and security of consumers' data and to support a clear and strong set of standards for companies.

A federal privacy law should create a uniform national standard that builds on existing state privacy laws—and does not weaken existing privacy protections for consumers. For example, BSA has published a [one-pager](#) showing how Congress can build on the California Consumer Privacy Act (CCPA) to create a strong federal privacy law that adds to the rights created in CCPA—and does not undermine them.

A federal privacy law should:

✓ **Create New Rights for Consumers.** Consumers should have rights to access, correct, and delete their personal data, as well as the right to opt out of broad types of processing.

✓ **Create Real Obligations on Businesses Handling Consumers' Personal Data.** Businesses should be required to handle data in line with consumers' expectations. These obligations may include:

- Specifying the purposes for collecting and using personal information—and then minimizing the use of data in line with those purposes.
- Obtaining consent from individuals before collecting their sensitive personal information.
- Implementing and maintaining data security safeguards.
- Being transparent about how they handle personal data, including providing clear and accessible explanations of the types of data they collect and the types of parties with whom they share data.
- Developing policies and procedures that provide accountability for these safeguards, including designating persons to implement the safeguards, monitoring and assessing implementation of those programs, training employees, and, where needed, adjusting practices to address issues as they arise.

✓ **Assign Obligations Based on the Role of the Organization.** A privacy law must also tailor these obligations to reflect the different roles that different companies have in handling consumers' personal data. Indeed, privacy laws worldwide reflect a global

consensus that places certain obligations on the companies that decide how a consumer's personal data will be collected and used, and other obligations on the companies that process data on behalf of those companies, to ensure the rights given to consumers and obligations placed on businesses function in this broader ecosystem. The distinction between these different roles is reflected in a BSA [two-pager](#).

- ✔ **Create Strong and Consistent Enforcement Mechanisms.** A privacy bill should be enforced by both the FTC and by state attorneys general. It should also provide new resources and enforcement tools to the FTC, including first-time civil penalty authority, targeted rulemaking authority, and additional funding and staff.

In addition, a federal privacy law should encourage the free flow of data across international borders, to sustain global products and services demanded by today's businesses and consumers. BSA has developed a [Privacy Framework](#) as a guide for policymakers as they seek to draft privacy legislation in the United States and [BSA Global Privacy Best Practices](#) to encourage high-level standards around the world.



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Priorities in Racial Justice

The killings of George Floyd and Breonna Taylor in early 2020 expanded conversations in the US regarding police brutality inflicted on people of color and, more broadly, racial justice. Systemic racism harms communities of color, hinders business success, and stifles economic growth and innovation. The incoming Administration should adopt the following policy priorities as part of a broader racial justice initiative to promote a more just and equitable society.

Support Private Sector DE&I Initiatives

Most federal government contractors have voluntarily instituted internal diversity, equity, and inclusion (DE&I) programs because they recognize the importance of hiring, recruiting, and retaining a diverse and inclusive workforce. Private businesses in America generally exercise control over their internal human resources decisions, including the messaging conveyed through employee training. The Trump Administration's Executive Order (EO) on Combating Race and Sex Stereotyping attempts to restrict government contractors' existing DE&I training programs. This EO will undo progress made toward promoting racial equity and ensuring American businesses can attract the diverse talent they need to remain best-in-class, raises significant First Amendment concerns, and hobbles longstanding private sector efforts to promote diversity and inclusion. The incoming Administration should:

- ✓ Rescind the EO on Combatting Race and Sex Stereotyping.
- ✓ Support private sector DE&I efforts and initiatives that aim to ensure a secure, productive, and equitable workplace for all Americans.
- ✓ Advance policies that protect against racism and discrimination.

Advocate Measures to End Systematic Racism in Policing

Systematic issues of racial inequality exist in every facet of American life. One area that should be of particular concern is the police violence and brutality that disproportionately affects communities and people of color. In the wake of the killings of George Floyd and Breonna Taylor, Congress worked to introduce legislation to address a wide range of policies and issues in policing practices and law enforcement accountability, such as the George Floyd Justice in Policing Act of 2020. BSA strongly supports efforts to address systemic racism in policing and encourages policymakers to work together in a bipartisan manner to address this pressing issue. The incoming Administration should:

- ✓ Work with Congress to develop police reform laws addressing systemic racism in policing and encouraging greater accountability among police and law enforcement officials.
- ✓ Encourage law enforcement to use technologies—such as body cameras and data analytics—that promote transparency and accountability, and establish safeguards to ensure that facial recognition cannot be used for mass surveillance, racial profiling, or violation of basic human rights and freedoms.

Encourage Greater Diversity and Inclusivity in STEM and Computer Science Education

Science, technology, engineering, and mathematics (STEM) education, along with computer science studies, equips students with problem solving, critical thinking, and other abilities that are important for jobs in virtually every industry. Making STEM and computer science education inclusive and widely available builds interest in developing in-demand skills and expands the available workforce for technology-related jobs. The incoming Administration should:

- ✓ Encourage greater diversity and inclusion of underrepresented groups in STEM and computer science education through scholarships, loan forgiveness, and other initiatives to help ensure the jobs of the future are available to the entire population.



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Priorities in Workforce Development and Immigration

Workforce development and responsible immigration policies are essential to broadening the pipeline of skilled workers. The incoming Administration should implement policies that expand and improve access to STEM education, create alternative pathways to digital skills training, leverage the use of technology for workforce development across industries, broaden access to high-speed internet, and promote equal opportunity in the workplace. In addition, BSA supports responsible immigration policies, including those seeking to strengthen the H-1B Visa Program and protect DACA recipients.

Equip American Workers With Skills Needed for 21st Century Jobs

As the digital economy evolves, the gap between available jobs in all sectors of the economy that leverage software-related products and services and workers with technology and other relevant skills qualified to fill those vacancies continues to grow. Increasing the pipeline of workers with the necessary skills to meet market demands is essential to the recovery and growth of the US economy. This goal can only be achieved by preparing new generations for these jobs and helping the current workforce to obtain new skills that will allow them to transition to current and emerging job opportunities. Promoting equal opportunity in the workplace is also very important. The incoming Administration should:

- ✔ **Improve Access to STEM Education.** Increase learning opportunities for underrepresented groups, including through funding of training and activities linked to the JROTC program.
- ✔ **Promote Innovation in Workforce Training.** Support flexible approaches to workforce skilling and upskilling to advance short-term and non-traditional training programs, including through expanded federal grant eligibility to attend community colleges or trade schools. This approach would allow the workforce to rapidly gain the skills needed for jobs enabled by emerging technologies, including AI.

- ✔ **Leverage Technology for Workforce Development across Industries.** Technology can provide critical tools to connect people with opportunities. For example, machine learning can be used to identify and offer skills needed in the workforce, including new and emerging skills. In addition, blockchain-enabled digital credentials offer the potential for workers to easily demonstrate their skills in a timely manner and employers to fill vacancies more efficiently. The incoming Administration can facilitate a skills-based approach to hiring by enabling real-time data on trends in roles and employment to advance the use of interoperable learning records. Policies can also encourage interoperability and expand accreditation measures to increase the footprint of credentials.

- ✔ **Expand Broadband.** The incoming Administration should prioritize policies that promote deploying broadband in areas lacking broadband infrastructure, particularly rural areas. Even in areas where broadband infrastructure is available, access widely varies among income groups, as well as across and within geographies. Policies should focus on better mapping the availability of broadband service and facilitating affordable and universal broadband access.

- ✔ **Promote Equal Opportunity in the Workplace.** An appropriately tailored federal standard will complement the private sector's ongoing efforts to promote equal opportunity in the workplace, regardless of race, sexual orientation, or gender identity. Enacting the Equality Act should be a top priority, because it would amend Title VII of the Civil Rights Act to provide a necessary set of affirmative non-discrimination protections across key societal areas, like employment, credit, access to public accommodations, housing and education.

Reset Immigration Policies to Support Non-Citizen Workers and their Families

The incoming Administration should reset immigration policies to include support for non-citizen workers and their families in the US.

In addition to efforts to make relevant skills training accessible to all American workers, US immigration policies that facilitate, not unduly restrict, access to foreign talent should be prioritized. The software industry, according to a recent [Software.org study](#), supports one in every 10 jobs in the United States. Our industry believes that responsible immigration policies allow US companies to remain competitive and keep jobs in the United States, which benefits the US economy. The incoming Administration should:

- ✔ **Make DACA Protections Permanent.** DREAMers meaningfully contribute to all sectors of the US economy, including the software industry. They deserve certainty regarding their ability to remain living and working openly in the United States.
- ✔ **Strengthen the H-1B Visa Program.** The ability to recruit for roles that require specialized skills and are more abundant than the number of US workers currently qualified to fill them is critical. H-1B lottery rules should not prioritize petitioners solely based on arbitrary wage levels nor restrict entire visa classes from admission to the United States arbitrarily.
- ✔ **Increase the accessibility of Employment-Based Green Cards.** Per-country caps should be eliminated, unused green cards should be recaptured, and foreign nationals graduating from a US-based university with a STEM degree should receive additional access.
- ✔ **Ensure Family of Nonimmigrant Workers Can Live and Work in the United States.** BSA supports policies that allow spouses and dependent children of H-1B visa holders to enter, remain, and work in the United States, if requirements are met.
- ✔ **Attract International Students.** Allowing international students to come to the United States to study and remain in the country for the period necessary to complete their education, including to participate in practicum programs after their graduation, is critical.



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Priorities in Digital Trade

The United States should work together with allies to agree on digital trade rules that can create economic opportunities at home; boost US jobs and innovation; and support an open, inclusive, and secure international digital ecosystem. BSA's [Digital Trade Agenda](#) details our recommendations.

Digital trade policy is critical to the software industry—one of the most competitive US export sectors—but is also important to other sectors, including the 290,000 small business exporters (composing [98 percent of all US exporters](#)) that depend on cross-border digital tools to reach foreign markets. Digital trade already contributes [trillions of dollars](#) to global GDP, with sectors like [agriculture, manufacturing, and logistics capturing 75 percent of the economic gains](#). [With more than half of US employees working remotely](#) in the COVID-19 era, digital trade is critical to the US economy.

Unfortunately, [many foreign trading partners](#) are turning to digitally protectionist measures, impairing US firms' ability to export and compete. To combat this trend, the incoming Administration should implement a robust US digital trade policy that plays to US strengths. The policy should include:

Prohibit Digital Trade Barriers

- ✔ **No Data Localization Requirements and Cross-Border Data Transfer Restrictions.** Governments should not impose data localization requirements or restrict cross-border data transfers as a market access barrier and should promote interoperable frameworks to facilitate data transfers.
- ✔ **No Customs Requirements on Electronic Transmissions.** Governments should not impose customs requirements on software or data transmitted electronically.

- ✔ **No Discriminatory Taxes on Software or Cloud Services.** Governments should not impose discriminatory taxes that harm foreign cloud and software providers, while benefiting local competitors.
- ✔ **No Forced Technology Transfer.** Governments should not require or pressure companies to transfer or disclose their technology—such as source code or trade secrets, including algorithms—as a condition for market access.
- ✔ **No Digital Technical Barriers to Trade.** Governments should support voluntary, internationally recognized standards, and refrain from imposing conflicting national standards on market participants.

Ensure Privacy, Security, and Governmental Transparency and Accountability

- ✔ **Support for Privacy.** Governments should adopt legal frameworks that protect personal information without allowing for unnecessary or disguised restrictions on trade.
- ✔ **Protecting Security through Encryption.** Governments should not undermine encryption in commercial products, including through the imposition of restrictions on security technologies used to safeguard against intrusions.

- ✔ **Protecting the Information Technology Supply Chain.** Governments and companies should increase their readiness to mitigate cyber- and supply chain security threats, including through cyber- and supply chain risk management and vulnerability disclosure processes that are based on internationally recognized standards.
- ✔ **Fair and Transparent Requests for Access to Data.** Governments should ensure that law enforcement requests to access information are procedurally fair and transparent and include mechanisms for resolving differing legal requirements between jurisdictions.

Safeguard Innovation

- ✔ **Machine Learning and Data Analytics.** Governments should ensure that commercial data analytics in the machine learning context is permitted.
- ✔ **Open Government Data.** Governments should commit to making non-sensitive government-generated data freely available to the public, on a non-discriminatory basis, and in machine-readable formats.
- ✔ **Copyrights.** Governments should ensure that copyright rules are aligned with international standards, including appropriate exceptions and limitations such as safe harbors for online service providers that expeditiously remove infringing content upon receiving notification from a rightsholder.
- ✔ **Patents and Trade Secrets.** Governments should provide for nondiscriminatory software patent protection and should protect trade secrets under civil and criminal law.
- ✔ **Technology in Government.** Governments should promote the use of innovative technology in public sector operations and in government procurement.



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Priorities in Cybersecurity

The incoming Administration must take robust action to confront cybersecurity threats to US networks and systems and to elevate US global cybersecurity leadership. BSA's cybersecurity agenda outlines a fulsome agenda for securing our digital future. Immediate priorities for action in the incoming Administration include:

1

Securing the
Software
Ecosystem

2

Recalibrating
Supply Chain
Policies

3

Securing the
Internet of
Things

4

Advancing
Cybersecurity
Through Digital
Transformation

5

Organizing the
Government to
Combat Cyber
Threats

1 Securing the Software Ecosystem

Government policies have focused on defending networks, but security for the software products and services on those networks has too often been neglected. The [BSA Framework for Secure Software](#) is a first-of-its-kind tool enabling stakeholders, including those in the government, to communicate and evaluate secure outcomes associated with software products and services. Tools like the BSA Framework should be leveraged to incentivize smart software purchasing decisions. In addition, the incoming Administration should:

- ✔ Support widespread adoption of cloud technologies by advancing standards-based cloud security policies that enable innovative, adaptable security solutions.
- ✔ Support development of internationally recognized software security standards and ensure software security policies are based on those standards.
- ✔ Strengthen investment in security research aligned to coordinated vulnerability disclosure programs and drive widespread adoption of coordinated vulnerability disclosure.

2 Recalibrating Supply Chain Policies

Supply chain risk management policies are most effective when they respond to clearly identified risk and establish fair, transparent, and collaborative processes to mitigate risk. Some recent policy measures have fallen short of these goals, targeting overbroad categories of products or failing to communicate information about risk and process to the public. The incoming Administration should:

- ✔ Lead multilateral coalitions to advance shared, standards-based supply chain risk management policies consistent with international obligations.
- ✔ Amend Executive Order 13873 to narrow government intervention in private-sector supply chains, focusing on mitigating specific and demonstrable risk in a transparent manner.
- ✔ Work with Congress to build consistent, transparent approaches to supply chain risk management that establish common methods across government agencies, prioritize risk, provide clear guidance on compliance, and offer affected vendors mechanisms to remediate supply chain concerns.

For more on supply chain issues, please see [BSA's Principles for Supply Chain Risk Management](#).

3 Securing the Internet of Things

Inadequately secured IoT devices and services can serve as entry points for cyberattacks, compromising sensitive data and threatening the safety of individual users. Attacks on infrastructure and other users, fueled by networks of poorly secured IoT devices, can affect the delivery of essential services, put the security and privacy of others at risk, and threaten the resilience of the internet globally. Governments have taken various approaches to confront these threats, but US leadership has lagged. The incoming Administration should:

- ✔ Establish a common approach to IoT security that provides clear, flexible, outcome-focused security guidance and avoids state-level policy fragmentation.
- ✔ Lead international efforts to establish widely recognized IoT standards based on industry best practices and harmonize policy approaches.
- ✔ Create policies that help consumers gain access to security information about IoT devices, enabling smart purchasing decisions.

For more on IoT security, please see [BSA's Policy Principles for Building a Secure and Trustworthy Internet of Things](#).

4 Advancing Cybersecurity Through Digital Transformation

Strong cybersecurity depends on strong information technology infrastructure. By embracing digital transformation, the incoming Administration can build a solid foundation for cybersecurity efforts across the board. Specifically, the incoming Administration should:

- ✔ Invest in advancing IT modernization in federal government agencies, and supporting IT modernization at state and local governments.
- ✔ Accelerate adoption of cloud services, and drive innovation in cloud security policies and practices.
- ✔ Expand open data policies, including international agreements, to accelerate development to AI-driven security tools.
- ✔ Strengthen R&D efforts for securing quantum computing environments.
- ✔ Integrate security best practices for 5G, IoT, and other areas into smart city security requirements.

5 Organizing the Government to Combat Cyber Threats

Global cybersecurity benefits from strong US government leadership, and such leadership demands an agile, coherent organizational structure to unite the interagency toward common objectives. The incoming Administration should:

- ✔ Continue to empower, with both new resources and improved authorities, the Cybersecurity and Infrastructure Security Agency (CISA) at the Department of Homeland Security as the focal point of domestic cybersecurity leadership.
- ✔ Establish a National Cybersecurity Coordinator to lead interagency cybersecurity initiatives.
- ✔ Appoint an ambassador-level official to lead a dedicated cybersecurity bureau at the Department of State.



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Priorities in Open Data

From climate change to global health pandemics, tackling today's most pressing challenges requires data-driven responses. Positioning the United States to reap the full benefits and opportunities of the 21st century data economy depends on policies that facilitate greater sharing, collaboration, and experimentation with data resources while protecting privacy. BSA's [Open Data Agenda](#) identifies opportunities to enhance the collective benefits of data through policies that:

1

Enhance Access
to High-Value
Government Data

2

Make it Easier for
Organizations to Voluntarily
Share Their Own Data

3

Promote the Development
and Use of Privacy-
Enhancing Technologies

1 Open Government Data

Agencies collect and generate vast quantities of data at the federal and state level, which offer unique insights into virtually every facet of the modern world, from satellite imagery that can help predict the weather to transportation data that can help reduce traffic congestion. Collaboration around "open data"—i.e., non-sensitive government data that is made freely available to the public in non-proprietary, machine readable formats via non-restrictive licenses—can [unlock opportunities](#) that spark the economy and fuel job growth in virtually every industry sector. To ensure that federal data is being fully leveraged as a strategic asset, the incoming Administration should work with Congress to:

- ✔ **Fully Implement the OPEN Government Data Act.** Signed into law in January 2019, the OPEN Government Data Act is the cornerstone of federal open data policy. It establishes an "open by default" approach to government data, requiring agencies to make non-sensitive data assets freely available to the public in machine readable formats. Unfortunately, agencies have yet to receive critical

guidance directing them on how they must comply with its key provisions. A recent Government Accountability Office [report](#) warned that incomplete implementation means that "Congress and the public lack key information about the extent to which agencies are meeting their requirements under the act, including whether agencies have made all required data assets open and available to the public."

- ✔ **Appoint a Federal Chief Data Officer.** As the strategic importance of data continues to grow, ensuring that the federal government has the personnel, policies, and resources in place make the most effective use of data is an urgent priority and requires dedicated senior leadership. The incoming Administration should appoint a Chief Data Officer to oversee a whole-of-government approach to data.
- ✔ **Establish a Federal Commission to Enhance Open Government Data.** A federal commission should be established to bring together experts from government, industry and academia to seek out high value and underused government data assets and make those assets available for R&D; identify

opportunities for agencies to improve their uses of data; and recommend best practices for data collection, governance, and licensing.

- ✔ **Promote Interoperability at All Levels of Government.** COVID-19 has demonstrated how timely access to trustworthy and dependable data can be a matter of life and death. Unfortunately, data siloes and inconsistent approaches to data governance continue to hamper these efforts, making them more costly and less effective than they should be. National leadership is needed to promote data interoperability between federal government agencies and across the states.
- ✔ **Support Open Data Trade Commitments.** As data becomes an increasingly important component of the digital economy, trade agreements should include commitments that facilitate access to and use of non-sensitive government data.

2 Promote Industry Data Sharing

Although there is increasing recognition of the collective benefits that data sharing produces, establishing collaborative data sharing arrangements is impeded by regulatory uncertainty and technical challenges. The incoming Administration should work to remove those impediments by:

- ✔ **Establishing expedited regulatory review processes** to clear data sharing arrangements consistent with competition and privacy considerations.
- ✔ **Promoting the development of data sharing tools and best practices** that make it easier and less expensive to share data in ways that are consistent with rigorous privacy expectations.
- ✔ **Share computing and data resources** through public-private partnerships and other incentives.

3 Support Privacy-Enhancing Technologies and Data Governance

Emerging technologies and data governance structures can enable value-added uses of data without compromising the confidentiality of the underlying data. The incoming Administration should:

- ✔ **Leverage emerging technologies to enhance privacy.** A range of emerging technologies, including differential privacy, homomorphic encryption, and federated machine learning can be used to maximize both the value and confidentiality of sensitive information. The incoming Administration should seek out opportunities for leveraging these technologies to enable cutting edge R&D on high-value data.
- ✔ **Encourage innovative data governance structures** such as data trusts, data cooperatives, and data commons that facilitate public and private sharing of data in ways that preserve privacy.



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Priorities in 5G

The United States should seize the opportunity to shape the future of global 5G networks based on software solutions. As BSA's [5G Security Agenda](#) emphasizes, governments must act now to achieve effective, sustainable security. The incoming Administration should:

1

**Harness
Software
Innovation**

2

**Recalibrate
Supply Chain
Policies**

3

**Secure
Software and
the Cloud**

4

**Build Smart,
Effective
Governance**

1 Harness Software Innovation

Unlike previous generations, 5G is a shift to an IT-based system that replaces purpose-build hardware with software running in hyperscale clouds. As such, software solutions can be leveraged to mitigate high-priority risks. Software solutions can create greater flexibility, agility, and supplier diversity; driving innovation and competition in addition to security. The incoming Administration should harness software innovation by:

- ✓ Investing in the development and deployment of Radio Access Network (RAN) technologies that are both software-based (virtualized RAN) and built on open standards and interfaces (open RAN).
- ✓ Enhance research and development (R&D) investments in critical 5G security technologies, including secure network slicing, automated vulnerability screening, AI applications, supply chain management tools, secure open source architectures, and more.
- ✓ Support the deployment and continued development of strong encryption modules, avoiding government access mandates and other policies that could undermine a key technology for securing 5G.

- ✓ Expand efforts—building on work at the National Institute for Standards and Technology (NIST) and elsewhere—to develop zero-trust architectural approaches to securing 5G networks.

2 Recalibrate Supply Chain Policies

Threats to hardware and software supply chains have emerged as a priority for securing 5G networks. Supply chain risk management policies are most effective when they respond to clearly identified risks and establish fair, transparent, and collaborative processes to mitigate that risk. Unfortunately, some recent policy measures have fallen short of these goals, targeting overbroad categories of products or failing to communicate information about risk and process to the public. The incoming Administration needs to recalibrate the US approach to supply chain risk management. Specifically, it should:

- ✓ Lead multilateral coalitions to advance shared, standards-based supply chain risk management policies consistent with international obligations.
- ✓ Amend Executive Order 13873 to narrow government intervention in private-sector supply chains, focusing on mitigating specific and demonstrable risk in a transparent manner.

- ✔ Work with Congress to build consistent, transparent approaches to supply chain risk management that establish common approaches across government agencies, prioritize regulation based on risk, provide clear guidance on compliance, and offer affected vendors mechanisms to remediate supply chain concerns.

For more on supply chain issues, please see [BSA's Principles for Supply Chain Risk Management](#).

3 Secure Software and the Cloud

Cloud services will play a central role in the 5G network architecture from core operating services to edge computing environments. Cloud infrastructure will drive many of the security benefits of 5G, including enabling rapid deployment of mitigations, dynamic assignment of compute resources to meet security and resource demands, and greater overall network resilience. Fully capitalizing on these benefits will require secure and trustworthy cloud environments. Likewise, because 5G and cloud services are largely software-based, 5G networks will not be secure without greater software assurance. The incoming Administration should:

- ✔ Reinvigorate US leadership to advance development of internationally recognized standards for cloud security, and promote standards-based, harmonized policy approaches globally.
- ✔ Modernize FedRAMP and other US government cloud policies to more deeply integrate agile, risk-based approaches to cloud security that leverage continuous monitoring and automation to improve both efficiency and security outcomes.
- ✔ Leverage tools like the [BSA Framework for Secure Software](#) and the recently-published NIST [Secure Software Development Framework](#) to incentivize smart software purchasing decisions in the government and beyond.

4 Build Smart, Effective Governance

Strong security controls and technical measures rely upon effective 5G governance, particularly regarding the technical standards that underpin 5G development around the world. To realize the potential of 5G's built-in security advantages, and to ensure the US government is well-prepared to guide and respond to evolving 5G security priorities, the incoming Administration should:

- ✔ Substantially increase US government participation in international standards development, prioritizing development of open standards and interfaces for 5G.
- ✔ Strengthen the US *National Strategy to Secure 5G* by identifying resources for key priorities and embracing software innovation as a core element of 5G security.
- ✔ Conduct a government-wide review of 5G governance, agency roles and responsibilities, and coordination mechanisms to ensure consistency and coherence across the US government.
- ✔ Ensure that government mechanisms for stakeholder engagement include stakeholders that reflect 5G's evolution to a largely software- and cloud-based architecture.



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Priorities in US-China Technology, Trade, and Security

The US is engaged in parallel processes to reevaluate both the trade and the national security implications of the US-China relationship. On the trade front, the US is seeking to rebalance a relationship long distorted by a variety of Chinese industrial policies. From a national security perspective, the US seeks to ensure that it retains a competitive advantage in the development of sensitive technologies by controlling the outflow of technologies. As the incoming Administration works to advance these important objectives, BSA urges it to:

Develop Distinct Trade and National Security Strategies

Although technology is central to both the trade and national security concerns at issue in the US-China relationship, addressing them effectively will require two separate strategies. The Executive Branch has diverse tools to address trade policy priorities (e.g., international negotiations, trade enforcement) and wide-ranging authorities to safeguard US national security interests (e.g., sanctions, export controls). However, the tools should be kept distinct. For example, the effectiveness of those national security tools is undermined if they are deployed in a manner that is perceived as an effort to advance economic interests rather than national security interests.

Strengthen Strategic Relationships

In both the security and trade arenas, the United States should coordinate closely with allies in responding to distortive Chinese trade and technology practices. Deepening US participation in regional trade, technology, and security cooperative mechanisms and increased bilateral cooperation with key partners are critical to a forward-looking and clear-eyed strategy on economic, technology, and security priorities for the digital 21st century.

Ensure That Security Controls Enhance US Technological Leadership and Security

The United States must develop a comprehensive security strategy related to the export and import of sensitive technologies. Because the long-term national security interests of the United States are enhanced by US industry leadership in the development of the technologies of tomorrow, such a strategy must ensure that controls are designed carefully. As the incoming Administration develops its technology control strategy, we encourage it to:

- ✔ **Narrowly Tailor Export Controls.** As the incoming Administration undertakes the important work of implementing the Export Control Reform Act, it should ensure that new controls on “**emerging**” and “**foundational**” technologies are narrowly tailored to avoid undermining US technological leadership. Technologies that are available from foreign competitors should not be subject to unilateral export controls. We also encourage that Commerce focus controls on end uses and users of concern rather than broad technology segments and explore ways to use technology to make controls easier to implement.
- ✔ **Reevaluate Recent Changes to the Military End Use/User Rule.** Recent amendments to the Export Administration Regulation’s “military end use/user”

rule should be reassessed. The revised rule is overbroad and ambiguous, restricting exports of widely available commercial software that presents no threat to US national security and creating complex challenges for companies seeking to comply with the rule. These changes will not appreciably advance the national security consideration that gave rise to the rule, but they will have a detrimental impact on the competitiveness of the US commercial software industry.

- ✔ **Clarify the Executive Order on Supply Chain Security.** Effectively safeguarding the US information and communications technology (“ICT”) supply chain requires risk-based policies that are clear, predictable, and enforceable. The proposed rule for implementing the Trump Administration’s Executive Order on Securing the ICT Supply Chain sets out a framework that is [subjective](#), reliant on opaque processes, and lacking in meaningful safeguards. Accordingly, the Executive Order is likely to have only a marginal impact on improving supply chain security, while severely constraining US companies’ ability to innovate and lead in the future.

Embrace a “Run Faster” Strategy

A strategy that focuses only on blocking access to US technology will do little to preserve the United States’ position as the preeminent technological superpower. To strengthen the US innovation base, the incoming Administration should pursue a comprehensive strategy that includes:

- ✔ **Coalition Building and Coordination with US Allies.** Rebalancing the trade relationship with China and addressing the longer-term national security objectives will both require close coordination with US allies.
- ✔ **Investing in Long-Term US Innovation.** US investments in R&D have played a critical role in the development of fundamental technologies, from the microprocessor to the internet, that have helped launch entire new industries and establish America as the hub for global innovation. However, at a time when our global competitors are ramping up their investments in R&D, US spending on R&D as a percentage of GDP has steadily declined since 1976. The incoming Administration should develop a long-term strategy for ramping up investments in fundamental research that will be critical to strategically important technologies, such as AI.
- ✔ **Growing the High-Tech Workforce.** Global competition to train and recruit the next generation of tech talent is fierce. There are worrying signs that the US is falling behind. The US Bureau of Labor Statistics estimates that one million computer programming jobs in the United States went unfilled in 2020. Unfortunately, the number of students seeking computer science degrees is growing at ten times the rate of the tenure-track faculty that are needed to train them. Solving the high-tech workforce shortage will require an “all of the above” strategy that includes investments in K–12 STEM education, an examination of how to address the shortage of PhD-level experts graduating from US institutions, and an expansion of “non-traditional” graduate programs. The United States must also take steps to ensure that it remains the most lucrative market for foreign talent by expanding the opportunities available for high-skilled immigration.
- ✔ **Spurring Demand for Leading Technology.** Government can also bolster the US innovation ecosystem by using appropriations to send a powerful demand signal to industry. The US should invest in modernizing federal IT systems—not only because they are “unwieldy and out-of-date”—but because doing so will help US companies reinvest in R&D that will keep them on the cutting-edge. In addition, the United States should examine policy opportunities for creating commercial incentives that can encourage the development and adoption of emerging technologies that are certain to play a foundational role in the digital 21st century.



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Priorities in Intellectual Property

The software industry is a profound driver of the US economy, adding more than \$1.6 trillion in GDP and supporting 14 million high-paying jobs. A well-functioning intellectual property (IP) system—with protection for patents, copyrights, trademarks, and trade secrets—provides software developers indispensable incentives to invest and apply their creative and inventive energies to innovate. Such innovation requires a predictable and well-functioning IP system that encourages investments in R&D and commercialization while maintaining key flexibilities and safeguards to prevent abuse.

Preserve Copyright Certainty

BSA members rely on copyright protection to make their software-enabled products and services available to customers through flexible licensing options. The Copyright Act has provided a steady foundation that has served as a launching pad for the world's most creative companies. The US copyright system is the envy of the world, striking a balance between core substantive protections and important flexibilities that have made it incredibly adaptive in the face of immense technological changes. We urge the incoming Administration to:

- ✔ **Preserve the Section 512 Notice-and-Takedown Framework.** As publishers of high-value software, BSA members depend on the Digital Millennium Copyright Act's (DMCA) takedown provisions to defend against unlicensed uses of their works. As providers of innovative online services, BSA members rely on the DMCA's limitations on liability to process high volumes of sensitive customer data. The DMCA's balanced framework has played a key role in catalyzing the explosive growth of the internet as a medium for free expression and digital commerce. Although much has changed since Congress enacted the DMCA in 1998, the structural framework embodied in the statute remains fundamentally sound.

- ✔ **Promote International Harmonization.**

The competitiveness of US innovators in the globalized economy is buoyed by policies that create as much certainty as possible for the creation and commercialization of their works. To help create certainty for US innovators, the incoming Administration should engage with our trading partners to promote alignment with the US framework for IP protection. Engagement should promote both the core substantive protections afforded by US copyright law as well as the [critical flexibilities](#) that have been integral to the development of digital technologies, such as artificial intelligence.

Prioritize Patent Quality and Innovation

BSA members are among the nation's leading technology companies, producing much of the hardware and software that power computer and telecommunication networks. BSA members invest heavily in R&D and rely on intellectual property for the viability of their business, depending on a patent system that does not discriminate by technology. BSA members hold hundreds of thousands of patents and account for more than half of all US patents issued to the top 10 patent grantees every

year. The software industry accounts for \$83 billion in annual US R&D investments and 22 percent of total US private sector R&D expenditures. At the same time, due to the complexity and commercial success of their products, these companies are frequently the subject of patent infringement claims. Frivolous patent litigation claims from non-practicing entities represent a significant expense that diverts resources away from investments in R&D and inventive activity. We urge the incoming Administration to:

- ✔ **Nominate a Director of the US Patent and Trademark Office (USPTO) Who Appreciates the Different Perspectives on the Patent System.** The Director sets the priorities for the USPTO and should focus on patent quality and the efficiency of the USPTO, rather than promoting maximalist or minimalist views on patents. The key to promoting innovation is a predictable and well-functioning patent system that rewards innovators without fostering an environment in which a small number of actors can abuse the system to the detriment of responsible market participants and the economy at large.
- ✔ **Strengthen Opportunities for American Innovation to Underrepresented Groups.** The United States should encourage, empower, and support all future innovators, including by maintaining the National Council for Expanding American Innovation (NCEAI), which is grounded in USPTO's 2018 SUCCESS Act report. That report found that women and minorities are underrepresented as inventors named on U.S.-granted patents. The council, which includes BSA member companies, is actively working on a national strategy for increased participation from underrepresented groups.
- ✔ **Streamline USPTO Operations.** BSA supports efforts to improve patent quality, provide clear guidance to patent examiners regarding applicable legal standards, and increase the consistency and predictability of decision-making at the USPTO.
- ✔ **Support Effective Use of Post-Issuance Processes.** The incoming Administration should ensure the Patent Trial and Appeal Board (PTAB) serves its intended function of improving the quality of patents in the system by removing claims that should not have been allowed. The USPTO should not make changes that would undermine the PTAB's effectiveness or the effectiveness of Inter Partes Review (IPR) and Post Grant Review (PGR) proceedings.
- ✔ **Modernize USPTO Infrastructure.** BSA supports USPTO plans to modernize the USPTO's Information Technology (IT) infrastructure, and to enhance USPTO's use of machine learning technologies to improve the effectiveness of patent examination procedures.



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