



**Hearing on**

**White House Policy on AI**

**House Committee on Oversight and Accountability  
Subcommittee on Cybersecurity, Information Technology, and Government Innovation**

**December 6, 2023, at 2:00 p.m.  
Rayburn House Office Building  
Washington, D.C.**

**Testimony of Kate Goodloe  
Managing Director  
BSA | The Software Alliance**

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Good afternoon Chairwoman Mace, Ranking Member Connolly, and members of the Subcommittee. My name is Kate Goodloe, and I am Managing Director at BSA | The Software Alliance.

BSA is the leading advocate for the global enterprise software industry.<sup>1</sup> Our members are at the forefront of developing cutting-edge services — including AI — that are used by businesses in every sector of the economy and by agencies across the federal government. I commend the Subcommittee for convening today’s hearing and thank you for the opportunity to testify.

The United States needs a strong, clear, and thoughtful approach to AI policy. US companies are at the leading edge of developing and using AI technologies, as businesses of all sizes and in all industries leverage digital tools including AI to improve safety and competitiveness. The US Government must also be a leader in promoting the responsible development and deployment of AI. The United States’ AI policy should promote responsible and trusted uses of AI, including enabling beneficial government uses of AI that help agencies work more effectively and efficiently in serving all Americans.

Congress and the Administration both have important roles in developing the United States’ AI policy. Although the October 30, 2023, Executive Order takes an ambitious whole-of-government approach to addressing risks and benefits of AI, it does not replace the need for Congressional action. BSA has supported legislative efforts to promote consistent AI risk management across federal agencies, and we have also called for legislation to place new guardrails on companies that develop and use high-risk AI systems. While the adoption of AI can unquestionably be a force for good, it can also create real risks if not developed and deployed responsibly. AI policy should protect individuals from harm, create durable safeguards that promote trust in AI technologies, enable the government to benefit from AI technologies, and position the US as a leading voice in the global approach to responsible AI.

The benefits of getting AI policy right are significant, including to ensure the US Government can procure and use AI tools like cybersecurity products that protect agencies’ networks and data. Federal agencies are frequent targets for malicious hackers, who seek both confidential government information and scores of personal data that citizens provide to agencies, such as passport information, tax records, and health documents. AI-powered cybersecurity tools can protect against breaches of that information by quickly recognizing potential attacks not only

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<sup>1</sup> BSA’s members include: Adobe, Alteryx, Asana, Atlassian, Autodesk, Bentley Systems, Box, Cisco, CNC/Mastercam, Databricks, DocuSign, Dropbox, Elastic, Graphisoft, Hubspot, IBM, Informatca, Juniper Networks, Kyndryl, MathWorks, Microsoft, Okta, Oracle, Palo Alto Networks, Prokon, Rubrik, Salesforce, SAP, ServiceNow, Shopify Inc., Siemens Industry Software Inc., Splunk, Trend Micro, Trimble Solutions Corporation, TriNet, Twilio, Unity Technologies, Inc., Workday, Zendesk, and Zoom Video Communications, Inc.

when they match previously-identified attack patterns but also when attacks are based on never-before-seen anomalous behavior. AI-powered cyber tools can reduce the time it takes to respond to a threat from days to mere seconds — denying bad actors the time they need to compromise an agency’s system or exfiltrate its data. A strong, thoughtful AI policy should encourage adoption of these low-risk uses of AI, which present significant benefits to agencies and individuals.

## I. **The Executive Order Takes an Ambitious Whole-of-Government Approach to AI.**

Just as AI is used by companies across every sector of the US economy, AI is also used and regulated by a range of different agencies within the federal government.

On October 30, 2023, President Joseph Biden issued an Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence (Executive Order),<sup>2</sup> to address how federal agencies regulate, use, and purchase AI. To do that, the Executive Order tasks more than 40 federal entities with drafting reports, creating studies, conducting consultations, launching pilot programs, and developing rulemakings, among other actions. The details of implementing these obligations will matter, and we encourage the Administration to consult closely with stakeholders, including industry, to ensure these requirements work in practice and are implemented in a manner that does not undermine the Executive Order’s goals.

The Executive Order takes a range of positive steps to advance responsible AI, including:

- **Promoting the AI Risk Management Framework (AI RMF) developed by the National Institute of Standards and Technology (NIST)**, including using the AI RMF as the basis for new critical infrastructure obligations, supporting internationalization of the AI RMF, and creating a new companion to the AI RMF on generative AI.
- **Recognizing the importance of AI in cyber defense**, including by using AI to detect and remediate vulnerabilities in critical government software, systems, and networks.
- **Launching a pilot program to implement the National AI Research Resource (NAIRR)**, which will provide researchers with compute power and training resources.
- **Recognizing the importance of content authenticity**, including through a report on existing tools and best practices for authenticating content and tracking its provenance.
- **Promoting coordinated enforcement of civil rights statutes across agencies**, to prevent and address unlawful discrimination.
- **Recognizing the importance of an AI-ready federal workforce**, including calling for a surge in government hiring for AI-related workers.
- **Establishing a new White House AI Council**, to coordinate across the Administration.
- **Emphasizing the importance of international collaboration on AI policy**, including promoting voluntary commitments made by US companies and prioritizing global engagement in international standards-setting bodies that are developing AI standards.

Other parts of the Executive Order create notable and important obligations. The effects of these provisions will depend on their implementation. I’ll give two examples:

- **New reporting requirements.** The Executive Order invokes the Defense Production Act to create new reporting obligations for two types of companies:

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<sup>2</sup> Executive Order 14110 (Oct. 30, 2023), *available at* <https://www.govinfo.gov/content/pkg/FR-2023-11-01/pdf/2023-24283.pdf>.

- *Companies that either develop or demonstrate an intent to develop certain “potential dual-use foundation models”* must report information about the training, development or production of those models, the ownership and possession of model weights, physical and cybersecurity measures taken to protect model weights, and the results of any red-team testing, among other information.<sup>3</sup>
- *Companies, individuals, or other entities that acquire, develop, or possess a “potential large-scale computing cluster”* must report such an acquisition or possession, including the existence and location of the clusters and their total computing power.
- **New know-your-customer obligations.**<sup>4</sup> The Executive Order creates new obligations on US Infrastructure as a Service (IaaS) Providers, which must:
  - Report to Commerce when a foreign person transacts with the provider to train an AI model with capabilities that could be used in malicious cyber activities;
  - Require *foreign resellers* to report such transactions to the US IaaS Provider, which must then report it to Commerce; and
  - Require *foreign resellers* to verify the identity of a foreign person who opens an account or maintains an existing account with a foreign reseller, and to maintain certain records about foreign persons with accounts.

**The Executive Order also contains new rules around government use and procurement of AI.** It requires the Office of Management and Budget (OMB) to issue guidance on how federal agencies use and procure AI systems. Under OMB’s draft guidance, published on Nov. 1, 2023,<sup>5</sup> federal agencies must:

- Designate a Chief AI Officer, who will lead the agency’s AI governance work;
- Develop an enterprise AI strategy, to reduce barriers to the responsible use of AI and increase the agency’s capacity to adopt AI successfully and responsibly;
- Follow minimum practices when using rights-impacting and safety-impacting AI; and
- Apply these practices to AI systems procured from private companies.

More broadly, the Executive Order creates a wide range of processes and requirements that will affect how AI is used both inside and outside the federal government. For example:

- *Employers* are focused on new principles and best practices to be developed by the Department of Labor, addressing how to mitigate AI’s harms to employees.
- *Open source AI models* will be the subject of both a stakeholder consultation by the Department of Commerce and a report to the President.
- *Intellectual property laws’* application to AI will be addressed in guidance from the US Patent and Trademark Office.

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<sup>3</sup> Notably, the reporting requirement only applies to dual-use foundation models trained on a specific amount of computing power. The Executive Order sets that threshold at a level that we understand no current model meets. The reporting requirement has therefore been described as forward-looking.

<sup>4</sup> These obligations will be established through new regulations by the Department of Commerce.

<sup>5</sup> Office of Management and Budget, Request for Comments on Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence Draft Memorandum, *available at* <https://www.govinfo.gov/content/pkg/FR-2023-11-03/pdf/2023-24269.pdf>. BSA’s recommendations on OMB’s draft guidance are contained in Section V of this testimony.

- *Government benefits programs* administered by the Department of Health and Human Services and the Department of Agriculture will be subject to new guidance on the use of automated systems.
- *Guidance for evaluating AI capabilities* will be the focus of a new NIST initiative.
- *Federal workers' use of generative AI* will be subject to new guidance from the Office of Personnel Management.
- *Secure development practices* for generative AI and dual-use foundation models will be addressed in new NIST guidance.

Many of the new policies, rulemakings, guidance documents, and reports launched by the Executive Order will begin taking shape early next year. By mid-January, the Department of Commerce is to implement aspects of the new reporting requirements and know-your-customer obligations. Other actions will soon follow. The impact of the Executive Order will become clearer as these tasks are completed.

## II. Congressional Action on AI Is Still Needed.

Although the Executive Order takes a broad approach to setting AI policy, it does not replace the importance of Congressional action. Congress should play a leading role in setting the United States' AI policy, in at least two ways.

First, Congress can create durable and consistent rules that harmonize the United States Government's approach to using and procuring AI systems. BSA has supported legislative efforts that promote the consistent use of risk management practices across federal agencies in high-risk use cases. For example, there has been growing interest within Congress for using the AI RMF to create procurement rules that set a government-wide approach to responsible uses of AI. BSA supports these efforts.<sup>6</sup> Incorporating the AI RMF as a key pillar of procurement for high-risk uses of AI would help to establish the US government as a market leader on responsible AI. It would also embrace best practices for managing AI risks, for both government agencies and federal contractors.

Second, Congress should enact legislation that places new guardrails on private sector companies that develop and use high-risk AI systems. We have urged Congress to enact legislation that requires such companies to: (1) establish risk management programs to identify and mitigate risks across AI systems; (2) conduct annual impact assessments for high-risk uses of AI, and (3) publicly certify that they have met these requirements.<sup>7</sup> These obligations can ensure that companies developing and using AI in high-risk situations understand how the tools they create or use may result in unintended outcomes, and take action to mitigate those risks.

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<sup>6</sup> Shaundra Watson, *Momentum Builds in Congress for Using NIST AI RMF in Procurement to Set Rules for Responsible AI*, BSA Techpost (July 27, 2023), *available at* <https://techpost.bsa.org/2023/07/27/momentum-builds-in-congress-for-using-nist-ai-rmf-in-procurement-to-set-rules-for-responsible-ai>.

<sup>7</sup> Testimony of Victoria Espinel, *Hearing on the Need for Transparency in Artificial Intelligence*, before the Senate Committee on Commerce, Science & Transportation Subcommittee on Consumer Protection, Product Safety, and Data Security (Sept. 12, 2023), *available at* <https://www.bsa.org/files/policy-filings/09122023aitestimony.pdf>; Testimony of Victoria Espinel, *Hearing on Safeguarding Data and Innovation: Building the Foundation for the Use of Artificial Intelligence*, before the House Committee on Energy and Commerce Subcommittee on Innovation, Data, and Commerce (Oct. 18, 2023), *available at* [https://www.bsa.org/files/policy-filings/bsa\\_house\\_energy\\_and\\_commerce\\_testimony-final.pdf](https://www.bsa.org/files/policy-filings/bsa_house_energy_and_commerce_testimony-final.pdf).

Congressional action on AI is important to create consistent, long-lasting, harmonized rules that promote trust in AI technologies.

### **III. AI Policies Should Be Anchored in Risk Management Programs.**

The US Government should adopt AI policies aimed at identifying and mitigating risks associated with AI systems. BSA supports legislation that focuses on high-risk AI systems, and we believe legislation should require organizations to adopt risk management programs.

Risk management programs establish repeatable processes for identifying and mitigating risks that can arise throughout the lifecycle of an AI system. Risk management is particularly important in contexts like AI, privacy, and cybersecurity, where the combination of quickly evolving technologies and highly dynamic threat landscapes can render traditional compliance approaches ineffective. Rather than evaluating a product or service against a static set of requirements that can rapidly become outdated, risk management programs integrate compliance responsibilities into the development process to help identify and mitigate risks throughout a product or service's lifecycle.

BSA has recognized the importance of risk management in AI for many years. In 2021, we released the BSA Framework to Build Trust in AI,<sup>8</sup> which was the result of a year-long project working with member companies to identify concrete, actionable ways for organizations to address AI risks. The BSA Framework sets out a lifecycle-based approach for performing impact assessments to identify risks and highlights best practices for mitigating risks. In our view, impact assessments are a key aspect of risk management, enabling companies to identify risks associated with an AI system and document actions taken to mitigate those risks.<sup>9</sup>

Earlier this year, NIST released its AI RMF, a voluntary resource to help organizations designing, developing, deploying, or using AI systems to manage the risks of AI and promote the trustworthy and responsible development and use of AI systems.<sup>10</sup> The AI RMF is built around four core functions: governing, mapping, measuring, and managing risks of AI systems. Creating the AI RMF was a significant achievement, and it builds on NIST's development of frameworks for managing cybersecurity and privacy risks. For example, the NIST Cybersecurity Framework (CSF) is widely used by private and public-sector organizations worldwide; since 2017, it has been mandatory for federal agencies to use the CSF to improve their cybersecurity risk management programs.<sup>11</sup> One significant benefit of the AI RMF is that it creates a common approach — and common language — for AI risk management. As a result, companies, agencies, and others using the AI RMF will adopt risk management programs that align with each other, helping to more effectively coordinate risk management across organizations.

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<sup>8</sup> See *Confronting Bias: BSA's Framework to Build Trust in AI* (June 2021), *available at* <https://www.bsa.org/reports/confronting-bias-bsas-framework-to-build-trust-in-ai>. BSA has testified before the United States Congress and the European Parliament on the Framework.

<sup>9</sup> See BSA, *Impact Assessments: A Key Part of AI Accountability*, *available at* <https://www.bsa.org/files/policy-filings/08012023impactassess.pdf>.

<sup>10</sup> NIST AI Risk Management Framework, *available at* <https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf>.

<sup>11</sup> See NIST, *Cybersecurity Framework, Questions and Answers*, (discussing federal agency use of the NIST CSF), *available at* <https://www.nist.gov/cyberframework/frequently-asked-questions/framework-basics#agency>.

Risk management programs, like those based on the AI RMF, should anchor the United States' approach to AI policy.

#### **IV. The US Government Should Comprehensively Address the Procurement and Use of AI Systems.**

The US Government should support a comprehensive approach to identifying and managing risks associated with AI systems. While the Executive Order creates new obligations for federal agencies' use of AI systems and new requirements for the US Government's procurement of AI systems, the Executive Order is only one part of a quickly changing regulatory environment.

There are at least six ongoing regulatory actions revising the rules for selling IT products, including AI, to the federal government. These include:

- The Executive Order, which requires OMB to issue guidance for how federal agencies use AI systems and new requirements for procuring AI systems;
- Revisions to FedRAMP, which are designed to update the purpose, scope, and governance structure of the program;
- Updates to three sets of rules under the Federal Acquisition Regulation, including rules on: (1) cyber threats and incident reporting, (2) standardizing cybersecurity requirements for unclassified systems, and (3) regulations on the Federal Acquisition Security Council.
- The pending release of the Department of Defense Cybersecurity Maturity Model Certification (CMMC) 2.0 will streamline current cybersecurity requirements for companies selling to the Defense Department, while aligning those requirements with NIST cybersecurity standards.

These activities have the potential to create seismic changes for companies that sell AI-related technologies to the federal government. Yet each change appears to be occurring in isolation, without accounting for the effect each action may have on other regulatory proposals. Nor are these actions sequenced to allow for agencies to address the potential for cascading changes.

For companies selling to the federal government, one change to the contracting rules can require revisiting not only current and proposed contract terms but how the underlying product is provided and maintained. With six changes occurring at once, contractors may be required to make significant changes to affected products and contracts while the ground is still shifting.

In our view, OMB is well-positioned to unify these efforts, in consultation with stakeholders. Because OMB is creating guidance to implement the Executive Order, leading the revisions to FedRAMP, and chairs the FAR Council, it has visibility across these multiple actions. Unifying these separate efforts can help the Government better consider their intertwined changes, and help to avoid unintended consequences, including further pushing out vendors on which the federal government relies.

#### **V. OMB Can Refine its Guidance to Better Promote the Responsible Use of AI by Federal Agencies.**

Under the Executive Order, OMB is required to issue guidance on the federal government's use of AI and its procurement of AI systems. OMB issued a draft of that guidance on Nov. 1, focusing on important objectives including strengthening federal agencies' AI governance

practices, removing barriers to agencies' adoption of AI, and identifying minimum risk management practices for rights-impacting AI and safety-impacting AI.

While we think the OMB guidance can be improved, it is significant that OMB takes a risk-based approach to AI policy and is focused on facilitating the government's responsible use of AI. For example, the OMB memo requires agencies to designate a chief AI officer, which is an important step in promoting strong AI governance. It also directs agencies to develop an enterprise strategy for identifying and removing barriers to the responsible use of AI, such as potentially inadequate IT infrastructure, the capacity to curate agency datasets, and the need to fill gaps in AI talent. In addition to these issues, we recommend agencies' AI strategies encourage access to multi-cloud environments and expand open and secure access to federal data, which can be a powerful engine in enabling innovation in AI-related technologies.

To better promote the responsible use of AI by federal agencies, BSA also recommends that OMB revise the draft guidance in several ways, including:

- **Revising the agency's approach to identifying high-risk uses of AI.** We strongly recommend OMB ensure there are uniform definitions of rights-impacting and safety-impacting AI across federal agencies. In our view, those definitions should focus on activities that result in consequential decisions about individuals.
- **Further encouraging use of the AI RMF.** The AI RMF can create a comprehensive approach for agencies to adopt common risk management practices, and we strongly recommend OMB better utilize this important resource, which was developed at the direction of Congress.<sup>12</sup> Anchoring agencies' required minimum practices in the AI RMF would avoid the fragmented approach to AI governance created by the OMB memo, by recognizing a common language for agencies to assess their AI management activities.
- **Refine the minimum required practices for rights-impacting and safety-impacting AI.** While many of these practices are important aspects of risk management, including the requirement to conduct impact assessments, we recommend the required practices recognize that an agency's impact assessment should reflect its role in obtaining and using the AI system at issue. In addition, the documentation requirements should be revised to account for potential privacy, trade secrets, and intellectual property concerns.
- **Extend the timeline for agency implementation.** Under OMB's draft guidance, agencies must implement the minimum risk practices by August 1, 2024, or stop using an AI system. Given the complexity of these issues, we strongly recommend agencies be given more time.
- **Improve procurement recommendations, by standardizing practices across agencies.** The procurement section of OMB's draft guidance takes an agency-by-agency approach to procuring AI systems, including by requiring agencies to include

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<sup>12</sup> See National AI Initiative Act of 2020 (passed as Division E of 2021 NDAA), Public Law 116-283, Sec. 5301 (requiring NIST to develop a voluntary risk management framework for trustworthy AI systems).



“tailored risk management requirements” in contracts. We recommend standardizing procurement requirements across agencies, to better ensure effective adoption.

These changes can help the OMB guidance better promote the responsible adoption, use, and procurement of AI systems across federal agencies.

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We appreciate this Committee’s leadership on the important policy issues raised by AI. Thank you and I look forward to your questions.

## **Annex: AI In Every Sector**

### **Improving Healthcare and Quality of Life**

The rapid digitalization of health information has created tremendous opportunities for AI to transform how clinicians care for patients, how consumers manage their health, and how researchers discover breakthroughs in the treatment and prevention of diseases.

#### **Helping Pharmacies Redistribute Medication and Provide Personalized Advice to Patients**

Walgreens uses the Databricks Lakehouse platform to run an intelligent data platform incorporating AI to forecast demand and redistribute medications across Walgreens' network of nearly 9,000 pharmacies, while delivering near real-time insights and recommendations for pharmacists to help provide more personalized advice to patients. This integrated AI-driven platform allows Walgreens' different data teams to work better together, create smarter algorithms and generate new types of reporting to help managers understand the supply chain, store labor and productivity, patient vaccine scheduling, and prescription pickup processes.

#### **Advancing Accessibility**

For people with visual impairments, AI is turning the visual world into an audible experience. Microsoft's Seeing AI app helps people who are blind or visually impaired recognize objects, people, and text via a phone or tablet's camera and describes what it recognizes to the user. With this new layer of information, users can navigate the world more independently.

### **Strengthening Security**

Although data security is core to the management of most organizations, cyber threats continue to evolve at a breakneck pace. AI helps organizations stay a step ahead of hackers by predicting potential attacks, mitigating attacks in real-time, managing access to resources, and encrypting sensitive data.

#### **Enabling Fast Action Against Security Threats**

Palo Alto Networks' AI-driven Security Operations Center automation engine, XSIAM, is delivering never-before-seen cybersecurity outcomes. The company's own instance of this tool ingests 36 billion events every day from across all network layers and attack surfaces and triages just 8 of those for human analysis. This empowers their most precious resources — people — to focus on the most sophisticated attacks that uniquely require human analysis. Importantly, this AI-driven tool has reduced overall Mean Time to Detection (MTTD) to 10 seconds and Mean Time to Response (MTTR) to one minute for high priority incidents. This more resilient and automated cyber future would not be possible without AI.

#### **Protecting Business Transactions**

Splunk is helping financial institutions to leverage AI and data analytics to strengthen their cybersecurity and their ability to serve customers. For example, consumer report and risk scoring provider TransUnion uses data analytics and machine learning capabilities provided by Splunk to monitor customer traffic and transactions. TransUnion monitors and manages customer traffic to its website and detects when unusual activity takes place so it can alert customers about security concerns and ensure seamless customer experiences.

## **Building 21st Century Infrastructure**

Whether it's creating smarter and safer cities by integrating sensors in bridges and highways to monitor their safety or increasing efficiency by cutting travel time and fuel expenses, AI plays an instrumental role in creating an infrastructure designed for the 21st century.

### Optimizing Manufacturing

Generative design tools can optimize the manufacturing process to reduce waste and improve products. Autodesk teamed up with Michigan-based foundry Aristo Cast to develop an ultralightweight aircraft seat frame. The team used generative design, 3D printing, lattice optimization, and investment casting to ultimately create a seat frame that weighs 56% less than typical current models. For a 615-seat Airbus A380 plane, that would mean saving \$100,000 in fuel per year, as well as more than 140,000 fewer tons of carbon in the atmosphere.

### Streamlining Building Projects

Companies are using AI to streamline the building design and construction processes. Bentley Systems has teamed with Hyundai engineering on an AI system that automates design processes for steel and concrete structures, reducing the time needed to create designs and the cost of building a structure.

### Monitoring Vehicle Fleets

Oracle's anomaly detection software uses AI to monitor the operation of complex systems and detect potentially concerning incidents. Transportation and logistics company SS Global LLC uses Oracle's software to monitor their fleet of vehicles and get alerts when there are early signs of potential safety issues. By detecting the early onset of tire baldness and air leaks, the system helps SS Global perform predictive maintenance that keeps its fleet safer and more efficient.

## **Creating New Ways to Learn**

AI applications are enabling personalized learning resources for every stage of life, including adaptive learning programs, digital tutoring, curriculum recommendations, and more. There are more digital resources available to instructors and students than ever before, and AI is affording them the ability to access relevant tools quickly and easily.

### Enriching Math Education

Educators are using IBM's Teacher Advisor With Watson AI to access the math resources they need in seconds, including proven lesson plans, activities, standards information, and teaching strategies for students with varying degrees of preparation and ability. This can save valuable time for teachers throughout the school year.

### Tailoring Workplace Learning

Employers are using Workday Learning, an application that uses machine learning to personalize workplace learning for individuals, to recommend professional development content and courses based on employee position, tenure at the company, interactions with the content,

and other factors. This helps companies adjust learning strategies and programming to ensure employees learn new skills, continue to grow in their roles, and prepare for what's ahead.

## **Enhancing the Customer Experience**

For businesses with large customer bases that are processing a high volume of purchases — such as banks, restaurant chains, and large retailers — analyzing the massive amount of data collected every day is impossible without the computing and predictive power of AI. By using machine learning tools, businesses across a wide range of industries can analyze customer preferences and their own business performance to improve end-user experiences and increase efficiencies. Software also helps businesses generate optimal product designs by using data to produce and analyze far more iterations than humans alone could create.

### Customizing Care Experiences

Powered by Salesforce AI technology, Eli Lilly has reimagined patient care with its Patient Connect Platform app. The app helps customers learn to use products, access information about their medications, and record how well they are feeling. The desktop and mobile apps also allow patients to consult with a healthcare concierge — a specialist who provides one-on-one support to guide patients toward beneficial health outcomes.

### Improving Customer Service Experience

Zendesk is using AI to improve the customer service experience for both customers and the agents that interact with them. Using Zendesk's intelligent triage functionality, a company can automatically detect a customer's intent (for example, whether a customer is making a return or checking on shipping status), the language the customer is using, and the customer's overall sentiment so that the inquiry can be quickly routed to the best agent for the job. Several of Zendesk's business-to-consumer customers are using this Zendesk AI feature to automatically classify and route incoming tickets to the right agents at the right time, which has resulted in higher customer satisfaction and more one-touch tickets.

### Scaling Community Impact

Twilio provides AI chatbot services to help businesses interact with customers. The United Way Worldwide worked with Twilio to help scale and route inbound calls and texts to more than 200 agencies nationwide that use their 211 system to help people locate essential needs like housing, financial assistance, food, childcare, transportation, and more. Using the AI-assisted interactive voice response menu built with Twilio Autopilot, the United Way and Twilio built a system that enables a caller to access a single 1-800 number or be transferred by their local 211 to access assistance. The result is a centralized system that efficiently reduces the call volume nationwide but increases the time staffers are able to devote to mission critical calls.

## **Improving Business Operations**

AI is helping to streamline business operations and increase productivity.

### Enhancing Business Functions

SAP provides chatbot solutions that are seamlessly integrated into other business functions, giving customers, partners, and employees a bird's-eye view of business operations. For example, SAP provides software services to Hewlett Packard Enterprise Company, including an

AI-based chatbot system that can reference serial numbers, packing slips, and shipment dates drawn from cloud services, thereby getting the right information to the right people at the right time.

### Improving Contract Analysis

DocuSign has been helping organizations use AI-based technologies including natural language processing and rules-based logic to manage and analyze agreements for several years now. Using AI-powered contract analysis can increase productivity in the contract process by helping to speed up contract reviews, increase contract visibility, and identify opportunities and risks.

### **Empowering Creativity**

AI and machine learning within Adobe's Creative Cloud tools help artists, photographers, designers, and content creators around the world handle the time-consuming aspects of their work that can easily be automated, so they have more time to be creative. From removing unwanted objects like mics and logos from videos in Adobe After Effects, to colorizing black-and-white photos in just a few clicks in Adobe Photoshop, to painting with digital brushes that look, feel, and act like the real thing in Adobe Fresco, Adobe's AI and machine learning features empower creators to focus their energy on what they love — ideating, experimenting, and creating.

### **Helping in Times of Crisis**

In times of humanitarian crises, fast response is essential. Researchers are developing ways to use AI to help first responders in the critical hours and days after a natural disaster, and to track pathogens that could lead to outbreaks of disease and mitigate the spread.

### Navigating the COVID-19 Pandemic

Siemens' Dynamic VAV Optimization (DVO) is a software solution for building management systems that uses machine learning and AI to configure HVAC controls according to a building's priorities, whether that's minimizing virus transmission or minimizing energy consumption. In direct response to the challenges of the pandemic, DVO was launched with a new operating Defense Mode in late 2020 to reduce the risk of viral spread in indoor spaces. DVO adjusts ventilation, temperature, and humidity conditions to minimize risk of viral spread indoors while also maximizing energy efficiency.

### **Enriching Our Lives**

#### Leveling Up Gaming and Entertainment

AI can be used to create sophisticated 3-D environments and train autonomous characters in our favorite games and movies. Unity's AI products are used to develop video games, animations, and other detailed virtual environments. By training computer-based characters in Unity's software, game designers can create more realistic environments that capture a player's imagination and enhance the gaming experience.