California Department of Technology

DEPARTMENT OF TECHNOLOGY: HIGH-RISK AUTOMATED DECISION SYSTEM: INVENTORY

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Executive Summary

On October 13, 2023, Governor Newsom signed into law Assembly Bill (AB) 302 (Ward). The bill added Section 11546.45.5 to the Government Code (GC), relating to Automated Decision Systems (ADS) also known as Automated Decision-making Systems.

AB 302 requires the California Department of Technology (CDT), in coordination with other interagency bodies, to conduct, on or before September 1, 2024, a comprehensive inventory of all high-risk ADS, as defined, that have been proposed for use, development, or procurement by, or are being used, developed, or procured by, state agencies, as defined. In addition, the bill requires the comprehensive inventory to include a description of, among other things, the categories of data and personal information the ADS uses to make its decisions.

On or before January 1, 2025, and annually thereafter, the bill requires CDT to submit a report of the above-described comprehensive inventory to specified committees of the Legislature.

In accordance with GC 11546.45.5, CDT has taken the following actions to obtain a comprehensive inventory and to compile this report. CDT created a master list of 204 State agencies to collect the inventory of high-risk ADS. Agency Information Officers (AIOs) and Chief Information Officers (CIOs) for State agencies were emailed instructions on how to submit their inventory to CDT. Additionally, further assistance was offered in the form of follow-up outreach. The inventory was completed, and the results returned as directed before September 1, 2024, with a few state agencies requesting more time.

The result concluded that the inventory submitted to CDT revealed no high-risk ADS being used by State agencies.

High-risk ADS Inventory

As part of the inventory data collection effort, State agencies were provided with the definition of a high-risk ADS on the data collection entry form. GC 11546.45.5(a)(4) defines high-risk ADS as follows:

> *"High-risk automated decision system" means an automated decision system that is used to assist or replace human discretionary decisions that have a legal or similarly significant effect, including decisions that materially impact access to, or approval for, housing or accommodations, education, employment, credit, health care, and criminal justice.*

High-risk ADS Inventory Response Rate

AB 302 defines a "state agency" to mean any of the following: (i) Any state office, department, division, or bureau; (ii) The California State University (CSU); (iii) The Board of Parole Hearings; and (iv) Any board or other professional licensing and regulatory body under the administration or oversight of the Department of Consumer Affairs. AB 302 specifies that a "State agency" does not include the University of California, the Legislature, the judicial branch, or any board, except as specifically provided.

Of the 204 State agencies CDT canvased, 198 provided responses. This represents a 97% response rate. CDT sent weekly email reminders to State agencies leading up to the August 30th reporting deadline. After the deadline expired, CDT sent one more email reminder to State agencies that had not yet provided a response. Notably, 140 of 140 executive departments,19 of 22 constitutional departments, 22 of 24 CSUs, and 17 of 18 independents provided responses.

CDT did not receive responses from the following State agencies that it canvased:

- California State Summer School for the Arts
- California State University, San Marcos
- California State University, East Bay
- Historical Records Advisory Board, California
- Secretary of State
- Uniform Construction Cost Accounting Commission, California

For the State agencies that did not provide a response to the high-risk data collection request, CDT plans to make an Executive level outreach to help ensure future compliance. Please refer to the appendix of this report for a full list of all State agencies canvased.

Findings on State agency use of High-risk ADS

Of the 197 State agencies that provided responses, no State agency reported use of high-risk ADS. Although State agencies did not report high-risk ADS, CDT works with its state agency customers with their ADS, regardless of their risk level. CDT provides consultation for ADS risk assessment. These ADS are defined by GC 11546.45.5(a)(1) as:

> *"Automated decision system" means a computational process derived from machine learning, statistical modeling, data analytics, or artificial intelligence that issues simplified output, including a score, classification, or recommendation, that is used to assist or replace human discretionary decision making and materially impacts natural persons. "Automated decision system" does not include a spam email filter, firewall, antivirus software, identity and access management tools, calculator, database, dataset, or other compilation of data.*

Although there were no high-risk ADS reported and identified, below are some of the considerations and industry best practices to follow when considering an ADS.

ADS Benefits

ADS can offer a wide variety of benefits to State agencies including but not limited to:

- **Workforce Productivity Gains**: ADS can complete routine tasks that previously required human intervention at significantly faster rates. State agencies can accomplish more in less time, reducing operational costs and improving productivity.
- **Workload Scalability and Consistency**: ADS can scale seamlessly to handle workload and data volume increases while maintaining the quality or consistency of decisions.
- **Faster Decision-making**: ADS can rapidly process large volumes of data, analyze trends in real-time, and generate outcomes almost instantaneously. ADS decision-making capabilities are much faster than humans.
- **Data-driven Insights**: Utilizing advanced analytics and machine learning, ADS analyze large volumes of data and produce actionable insights. Among other benefits, actionable insights allow for more informed decisions, improved operational efficiencies, and better business outcomes.
- **Predictive Capabilities**: ADS use machine learning and advanced analytics to analyze large data sets, which allow future trends and needs to be anticipated based on historical data patterns. An example of the useful predictive capabilities of ADS is in the area fraud detection. ADS algorithms and data analysis can identify unusual

patterns and behaviors in user data to detect potentially fraudulent activities before significant losses occur.

ADS Risks

Risks vary based on use cases for ADS, the services of the State agency using ADS, and the specific data privacy requirements of the State agency using ADS, among other factors.

CDT relies on National Institute of Standards and Technology (NIST) risk management best practices and definitions to identify areas risk for ADS. These best practices are considered the government standard for risk mitigation.

- **Validity & Reliability**: According to NIST, validity is the "confirmation through evidence that the requirements for a specific intended use or application have been fulfilled" and reliability is the "ability of an item to perform as required, without failure, for a given time interval, under given conditions." ADS validity and reliability can be adversely affected among other things by outdated static datasets which can lead to less relevant outputs and model degradation overtime.
- **Safety**: Depending on use, ADS can pose significant risks to public safety–whether employed by people with malicious intent, or simply because of a lack of quality controls. Potential safety risks of ADS include misuse in critical applications such as systems affecting housing or accommodations, education, employment, financial credit, health care, or criminal justice.
- **Accountability & Transparency**: Accountability of ADS ensure that the decision-making processes are transparent, fair, and justifiable, with clear responsibility assigned for outcomes and mechanisms in place for reviewing and addressing any potential errors or biases. Transparency reflects the extent to which information about ADS and their output is available to individuals interacting with the system. Transparency is crucial throughout all stages of design, development, use, and maintenance of ADS. ADS without accountability and transparency could lead to confusion and lack of understanding as to how decisions are made and what factors inform such decisions.
- **Security & Resiliency**: Secure ADS can maintain confidentiality, integrity, and availability through protection mechanisms that prevent unauthorized access and use. Resilient ADS can withstand unexpected adverse events or unexpected changes in their environment or use. The increased use of distributed computing has resulted in data security risks being shared across state entities, third parties, ADS vendors, and infrastructure vendors (cloud or hardware providers).
- **Explainability & Interpretability**: Explainability refers to a representation of the mechanisms underlying ADS operation. Interpretability refers to the meaning of ADS

output in the context of their designed functional purposes. Some applications of machine learning, statistical models, and ADS are similar to certain types of conventional AI models such as neural networks, which are black-box algorithms that cannot provide direct explanations for their predictions. Without the ability to explain model predictions and outputs, it becomes more difficult to address cases where this technology produces an unexpected result that impacts the validity and consistency of the answers. There is ongoing research throughout the tech industry and academia to gain better explainability capabilities for these types of algorithms.

- **Privacy**: Privacy refers generally to the norms and practices that help to safeguard human autonomy, identity, and dignity. These norms and practices typically address freedom from intrusion, limiting observation, or individuals' agency to consent to disclosure or control of facets of their identities. Some potential privacy risks of ADS are unauthorized data access or usage by users, insufficient data anonymization on training data, and the challenge of erasing personal information embedded within the model features (known as algorithmic disgorgement).
- **Fairness:** Fairness in ADS includes taking steps to ensure equality and equity by addressing issues such as bias and discrimination. Fairness can be adversely impacted if services that rely on ADS are not accessible to all Californians. Fairness can be negatively impacted if ADS do not work the same way or with similar level of accuracy for underrepresented, vulnerable, or protected groups. Such algorithmic discrimination may exacerbate existing social inequities.

ADS Risk Mitigation and Prevention Strategies

While ADS come with risks, there are mitigation and prevention strategies that can be applied to avoid and limit the impact of such risks. Mitigation strategies can be applied individually or in parallel with one another. Selecting a mitigation strategy will vary based on the use cases for ADS, the services of the State agency using ADS, and the specific data privacy requirements of the State agency using ADS, among other things. As ADS continue to evolve, new mitigation strategies will need to be considered.

- **Governance Framework:** Robust governance frameworks can help mitigate the risk of ADS. Some crucial considerations to ensure ADS operate ethically, transparently, and effectively are requirements review and validation, risk assessments, and performance monitoring. The requirements to employ ADS should be analyzed and validated with key questions considered to ensure state interests are met while considering the appropriateness, and the efficiency of ADS. Risk assessments should analyze the risks to the state, state employees, and citizens followed by the development of necessary mitigation plans. Performance monitoring should be put in place to ensure ADS continually meets initial requirements, and risk mitigation is maintained.

- **ADS Acceptable Use Policy**: Creating an Acceptable Use Policy (AUP) for ADS involve establishing clear guidelines and expectations for the ethical and responsible use of these systems. Some key components of an AUP for ADS can include sections for purpose and scope, definitions, user responsibilities, ethical conduct, data protection and privacy, risk management, accountability and transparency, training and awareness, reporting and incident management, consequences of violations, and AUP review and updates. By including these key components, an AUP for ADS ensure that all users understand their responsibilities and understand the importance of using ADS in a manner that is ethical, secure, and aligned with organizational goals and regulatory requirements.
- **Proofs of Concept, Testing, and Minimal Viable Products:** Proofs of concept (PoC) are a relatively low-cost method to evaluate the efficacy of the intended goal of ADS as well as identify potential risks before they become operational. Testing is essential to mitigate ADS risks by identifying errors, and identifying unintended characteristics, such as bias or lack of transparency. A PoC can be used to ensure accuracy and consistent results for different scenarios. Minimal Viable Products (MVP) are the next step in evolving ADS on the path to operations. While a PoC is isolated from state IT infrastructure and uses nonoperational data, an MVP can be used for highly monitored and limited use operationally. MVP ADS can utilize real data, and its decisions can be utilized.

Conclusion

As required by GC 11546.45.5, CDT collected and reviewed data to assemble a high-risk ADS inventory. Of the 198 of 204 State agencies providing responses, no high-risk ADS systems were reported.

CDT is fully committed to its mission to partner with state, local government, and educational entities to advance California's technology and ensure secure, equitable, and reliable solutions through effective policy and oversight, statewide strategies, and innovative services. As such, CDT remains dedicated to ensuring the safe, ethical, and responsible implementation of technologies and as mandated by AB 302, will continue to provide reports to the Legislature and Administration on high-risk ADS systems annually until 2029.

Appendix A

State agency	Survey Response
Achieving a Better Life Experience, California	Yes
Acupuncture Board, California	Yes
Administrative Hearings, Office of	Yes
Administrative Law, Office of	Yes
Aging, Department of	Yes
Alcoholic Beverage Control, Department of	Yes
Apprenticeship Council, California	Yes
Arbitration Certification Program	Yes
Architects Board, California	Yes
Automotive Repair, Bureau of	Yes
Baldwin Hills Conservancy	Yes
Barbering and Cosmetology, Board of	Yes
Behavioral Sciences, Board of	Yes
Biodiversity Council, California	Yes
Board of Accountancy, California	Yes
Board of Equalization, State	Yes
Business, Consumer Services, and Housing Agency	Yes
California African American Museum	Yes
California Alternative Energy & Advanced Transportation Financing Authority	Yes
California Board of Naturopathic Medicine	Yes
California Cultural and Historical Endowment	Yes
California Exposition (Exposition Park)	Yes
California Health and Human Services Agency	Yes
California Highway Patrol	Yes
California Housing Finance Agency	Yes
California Institute for Regenerative Medicine	Yes
California State Auditor's Office	Yes
California State Summer School for the Arts	No
California State University, Bakersfield	Yes
California State University, Chancellor's Office	Yes
California State University, Channel Islands	Yes
California State University, Chico	Yes
California State University, Dominguez Hills	Yes
California State University, Easy Bay	No
California State University, Fresno	Yes
California State University, Fullerton	Yes
California State University, Humboldt	Yes
California State University, Long Beach	Yes

California State University, Los Angeles	Yes
California State University, Maritime Academy	Yes
California State University, Monterey Bay	Yes
California State University, Northridge	Yes
California State University, Pomona	Yes
California State University, Sacramento	Yes
California State University, San Bernadino	Yes
California State University, San Diego - San Diego State	Yes
California State University, San Francisco - San Francisco State	Yes
California State University, San Jose - San Jose State	Yes
California State University, San Luis Obispo	Yes
California State University, San Marcos	No
California State University, Sonoma	Yes
California State University, Stanislaus	Yes
California Surgeon General, Office of the	Yes
California Tax Credit Allocation Committee	Yes
Cannabis Control, Department of	Yes
Cemetery and Funeral Bureau	Yes
Center for Data Insights and Innovation (formerly Health Information Integrity, Office of)	Yes
Child Support Services, Department of	Yes
Chiropractic Examiners, Board of	Yes
Civil Rights Department	Yes
Coachella Valley Mountains Conservancy	Yes
Coastal Commission, California	Yes
Colorado River Board of California	Yes
Commission on State Mandates	Yes
Community Services and Development, Department of	Yes
Conservation Corps, California	Yes
Conservation, Department of	Yes
Consumer Affairs, Department of	Yes
Contractors State License Board	Yes
Correctional Health Care Services	Yes
Corrections and Rehabilitation, Department of	Yes
Council on Criminal Justice and Behavioral Health	Yes
Courter Reporters Board of California	Yes
Data and Innovation, California Office of (formerly Digital Innovation, Office of)	Yes
Debt and Investment Advisory Commission, California	Yes
Debt Limit Allocation Committee, California	Yes
Delta Protection Commission	Yes
Delta Stewardship Council	Yes
Dental Board of California	Yes

Dental Hygiene Board of California	Yes
Developmental Services, Department of	Yes
Disabled Veterans Business Enterprise Advisory Council	Yes
Education Audit Appeals Panel	Yes
Education, Department of	Yes
Educational Facilities Authority, California	Yes
Emergency Medical Service Authority	Yes
Emergency Services, Governor's Office of	Yes
Employment Development Department	Yes
Employment Training Panel	Yes
Energy Infrastructure Safety, Office of	Yes
Environmental Health Hazard Assessment, Office of	Yes
Environmental Protection Agency	Yes
Exposition and State Fair, California	Yes
Fair Political Practices Commission	Yes
Finance, Department of	Yes
Financial Information System for California, Department of	Yes
Financial Protection and Innovation, Department of	Yes
Fish and Wildlife, Department of	Yes
Food and Agriculture, Department of	Yes
Forestry and Fire Protection, California Department of	Yes
Franchise Tax Board	Yes
General Services, Department of	Yes
Government Operations Agency	Yes
Governor's Office	Yes
Governor's Office of Business and Economic Development (GO-Biz)	Yes
Health Benefit Exchange, California (Covered California)	Yes
Health Care Access and Information (formerly Statewide Health Planning and Development, Office of)	Yes
Health Care Services, Department of	Yes
Health Facilities Financing Authority, California	Yes
High Speed Rail Authority	Yes
Historical Records Advisory Board, California	No
Household Goods and Services, Bureau of	Yes
Housing and Community Development, Department of	Yes
Human Resources, Department of	Yes
Industrial Relations, Department of	Yes
Infrastructure and Economic Development Bank (I-Bank)	Yes
Insurance, Department of	Yes
Justice, Department of	Yes
Labor and Workforce Development Agency	Yes
Landscape Architects Technical Committee	Yes
Lieutenant Governor, Office of the	Yes

Managed Health Care, Department of	Yes
Medical Board of California	Yes
Mental Health Services Oversight & Accountability Commission	Yes
Military Department, California	Yes
Motor Vehicles, Department of	Yes
Natural Resources Agency	Yes
Occupational Therapy, California Board of	Yes
Ocean Protection Council	Yes
Office of the Inspector General	Yes
Optometry, California State Board of	Yes
Osteopathic Medical Board of California	Yes
Parks and Recreation, Department of	Yes
Parole Hearings, Board of	Yes
Pesticide Regulation, Department of	Yes
Pharmacy, California State Board of	Yes
Physical Therapy Board of California	Yes
Physician Assistant Board	Yes
Planning and Research, Governor's Office of	Yes
Podiatric Medical Board of California	Yes
Pollution Control Financing Authority, California	Yes
Pooled Money Investment Board	Yes
Prison Industry Authority	Yes
Private and Postsecondary Education, Bureau of	Yes
Professional Engineers, Land Surveyors, and Geologists, Board of	Yes
Professional Fiduciaries Bureau	Yes
Psychology, Board of	Yes
Public Employees' Retirement System, California	Yes
Public Health, California Department of	Yes
Real Estate Appraisers, Bureau of	Yes
Real Estate, Department of	Yes
Registered Nursing, California Board of	Yes
Rehabilitation, Department of	Yes
Resources Recycling and Recovery, Department of	Yes
Respiratory Care Board of California	Yes
Sacramento-San Joaquin Delta Conservancy	Yes
San Diego River Conservancy	Yes
San Francisco Bay Conservation and Development Commission	Yes
San Gabriel and Lower Los Angeles River and Mountains Conservancy	Yes
San Joaquin River Conservancy	Yes
Santa Monica Mountains Conservancy	Yes
ScholarShare Investment Board	Yes
School Finance Authority, California	Yes
Science Center, California	Yes

Secretary of State	No
Security and Investigation Services, Bureau of	Yes
Sierra Nevada Conservancy	Yes
Social Services, Department of	Yes
Speech-Language Pathology and Audiology and Hearing Aid Dispensers Board	Yes
State Allocation Board	Yes
State and Community Corrections, Board of	Yes
State Athletic Commission, California	Yes
State Coastal Conservancy	Yes
State Compensation Insurance Fund	Yes
State Controller's Office	Yes
State Fire Marshal, Office of the	Yes
State Hospitals, Department of	Yes
State Lands Commission, California	Yes
State Library, California	Yes
State Public Defender	Yes
State Teachers' Retirement System	Yes
State Treasurer's Office	Yes
Status of Women and Girls, Commission on	Yes
Structural Pest Control Board	Yes
System Integration, Office of	Yes
Tahoe Conservancy, California	Yes
Tax and Fee Administration, California Department of	Yes
Tax Appeals, Office of	Yes
Technology, Department of	Yes
The Governor’s Office of Tribal Affairs	Yes
Toxic Substances Control, Department of	Yes
Traffic Safety, Office of	Yes
Transportation Agency	Yes
Transportation, Department of	Yes
Uniform Construction Cost Accounting Commission, California	No
Veterans Affairs, Department of	Yes
Veterinary Medical Board	Yes
Victim Compensation Board, California	Yes
Visit California	Yes
Vocational Nursing and Psychiatric Technicians, Board of	Yes
Water Quality Monitoring Council, California	Yes
Water Resources, Department of	Yes
Wildlife Conservation Board	Yes
Youth and Community Restoration, Office of	Yes

Appendix B

Assembly Bill No. 302
CHAPTER 800

An act to add Section 11546.45.5 to the Government Code, relating to automated decision systems.

SECTION 1.
Section 11546.45.5 is added to the Government Code, to read:

11546.45.5.
(a) For purposes of this section:

(1) “Automated decision system” means a computational process derived from machine learning, statistical modeling, data analytics, or artificial intelligence that issues simplified output, including a score, classification, or recommendation, that is used to assist or replace human discretionary decision making and materially impacts natural persons. “Automated decision system” does not include a spam email filter, firewall, antivirus software, identity and access management tools, calculator, database, dataset, or other compilation of data.

(2) “Board” means any administrative or regulatory board, commission, committee, council, association, or authority consisting of more than one person whose members are appointed by the Governor, the Legislature, or both.

(3) “Department” means the Department of Technology.

(4) “High-risk automated decision system” means an automated decision system that is used to assist or replace human discretionary decisions that have a legal or similarly significant effect, including decisions that materially impact access to, or approval for, housing or accommodations, education, employment, credit, health care, and criminal justice.

(5) (A) “State agency” means any of the following:

(i) Any state office, department, division, or bureau.
(ii) The California State University.
(iii) The Board of Parole Hearings.
(iv) Any board or other professional licensing and regulatory body under the administration or oversight of the Department of Consumer Affairs.

(B) “State agency” does not include the University of California, the Legislature, the judicial branch, or any board, except as provided in subparagraph (A).

(b) On or before September 1, 2024, the Department of Technology shall conduct, in coordination with other interagency bodies as it deems appropriate, a comprehensive inventory of all high-risk automated decision systems that have been proposed for use, development, or procurement by, or are being used, developed, or procured by, any state agency.

(c) The comprehensive inventory described by subdivision (b) shall include a description of all of the following:

(1) (A) Any decision the automated decision system can make or support and the intended benefits of that use.
(B) The alternatives to any use described in subparagraph (A).

(2) The results of any research assessing the efficacy and relative benefits of the uses and alternatives of the automated decision system described by paragraph (1).

(3) The categories of data and personal information the automated decision system uses to make its decisions.

(4) (A) The measures in place, if any, to mitigate the risks, including cybersecurity risk and the risk of inaccurate, unfairly discriminatory, or biased decisions, of the automated decision system.

(B) Measures described by this paragraph may include, but are not limited to, any of the following:

(i) Performance metrics to gauge the accuracy of the system.
(ii) Cybersecurity controls.
(iii) Privacy controls.
(iv) Risk assessments or audits for potential risks.
(v) Measures or processes in place to contest an automated decision.

(d) (1) On or before January 1, 2025, and annually thereafter, the department shall submit a report of the comprehensive inventory described in subdivision (b) to the Assembly Committee on Privacy and Consumer Protection and the Senate Committee on Governmental Organization.

(2) The requirement for submitting a report imposed under paragraph (1) is inoperative on January 1, 2029, pursuant to Section 10231.5.

(3) A report to be submitted pursuant to paragraph (1) shall be submitted in compliance with Section 9795.