



Artificial Intelligence
Index Report 2023

CHAPTER 6: Policy and Governance





CHAPTER 6 PREVIEW: Policy and Governance

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Overview

The growing popularity of AI has prompted intergovernmental, national, and regional organizations to craft strategies around AI governance. These actors are motivated by the realization that the societal and ethical concerns surrounding AI must be addressed to maximize its benefits. The governance of AI technologies has become essential for governments across the world.

This chapter examines AI governance on a global scale. It begins by highlighting the countries leading the way in setting AI policies. Next, it considers how AI has been discussed in legislative records internationally and in the United States. The chapter concludes with an examination of trends in various national AI strategies, followed by a close review of U.S. public sector investment in AI.

Chapter Highlights

Policymaker interest in AI is on the rise.

An AI Index analysis of the legislative records of 127 countries shows that the number of bills containing “artificial intelligence” that were passed into law grew from just 1 in 2016 to 37 in 2022. An analysis of the parliamentary records on AI in 81 countries likewise shows that mentions of AI in global legislative proceedings have increased nearly 6.5 times since 2016.

From talk to enactment—the U.S. passed more AI bills than ever before.

In 2021, only 2% of all federal AI bills in the United States were passed into law. This number jumped to 10% in 2022. Similarly, last year 35% of all state-level AI bills were passed into law.

The U.S. government continues to increase spending on AI.

Since 2017, the amount of U.S. government AI-related contract spending has increased roughly 2.5 times.

When it comes to AI, policymakers have a lot of thoughts.

A qualitative analysis of the parliamentary proceedings of a diverse group of nations reveals that policymakers think about AI from a wide range of perspectives. For example, in 2022, legislators in the United Kingdom discussed the risks of AI-led automation; those in Japan considered the necessity of safeguarding human rights in the face of AI; and those in Zambia looked at the possibility of using AI for weather forecasting.

The legal world is waking up to AI.

In 2022, there were 110 AI-related legal cases in United States state and federal courts, roughly seven times more than in 2016. The majority of these cases originated in California, New York, and Illinois, and concerned issues relating to civil, intellectual property, and contract law.

In the last 10 years, AI governance discussions have accelerated, resulting in numerous policy proposals in various legislative bodies. This section begins by exploring the legislative initiatives related to AI that have been suggested or enacted in different countries and regions, followed by an in-depth examination of state-level AI legislation in the United States. The section then scrutinizes records of AI-related discussions in parliaments and congresses worldwide and concludes with the number of AI policy papers published in the United States.

6.1 AI and Policymaking¹

Global Legislative Records on AI

The AI Index conducted an analysis of laws passed by legislative bodies in 127 countries that contain the words “artificial intelligence” from 2016 to 2022.² Of the 127 countries analyzed, since 2016, 31 have

passed at least one AI-related bill, and together they have passed a total of 123 AI-related bills (Figure 6.1). Figure 6.1.2 shows that from 2016 to 2022, there has been a sharp increase in the total number of AI-related bills passed into law, with only one passed in 2016, climbing to 37 bills passed in 2022.

Number of AI-Related Bills Passed Into Law by Country, 2016–22

Source: AI Index, 2022 | Chart: 2023 AI Index Report

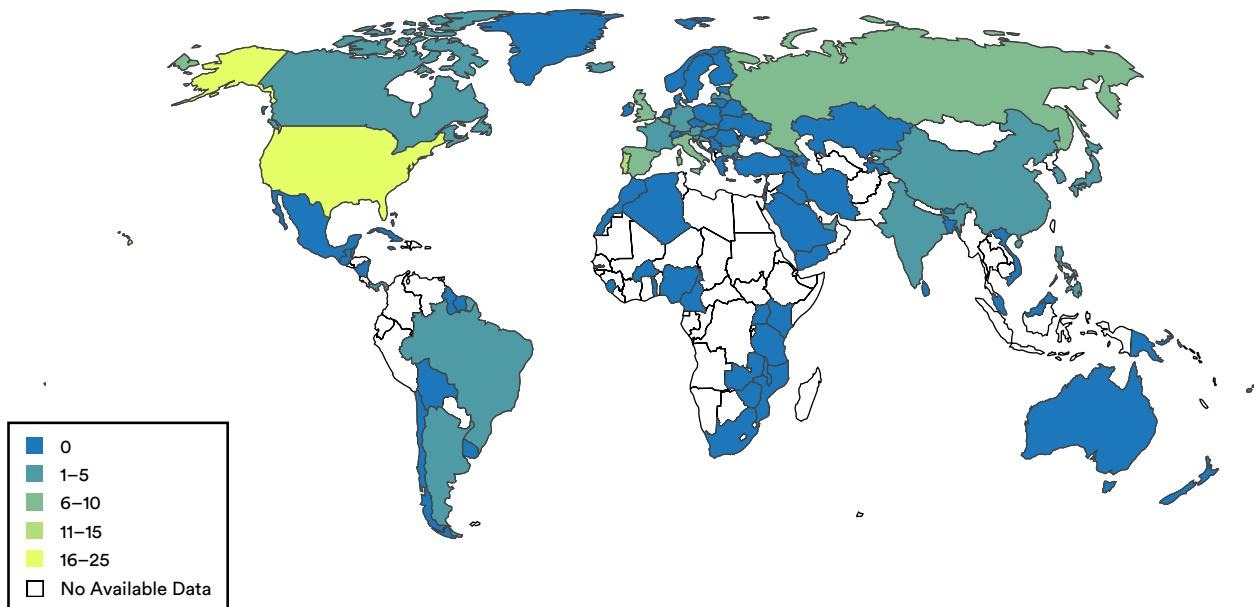


Figure 6.1.1

¹ Note that the analysis of passed AI policies may undercount the number of actual bills, given that large bills can include multiple sub-bills related to AI; for example, the CHIPS and Science Act passed by the U.S. in 2022.

² The full list of countries analyzed is in the Appendix. The AI Index team attempted to research the legislative bodies of every country in the world; however, publicly accessible legislative databases were not made available for certain countries.



Number of AI-Related Bills Passed Into Law in 127 Select Countries, 2016–22

Source: AI Index, 2022 | Chart: 2023 AI Index Report

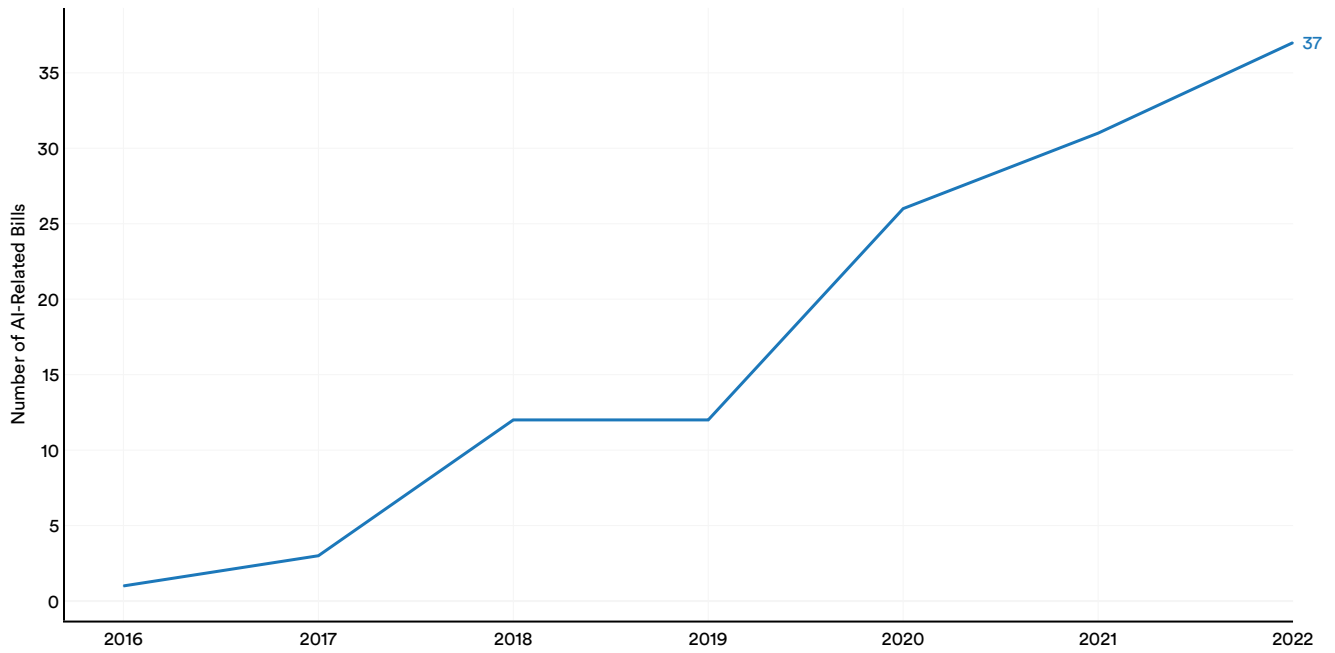


Figure 6.1.2

By Geographic Area

Figure 6.1.3 shows the number of laws containing mentions of AI that were enacted in 2022. The United States led the list with 9 laws, followed by Spain and

the Philippines, which passed 5 and 4 laws, respectively.

Figure 6.1.4 shows the total number of laws passed since 2016. The United States leads the list with 22 bills, followed by Portugal, Spain, Italy, and Russia.

Number of AI-Related Bills Passed Into Law in Select Countries, 2022

Source: AI Index, 2022 | Chart: 2023 AI Index Report

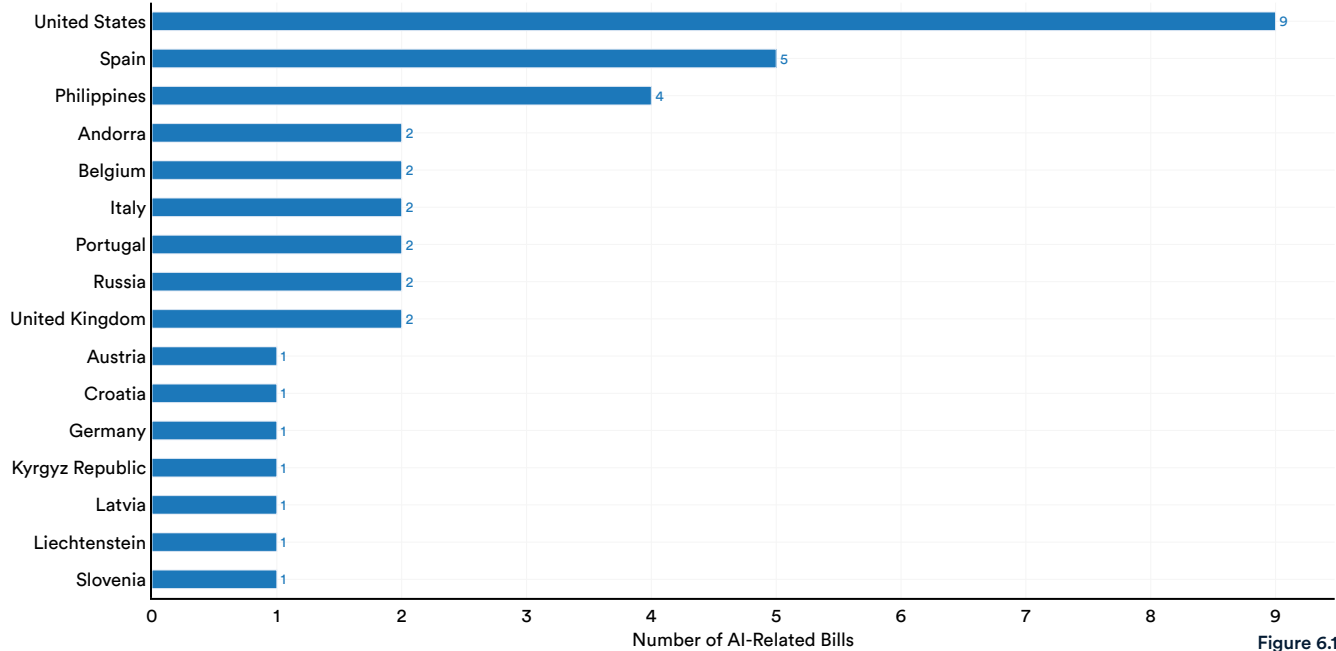


Figure 6.1.3

Number of AI-Related Bills Passed Into Law in Select Countries, 2016–22 (Sum)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

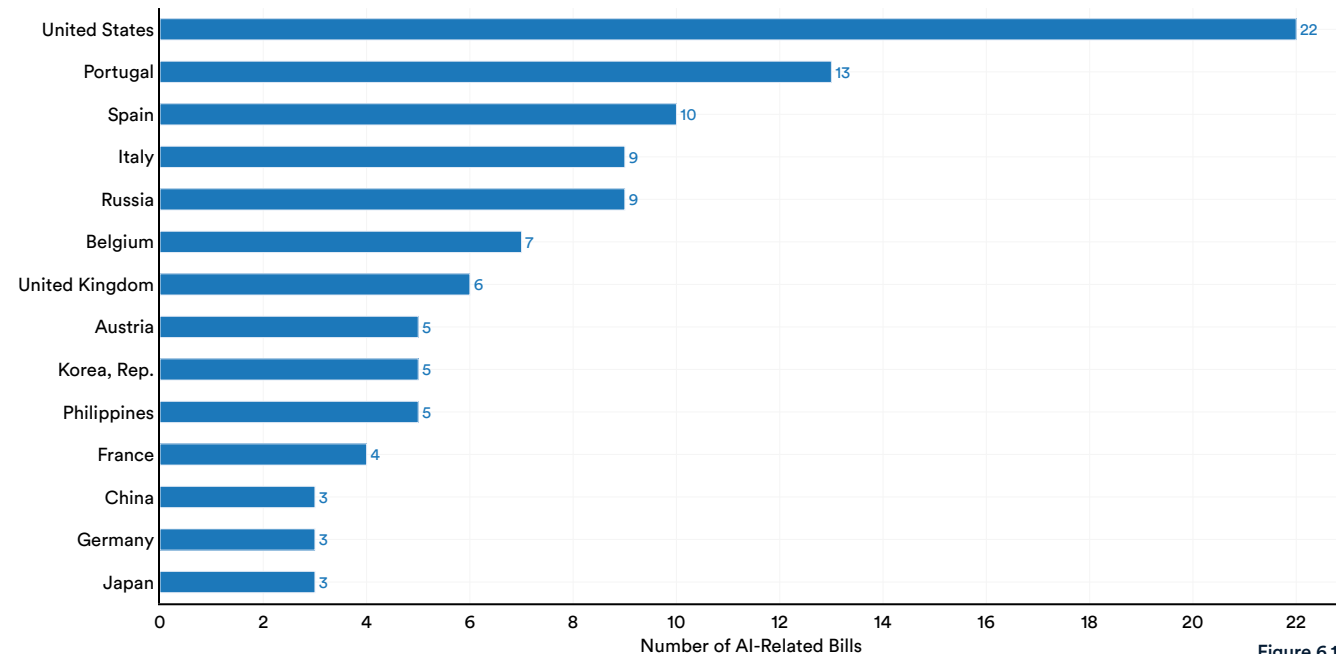


Figure 6.1.4

Narrative Highlight:

A Closer Look at Global AI Legislation

The following subsection delves into some of the AI-related legislation passed into law during 2022. Figure 6.1.5 samples five different countries’ laws covering a range of AI-related issues.

AI-Related Legislation From Select Countries, 2022

Source: AI Index, 2022 | Table: 2023 AI Index Report

Country	Bill Name	Description
Kyrgyz Republic	About the Creative Industries Park	This law determines the legal status, management, and operation procedures of the Creative Industries Park, established to accelerate the development of creative industries, including artificial intelligence.
Latvia	Amendments to the National Security Law	A provision of this act establishes restrictions on commercial companies, associations, and foundations important for national security, including a commercial company that develops artificial intelligence.
Philippines	Second Congressional Commission on Education (EDCOM II) Act	A provision of this act creates a congressional commission to review, assess, and evaluate the state of Philippine education; to recommend innovative and targeted policy reforms in education; and to appropriate funds. The act calls for reforms to meet the new challenges to education caused by the Fourth Industrial Revolution characterized, in part, by the rapid development of artificial intelligence.
Spain	Right to equal treatment and non-discrimination	A provision of this act establishes that artificial intelligence algorithms involved in public administrations’ decision-making take into account bias-minimization criteria, transparency, and accountability, whenever technically feasible.
United States	AI Training Act	This bill requires the Office of Management and Budget to establish or otherwise provide an AI training program for the acquisition workforce of executive agencies (e.g., those responsible for program management or logistics), with exceptions. The purpose of the program is to ensure that the workforce has knowledge of the capabilities and risks associated with AI.

Figure 6.1.5



United States Federal AI Legislation

A closer look at the U.S. federal legislative record shows a sharp increase in the total number of proposed bills that relate to AI (Figure 6.1.6). In 2015,

just one federal bill was proposed, while in 2021, 134 bills were proposed. In 2022 this number fell to 88 proposed bills. While fewer bills were proposed in 2022, the number of passed bills, which remained at 3 for each of the past four years, increased to 9.

Number of AI-Related Bills in the United States, 2015–22 (Proposed Vs. Passed)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

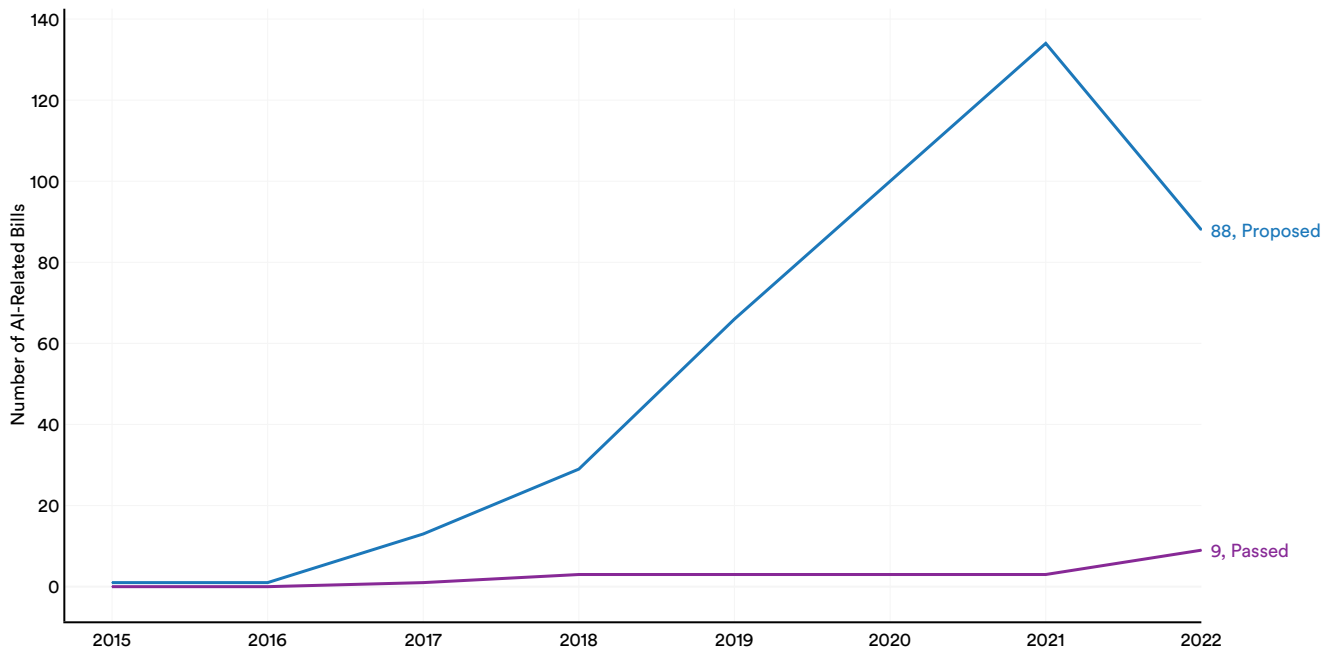


Figure 6.1.6

United States State-Level AI Legislation

Figure 6.17 shows the number of laws containing mentions of AI that were passed by U.S. states in 2022. California leads the list with 5, followed by

Maryland with 3. Figure 6.18 shows the total volume of legislation passed from 2016 to 2022 for select states, with Maryland leading the list with 7 bills, followed by California, Massachusetts, and Washington. Figure 6.19 highlights the number of state-level AI-related bills passed by all states since 2016.

Number of AI-Related Bills Passed Into Law in Select U.S. States, 2022

Source: AI Index, 2022 | Chart: 2023 AI Index Report

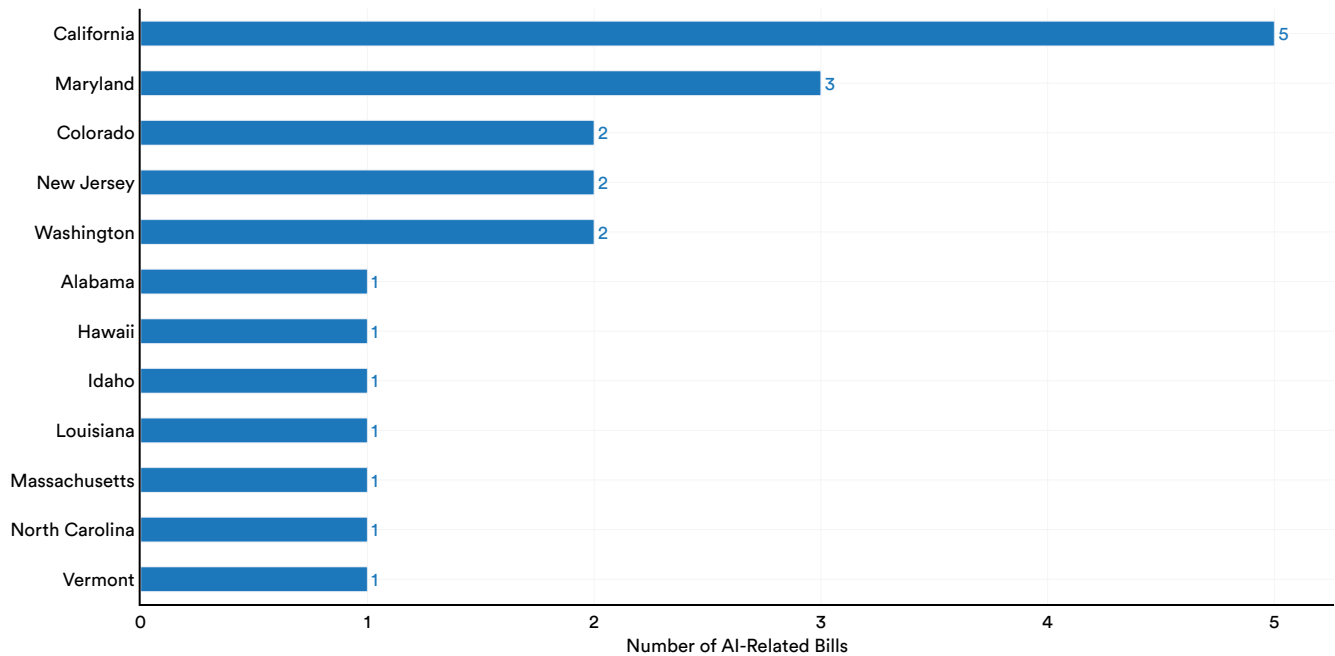


Figure 6.17

Number of AI-Related Bills Passed Into Law in Select U.S. States, 2016–22 (Sum)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

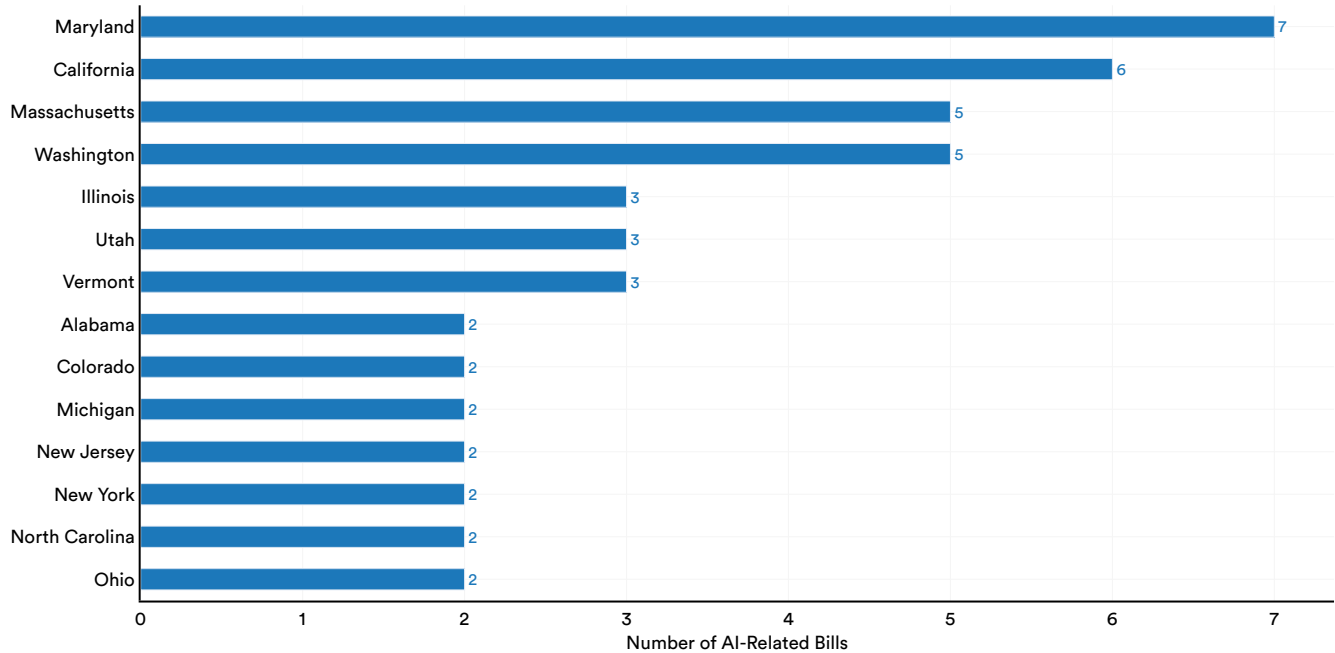


Figure 6.1.8

Number of State-Level AI-Related Bills Passed Into Law in the United States by State, 2016–22 (Sum)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

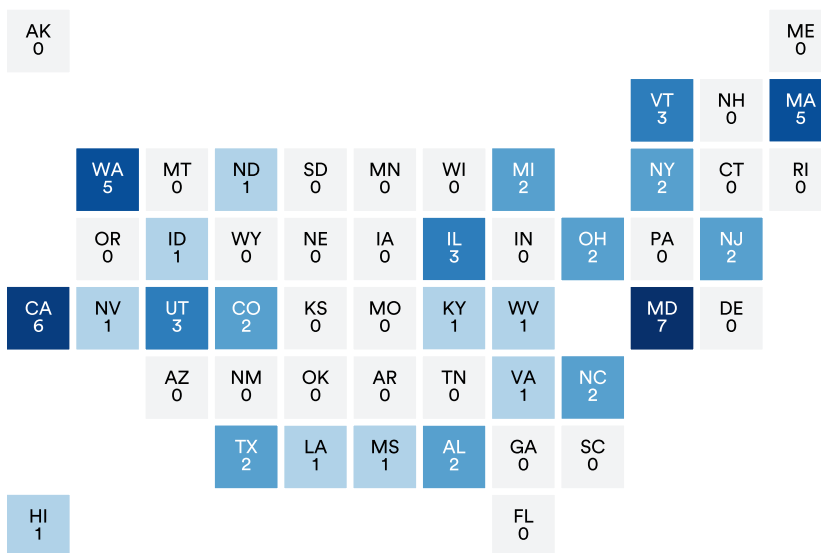


Figure 6.1.9

Growing policy interest in AI can also be seen at the state level, with 60 AI-related bills proposed in 2022 (Figure 6.1.10)—a dramatic increase from the 5 bills proposed in 2015. Additionally, the proportion of bills being passed has risen throughout the years. In 2015, 1 bill was passed, representing 16% of the total bills proposed that year; while in 2022, 21 bills were passed, or 35% out of the total that were proposed.

Number of State-Level AI-Related Bills in the United States, 2015–22 (Proposed Vs. Passed)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

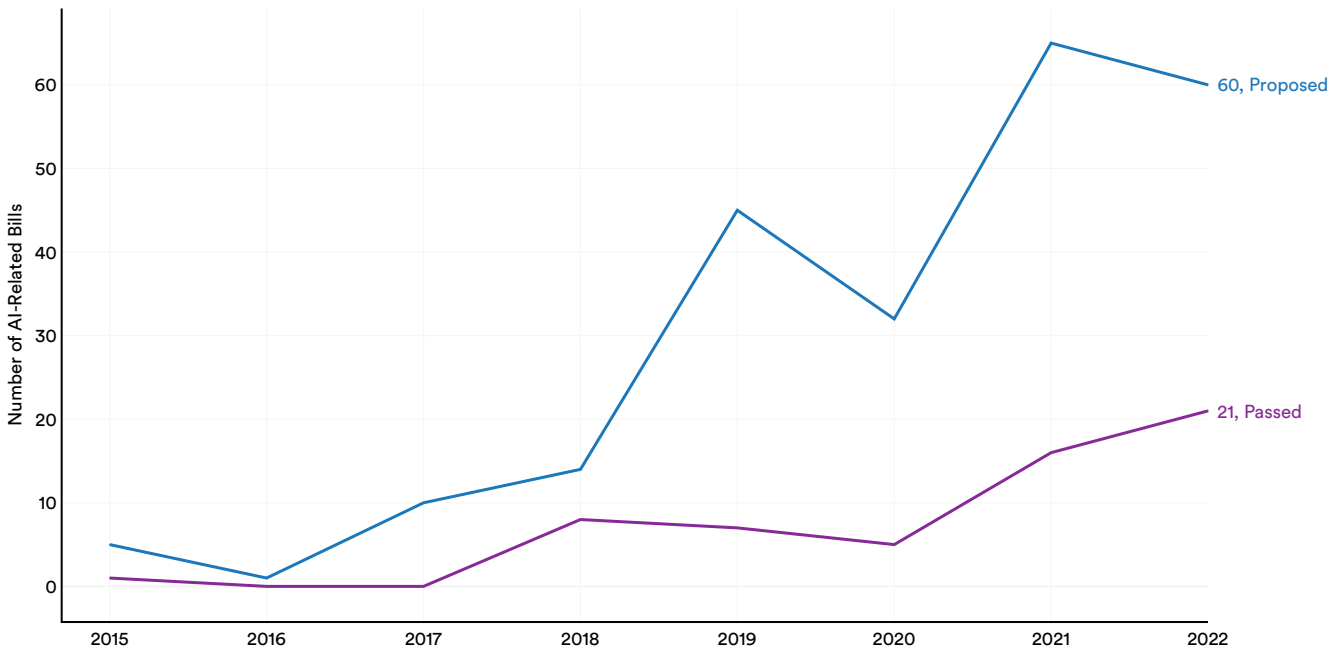


Figure 6.1.10

Narrative Highlight:

A Closer Look at State-Level AI Legislation

The following subsection highlights some of the AI-related legislation passed into law at the state level during 2022. Figure 6.1.11 focuses on wide-ranging AI-related laws from five states around the country.

AI-Related Legislation From Select States, 2022

Source: AI Index, 2022 | Table: 2023 AI Index Report

State	Bill Name	Description
Alabama	Artificial Intelligence, Limit the Use of Facial Recognition, to Ensure Artificial Intelligence Is Not the Only Basis for Arrest	This bill prohibits state or local law enforcement agencies from using facial recognition match results as the sole basis for making an arrest or for establishing probable cause in a criminal investigation.
California	Budget Act of 2022	A provision of this appropriations bill for the 2022–23 fiscal year allocates \$1,300,000 to California State University, Sacramento, to improve the campus childcare center, including the development of an artificial intelligence mixed-reality classroom.
Maryland	Conservation Finance Act	A provision of this act establishes that the Department of Natural Resources shall study and assess the potential for digital tools and platforms including artificial intelligence and machine learning to contribute to Chesapeake Bay restoration and climate solutions.
New Jersey	21st Century Integrated Digital Experience Act	A provision of this act, which concerns the modernization of state government websites, establishes that the chief technology officer, in consultation with the chief innovation officer and the New Jersey Information Technology Project Review Board, shall evaluate on an annual basis the feasibility of state agencies using artificial intelligence and machine learning to provide public services.
Vermont	An Act Relating to the Use and Oversight of Artificial Intelligence in State Government	This act creates the Division of Artificial Intelligence within the Agency of Digital Services to review all aspects of artificial intelligence developed, employed, or procured by the state government. The act requires the Division of Artificial Intelligence to, among other things, propose a state code of ethics on the use of artificial intelligence in state government and make recommendations to the General Assembly on policies, laws, and regulations regarding artificial intelligence in state government.

Figure 6.1.11

Global AI Mentions

Another barometer of legislative interest is the number of mentions of “artificial intelligence” in governmental and parliamentary proceedings. The AI Index conducted an analysis of the minutes or proceedings of legislative sessions in 81 countries that

contain the keyword “artificial intelligence” from 2016 to 2022.³ Figure 6.112 shows that mentions of AI in legislative proceedings in these countries registered a small decrease from 2021 to 2022, from 1,547 to 1,340.

Number of Mentions of AI in Legislative Proceedings in 81 Select Countries, 2016–22

Source: AI Index, 2022 | Chart: 2023 AI Index Report

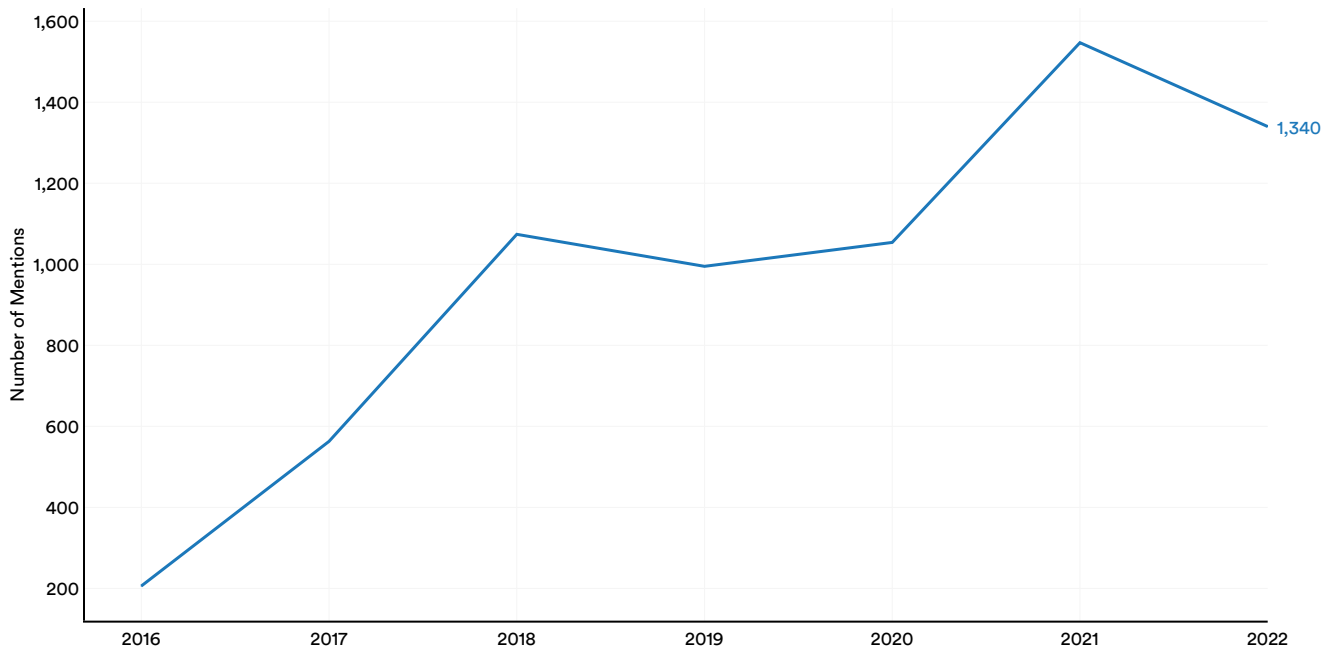


Figure 6.112

³ The full list of countries that was analyzed is in the Appendix. The AI Index research team attempted to review the governmental and parliamentary proceedings of every country in the world; however, publicly accessible governmental and parliamentary databases were not made available for all countries.

By Geographic Area

Figure 6.1.13 shows the number of legislative proceedings containing mentions of AI in 2022.⁴ From the 81 countries considered, 46 had at least one mention, and Spain topped the list with 273 mentions, followed by Canada (211), the United Kingdom (146), and the United States (138).

Number of Mentions of AI in Legislative Proceedings by Country, 2022

Source: AI Index, 2022 | Chart: 2023 AI Index Report

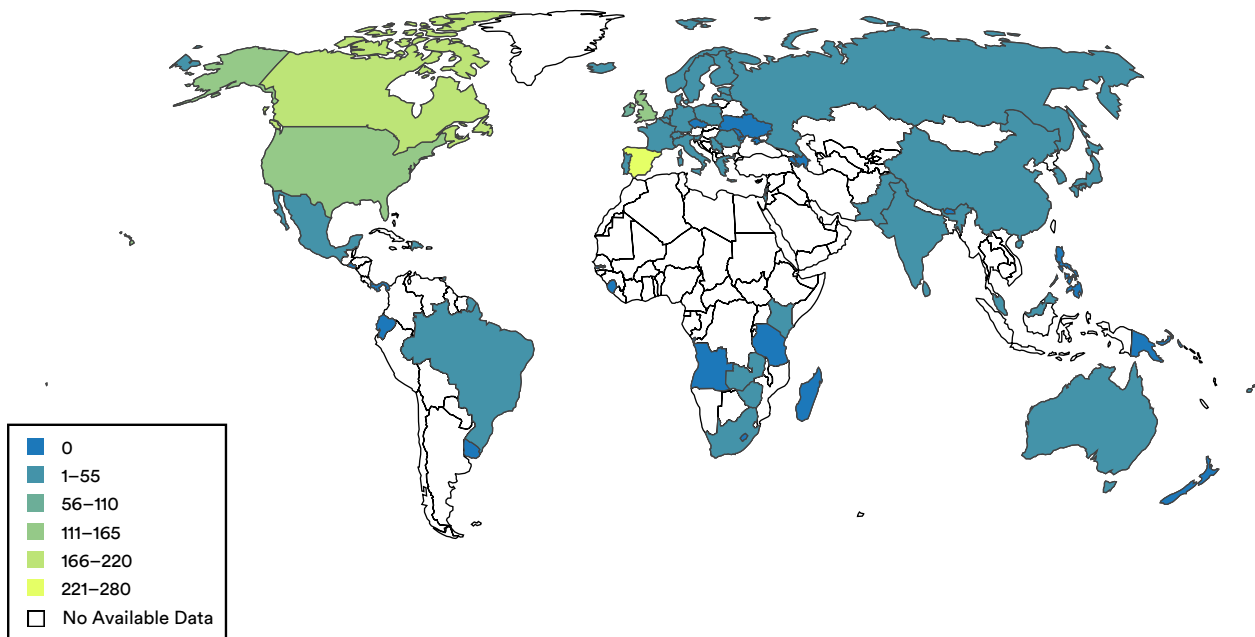


Figure 6.1.13

⁴ For mentions of AI in legislative proceedings around the world, the AI Index performed searches of the keyword “artificial intelligence,” in the respective languages, on the websites of different countries’ congresses or parliaments, usually under sections named “minutes,” “Hansard,” etc.

Figure 6.1.14 shows the total number of AI mentions in the past seven years. Of the 81 countries considered, 62 had at least one mention, and the United Kingdom dominates the list with 1,092 mentions, followed by Spain (832), the United States (626), Japan (511), and Hong Kong (478).

Number of Mentions of AI in Legislative Proceedings by Country, 2016–22 (Sum)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

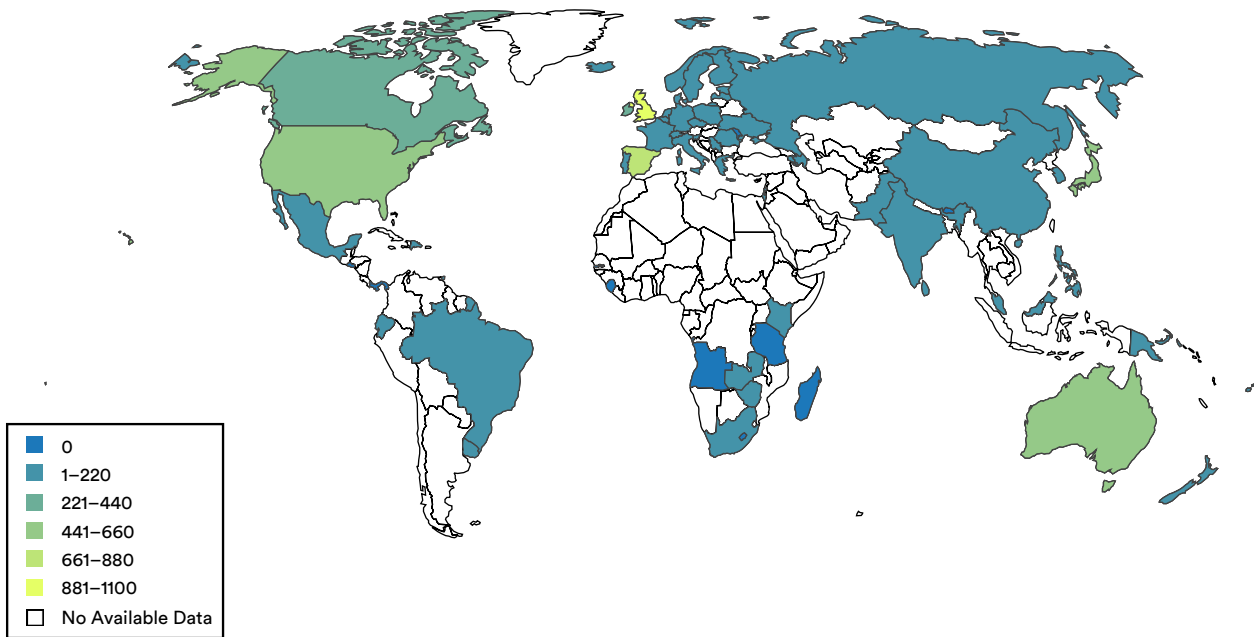


Figure 6.1.14

Narrative Highlight:

A Closer Look at Global AI Mentions

The following subsection examines mentions of AI in government proceedings in 2022. Figure 6.1.15 quotes discussions across a geographically diverse set of countries.

AI-Related Parliamentary Mentions From Select Countries, 2022

Source: AI Index, 2022 | Table: 2023 AI Index Report

Country	Legislature	Speaker	Quote	Agenda Item
Australia	House of Representatives	Ed Husic, Australian Labor Party, Minister for Industry and Science	“Working with our international partners we can transform Australian know-how into globally recognised skills and manufacturing in defence industries. And we can build on our undeniable expertise in areas like quantum technologies, robotics and artificial intelligence . We will seek to partner with industry and state and territory governments to identify investment opportunities within priority areas. An on-ramp, if you will, of turn-key opportunities for investment to make sure the NRF is well placed for success.”	National Reconstruction Fund Corporation Bill 2022 - Second Reading
Brazil	Diary of the Chamber of the Members	Mr. Gustavo Fruet, Democratic Labor Party	“There has been a lot of talk about the future of work due to technology. In the book The Fourth Industrial Revolution, Klaus Schwab even points out professions that will be extinct and professions that will demand more and more qualifications, in times of 5G, Internet of Things and Artificial Intelligence . In this sense, it is good to highlight that the pandemic, among other contradictions, ended up anticipating the use of technology, especially in the telework.”	Presentation of Bill No. 135, of 2022, on the amendment of the CLT - Consolidation of Labor Laws, with a view to granting telework to parents of children up to 8 years old
Japan	210th Session of the Diet House of Councilors Commission on the Constitution No. 2	Kohei Otsuka, Democratic Party for the People, Shinryokufukai	“In the field of human rights, we believe that it is necessary to update human rights guarantees in order to respond to changes in the times that were unpredictable when the Constitution was enacted. In particular, as the fusion of artificial intelligence and Internet technology progresses, the international community is concerned about the problems of individual scoring and discrimination, and the problem of Internet advertising that unfairly influences the voting behavior of citizens. We need a constitutional argument to guarantee the autonomous decision-making of individuals and protect basic data rights in the digital age.”	The Commission on the Constitution
United Kingdom	House of Commons	Dame Angela Eagle, Labor	“What would be the use of artificial intelligence in trying to decide how automated these things could become? Would there be worries about over-automation? How would that be looked at in terms of regulation? How open are we going to be about the way in which AI is applied and how it might evolve in ways that might embed discrimination such that we get a system where certain people may be discriminated against and excluded?”	Financial Services and Markets Bill (Fourth Sitting)
Zambia	The House, National Assembly	Hon. Collins Nzovu, United Party for National Development, Minister of Green Economy and Environment	“Madam Speaker, in order to enhance quality and accuracy of weather forecast, the Government, with financial support from the United Nations Development Programme Strengthening Climate Resilience of Agricultural Livelihoods in Agro-Ecological (UNDP SCRALA) project is currently partnering with the University of Zambia (UNZA) to develop a seasonal weather forecasting system using artificial intelligence .”	Ministerial Statements; Weather and Climate Services and the 2022/2023 rainfall forecast

Figure 6.1.15

United States Committee Mentions

An additional indicator of legislative interest is the number of mentions of “artificial intelligence” in committee reports produced by House and Senate

committees that address legislative and other policy issues, investigations, and internal committee matters. Figure 6.16 shows a sharp increase in the total number of mentions of AI within committee reports beginning with the 115th legislative session.

Mentions of AI in U.S. Committee Reports by Legislative Session, 2001–22

Source: AI Index, 2022 | Chart: 2023 AI Index Report

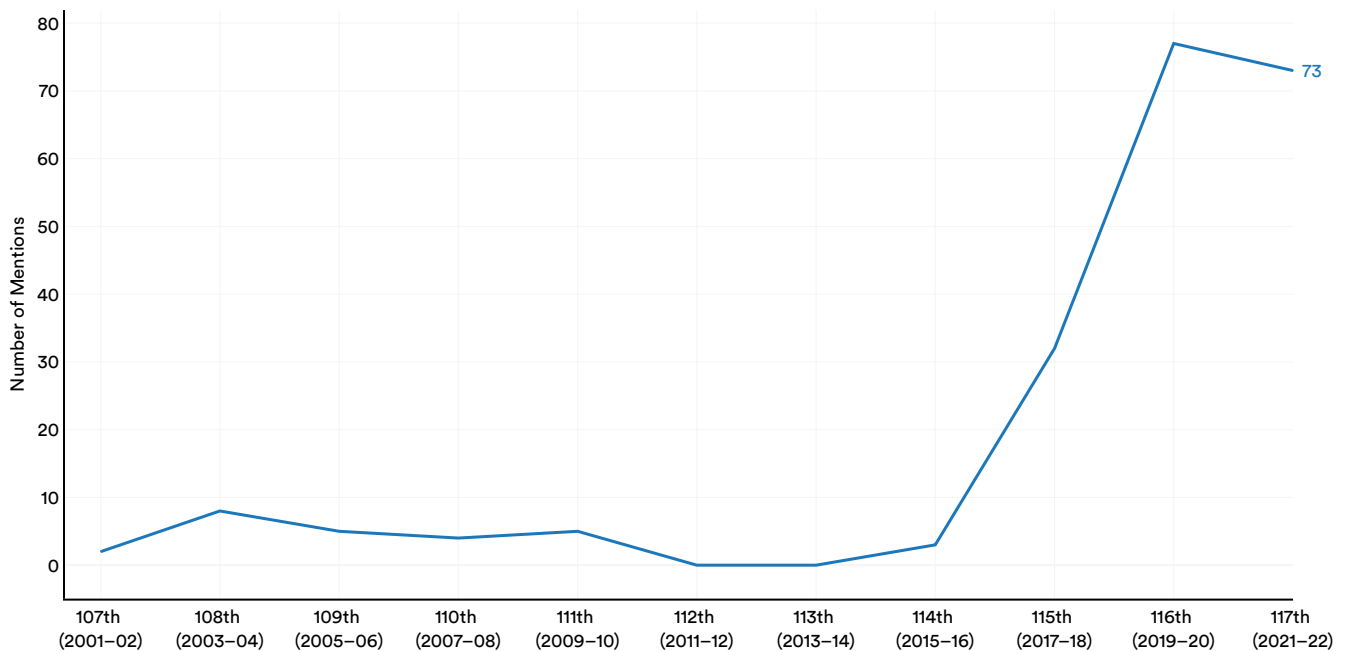


Figure 6.1.16

Figure 6.1.17 shows the mentions in committee reports for the 117th Congressional Session, which took place from 2021 to 2022. The Appropriations Committee leads the House reports, while the Homeland Security and Governmental Affairs Committee leads the Senate reports (Figure 6.1.18).

Mentions of AI in Committee Reports of the U.S. House of Representatives for the 117th Congressional Session, 2021–22

Source: AI Index, 2022 | Chart: 2023 AI Index Report

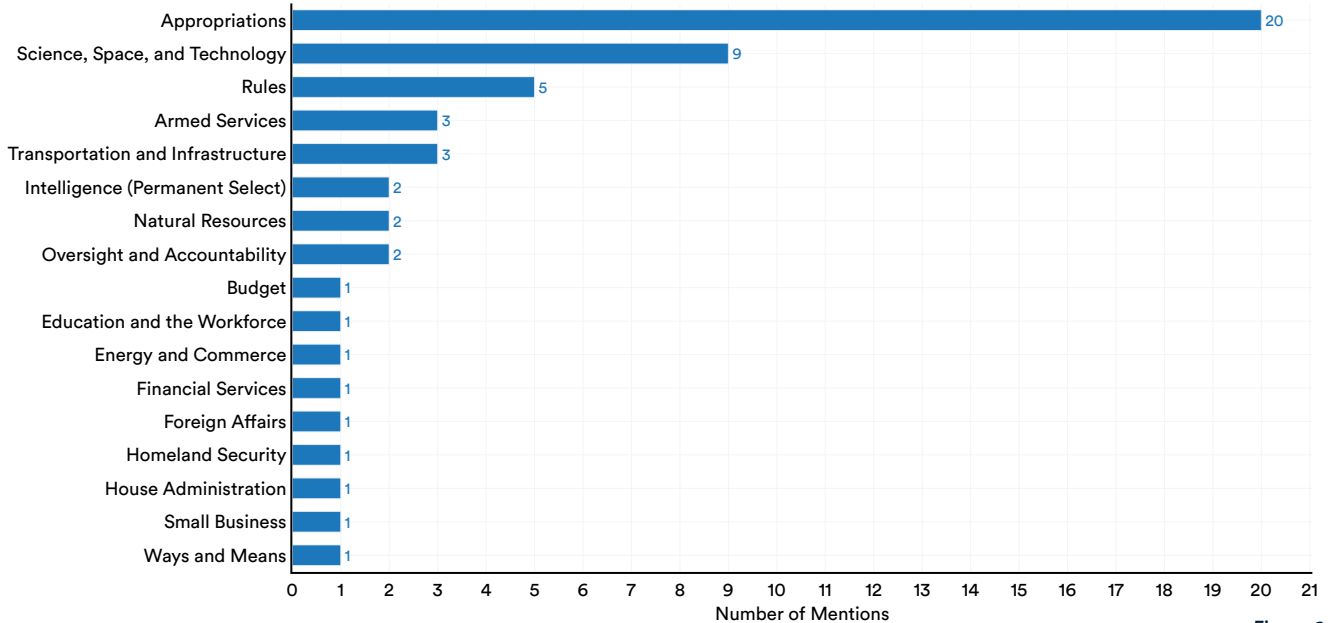


Figure 6.1.17

Mentions of AI in Committee Reports of the U.S. Senate for the 117th Congressional Session, 2021–22

Source: AI Index, 2022 | Chart: 2023 AI Index Report

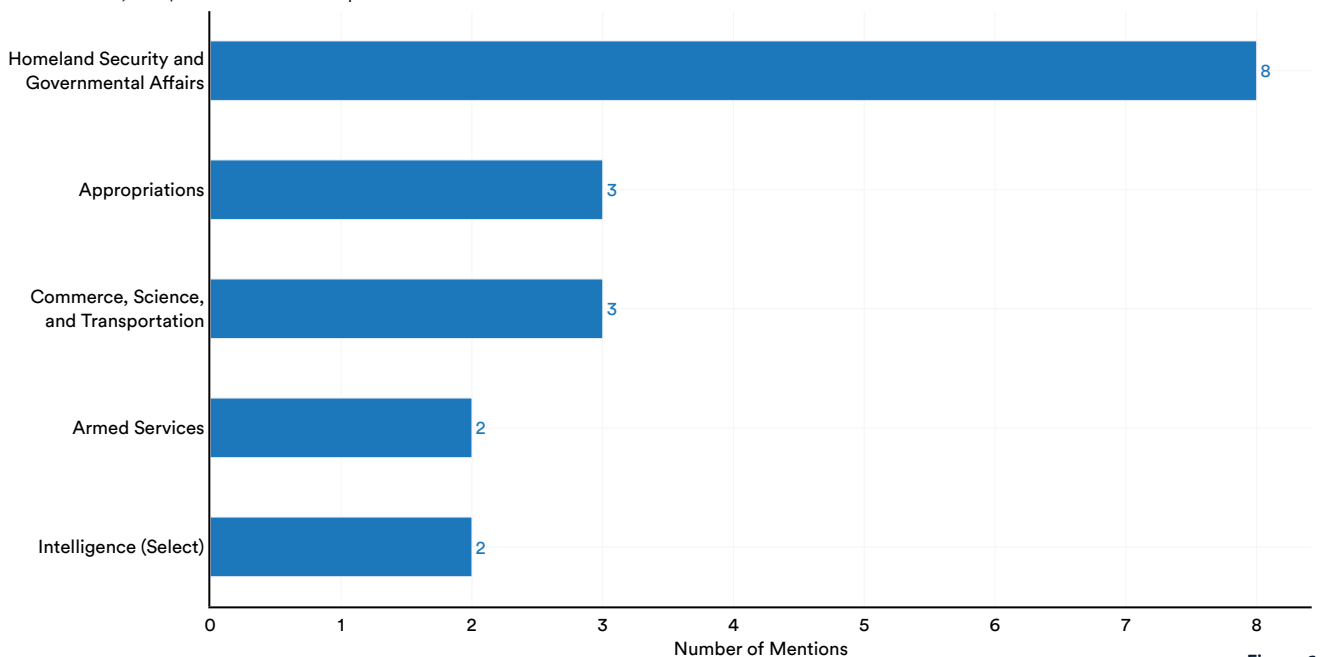


Figure 6.1.18

Figure 6.1.19 shows the total number of mentions in committee reports from the past 10 congressional sessions, which took place from 2001 to 2022. The House and Senate Appropriations Committees, which regulate expenditures of money by the government, lead their respective lists (Figure 6.1.19 and 6.1.20).

Mentions of AI in Committee Reports of the U.S. Senate, 2001–22 (Sum)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

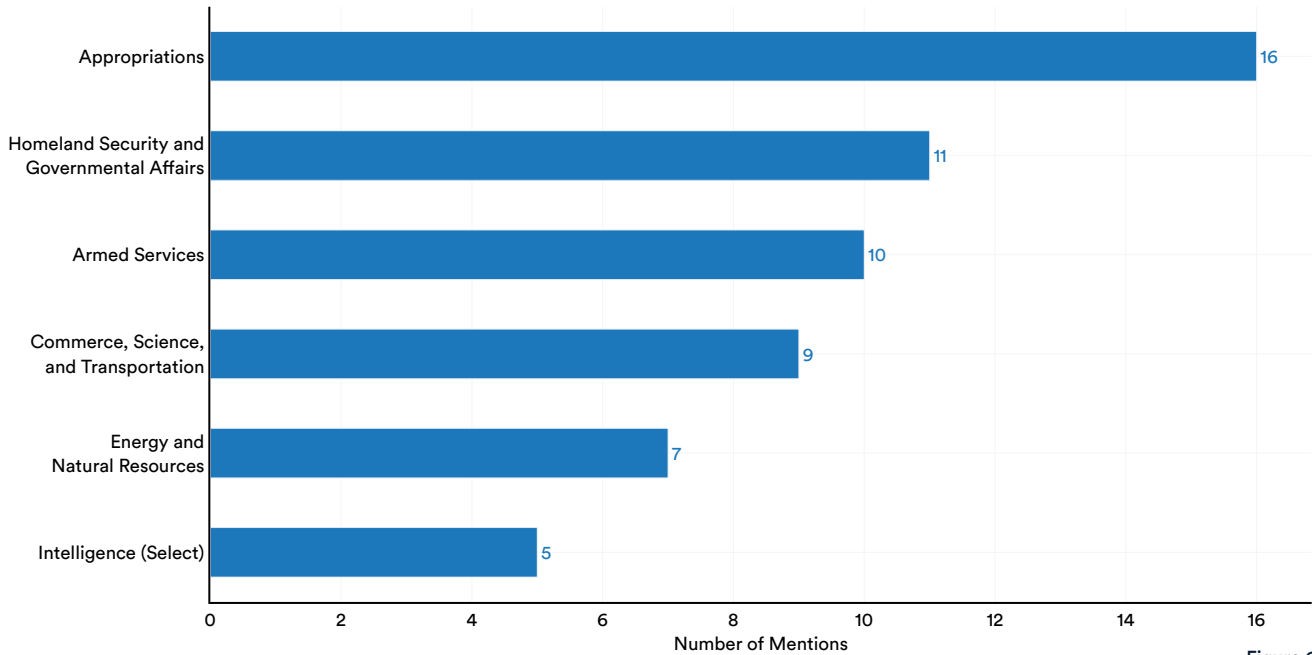


Figure 6.1.19

Mentions of AI in Committee Reports of the U.S. House of Representatives, 2001–22 (Sum)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

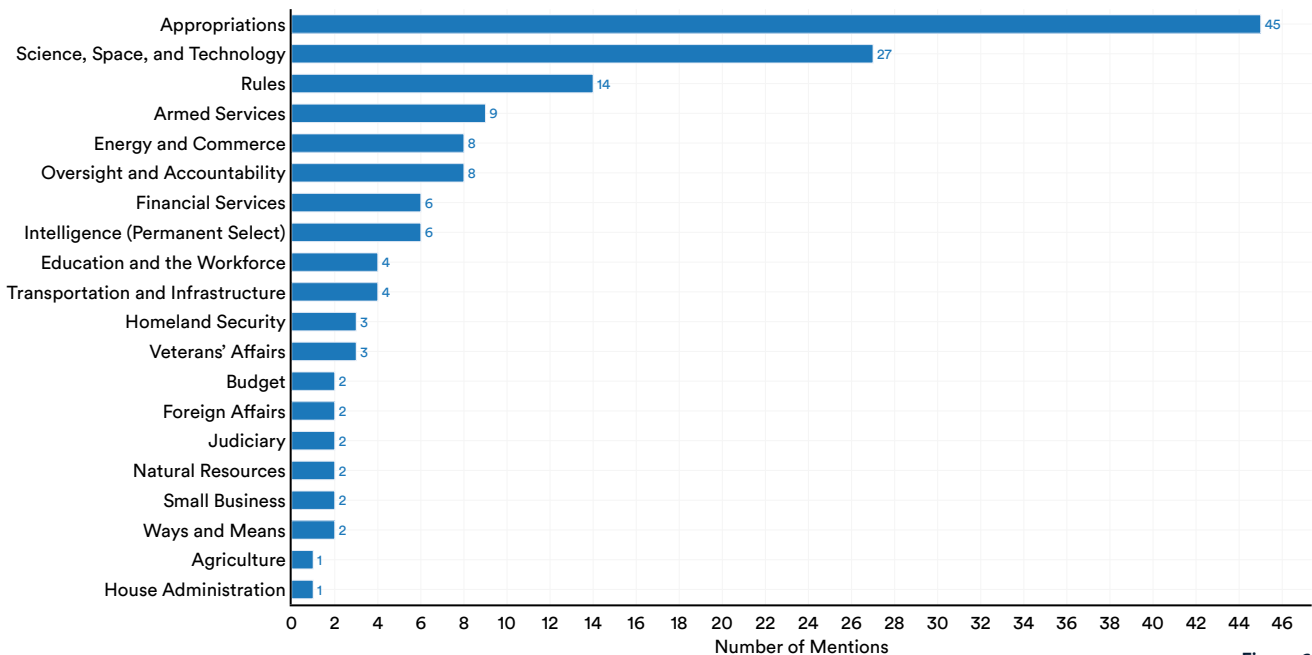


Figure 6.1.20

United States AI Policy Papers

To estimate activities outside national governments that are also informing AI-related lawmaking, the AI Index tracked 55 U.S.-based organizations that published policy papers in the past five years. Those organizations include: think tanks and policy institutes (19); university institutes and research programs (14); civil society organizations, associations, and consortiums (9); industry and consultancy organizations (9); and government agencies (4). A policy paper in this section is defined as a research paper, research report, brief, or blog

post that addresses issues related to AI and makes specific recommendations to policymakers. Topics of those papers are divided into primary and secondary categories: A primary topic is the main focus of the paper, while a secondary topic is a subtopic of the paper or an issue that is briefly explored.

Figure 6.1.21 highlights the total number of U.S.-based, AI-related policy papers published from 2018 to 2022. After a slight dip from 2020 to 2021, the total increased to 284 in 2022. Since 2018, the total number of such papers has increased 3.2 times, signaling greater interest over time.

Number of AI-Related Policy Papers by U.S.-Based Organizations, 2018–22

Source: Stanford Institute for Human-Centered AI (HAI) Policy and Society | Chart: 2023 AI Index Report

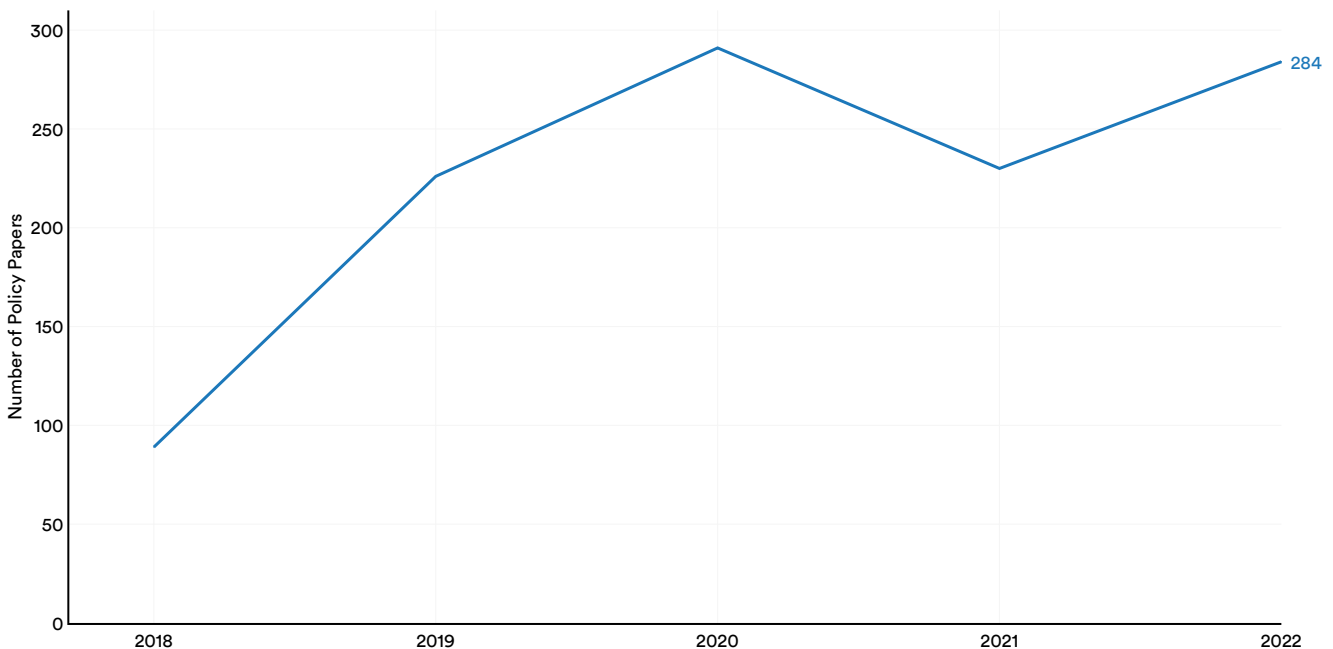


Figure 6.1.21

By Topic

In 2022, the most frequent primary topics were industry and regulation (107), innovation and technology (90), and government and publication administration (82) (Figure 6.1.22). Privacy, safety, and security, which was the most reported topic in 2021,

sat in fourth position as of 2022. All of these leading topics were also well represented as secondary topics. Topics that received comparatively little attention included social and behavioral sciences; humanities; and communications and media.

Number of AI-Related Policy Papers by U.S.-Based Organization by Topic, 2022

Source: Stanford Institute for Human-Centered AI (HAI) Policy and Society | Chart: 2023 AI Index Report

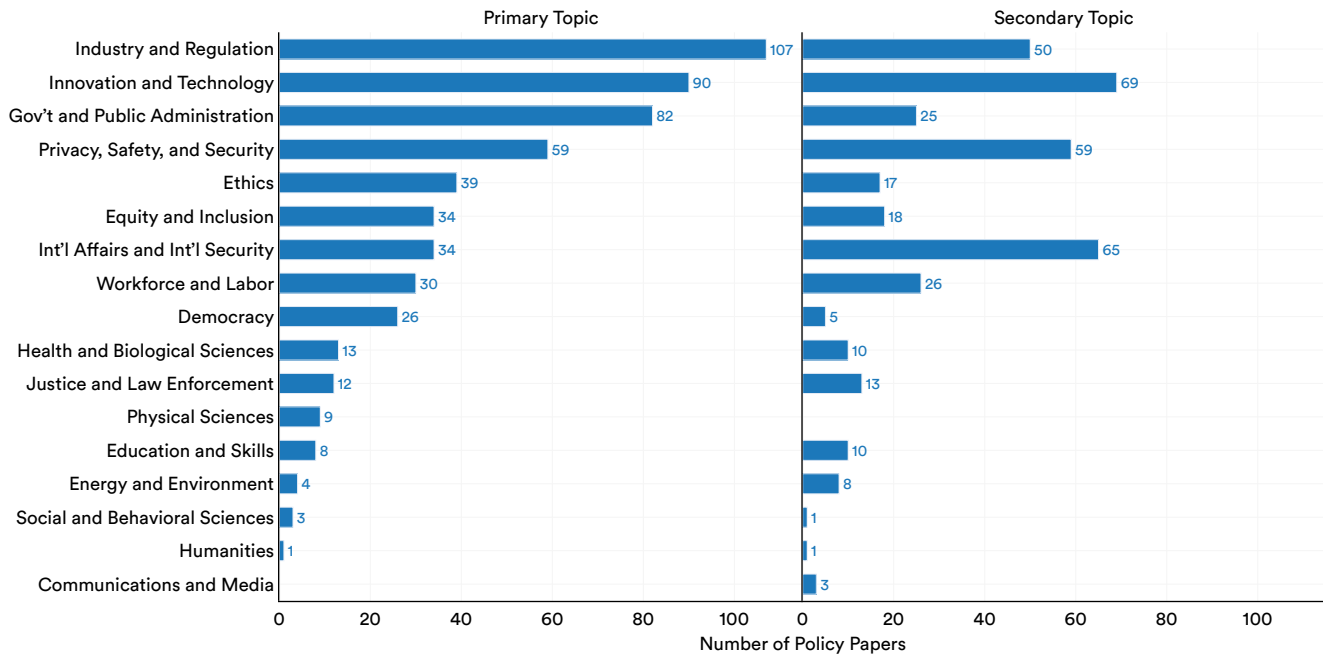


Figure 6.1.22

This subsection presents an overview of national AI strategies—policy plans developed by a country’s government to steer the development and deployment of AI technologies within its borders. Tracking trends in national strategies can be an important way of gauging the degree to which countries are prioritizing the management and regulation of AI technologies. Sources include websites of national or regional governments, the OECD AI Policy Observatory (OECD.AI), and news coverage. “AI strategy” is defined as a policy document that communicates the objective of supporting the development of AI while also maximizing the benefits of AI for society.⁵

6.2 National AI Strategies

Aggregate Trends

Canada officially launched the first national AI strategy in March of 2017; since then a total of 62 national AI strategies have been released (Figure 6.2.1). The number of released strategies peaked in 2019.

By Geographic Area

Figure 6.2.2 highlights the countries which, as of December 2022, have either released or developed a national AI strategy. Figure 6.2.3 enumerates the countries that, in 2021 and 2022, pledged to develop an AI strategy . The first nations to officially release national AI strategies were Canada, China, and Finland in 2017. Only two nations released national AI strategies in 2022: Italy and Thailand.

Countries With a National Strategy on AI, 2022

Source: AI Index, 2022 | Chart: 2023 AI Index Report

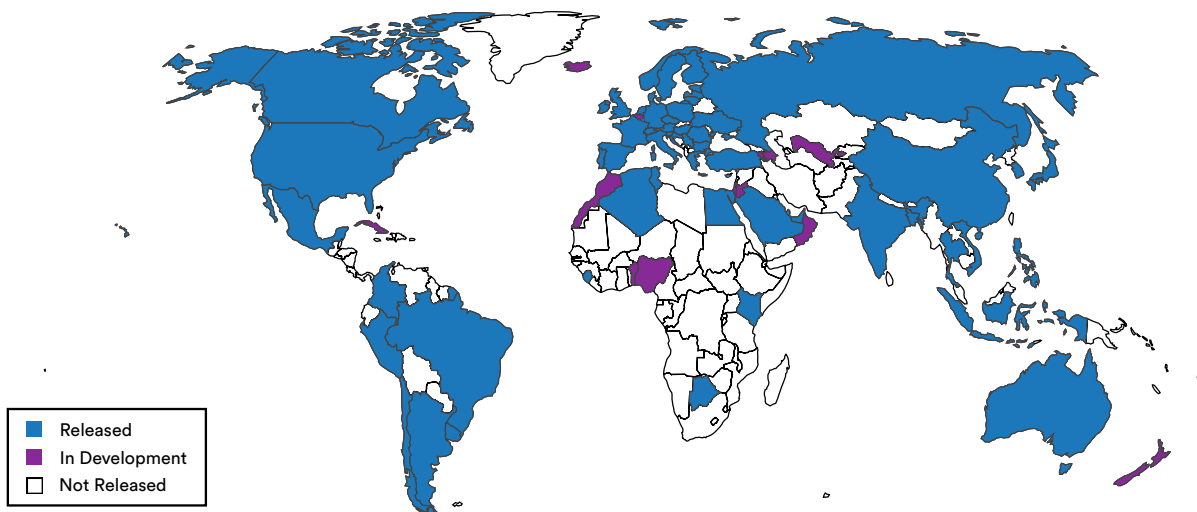


Figure 6.2.2

Yearly Release of AI National Strategies by Country

Source: AI Index, 2022 | Table: 2023 AI Index Report

Year	Country
2017	Canada, China, Finland
2018	Australia, France, Germany, India, Mauritius, Mexico, Sweden
2019	Argentina, Austria, Bangladesh, Botswana, Chile, Colombia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Japan, Kenya, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Qatar, Romania, Russia, Sierra Leone, Singapore, United Arab Emirates, United States of America, Uruguay
2020	Algeria, Bulgaria, Croatia, Greece, Hungary, Indonesia, Latvia, Norway, Poland, Saudi Arabia, Serbia, South Korea, Spain, Switzerland
2021	Brazil, Ireland, Peru, Philippines, Slovenia, Tunisia, Turkey, Ukraine, United Kingdom, Vietnam
2022	Italy, Thailand

Figure 6.2.1

AI National Strategies in Development by Country and Year

Source: AI Index, 2022 | Table: 2023 AI Index Report

Year	Country
2021	Armenia, Bahrain, Cuba, Iceland, Morocco, New Zealand, Oman
2022	Azerbaijan, Belgium, Benin, Israel, Jordan, Nigeria, Uzbekistan

Figure 6.2.3

⁵ The AI Index research team made efforts to identify whether there was a national AI strategy that was released or in development for every nation in the world. It is possible that some strategies were missed.

This section examines public AI investment in the United States based on data from the U.S. government and Govini, a company that uses AI and machine learning technologies to track U.S. public and commercial spending.

6.3 U.S. Public Investment in AI

Federal Budget for Nondefense AI R&D

In December 2022, the National Science and Technology Council published a [report](#) on the public-sector AI R&D budget across departments and agencies participating in the Networking and Information Technology Research and Development (NITRD) Program and the National Artificial Intelligence Initiative. The report does not include

information on classified AI R&D investment by defense and intelligence agencies.

In fiscal year (FY) 2022, nondefense U.S. government agencies allocated a total of \$1.7 billion to AI R&D spending (Figure 6.3.1). The amount allocated in FY 2022 represented a slight decline from FY 2021 and a 208.9% increase from FY 2018. An even greater amount, \$1.8 billion, has been requested for FY 2023.

U.S. Federal Budget for Nondefense AI R&D, FY 2018–23

Source: U.S. NITRD Program, 2022 | Chart: 2023 AI Index Report

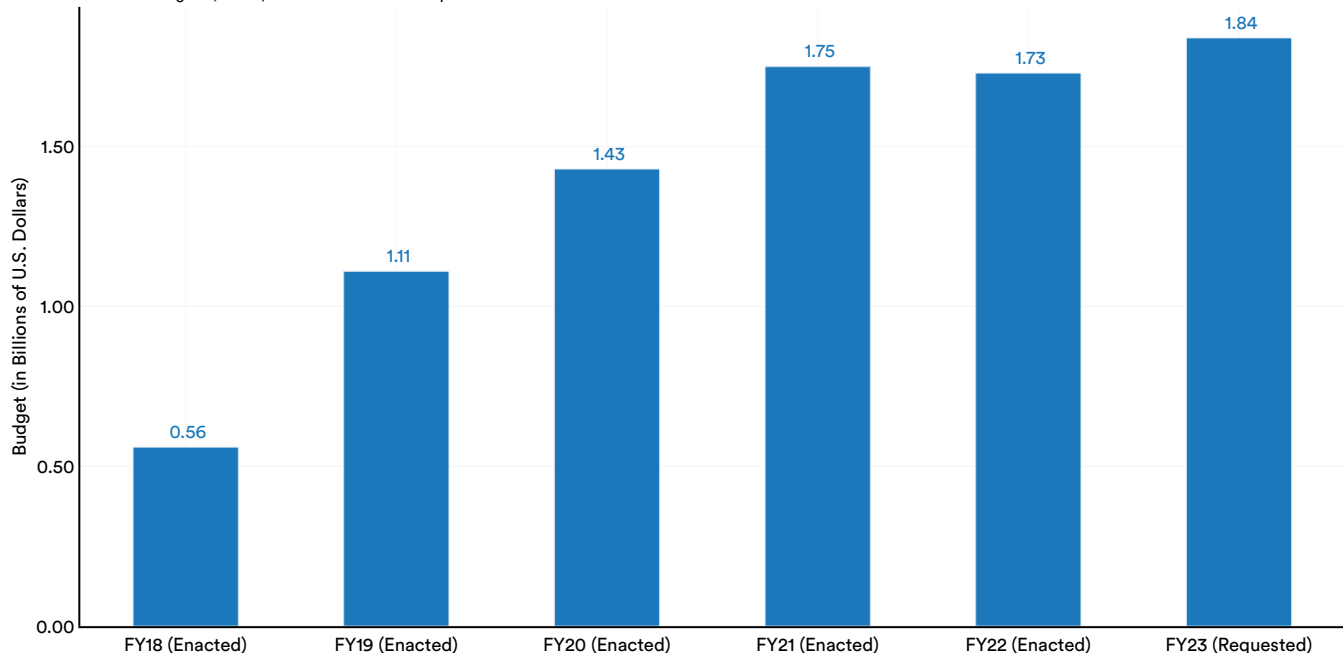


Figure 6.3.1⁶

⁶ A previous report on the public-sector AI R&D budget released in 2021 classed the FY21 spending as totaling \$1.53 billion. However, the most recent report, released in 2022, upgraded the total spent in 2022 to \$1.75 billion.



U.S. Department of Defense Budget Requests

Every year the DoD releases the amount of funding they have requested for nonclassified AI-specific research, development, test, and evaluation. According

to the [2022 report](#), the DoD requested \$1.1 billion in FY 2023, a 26.4% increase from the funding they received in FY 2022 (Figure 6.3.2).

U.S. DoD Budget Request for AI-Specific Research, Development, Test, and Evaluation (RDT&E), FY 2020–23

Source: U.S. Office of the Under Secretary of Defense (Comptroller), 2022 | Chart: 2023 AI Index Report

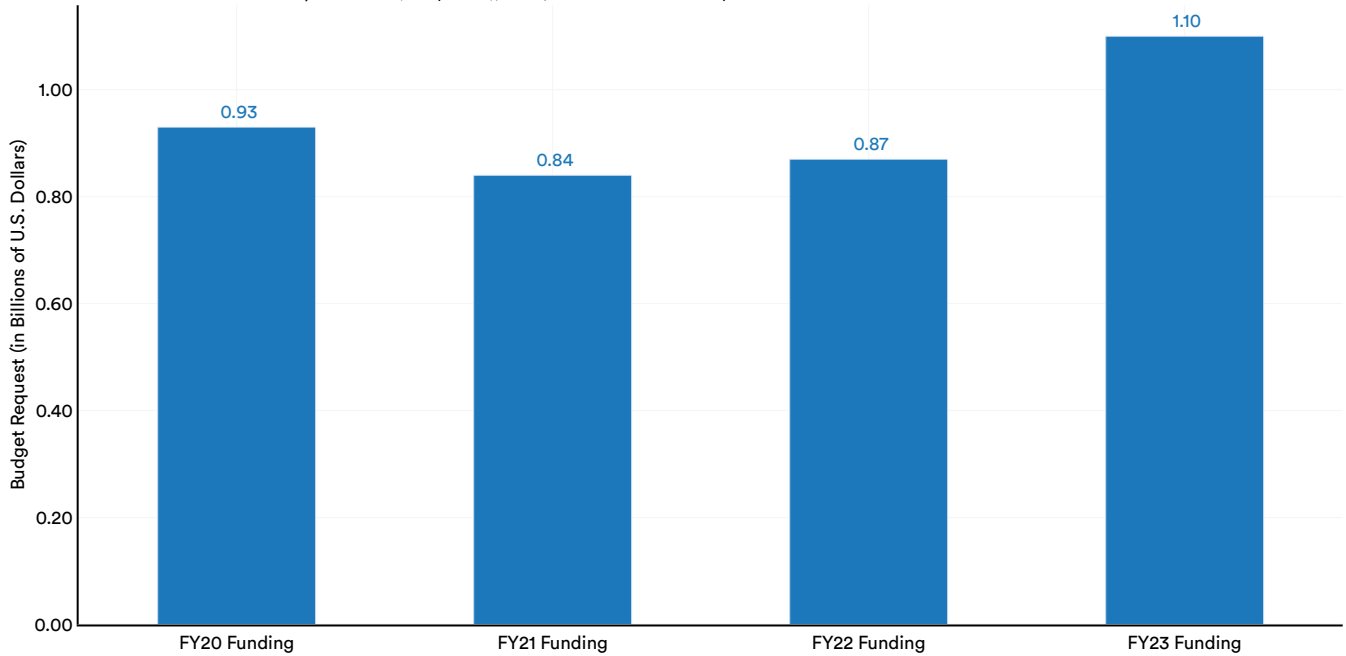


Figure 6.3.2

U.S. Government AI-Related Contract Spending

Public investment in AI can also be measured by federal government spending on the contracts that U.S. government agencies award to private companies for the supply of goods and services. Such contracts typically occupy the largest share of an agency’s budget.

Data in this section comes from Govini, which created a taxonomy of spending by the U.S. government on critical technologies including AI. Govini applied supervised machine learning and natural language processing to parse, analyze, and categorize large

volumes of federal contracts data, including prime contracts, grants, and other transaction authority (OTA) awards. The use of AI models enables Govini to analyze data that is otherwise often inaccessible.

Total Contract Spending

Figure 6.3.3 highlights total U.S. government spending on AI, subdivided by various AI segments. From 2021 to 2022, total AI spending increased from \$2.7 billion to \$3.3 billion. Since 2017, total spending has increased nearly 2.5 times. In 2022, the AI subsegments that saw the greatest amount of government spending included decision science (\$1.2 billion), and computer vision (\$0.8 billion).

U.S. Government Spending by Segment, FY 2017–22

Source: Govini, 2022 | Chart: 2023 AI Index Report

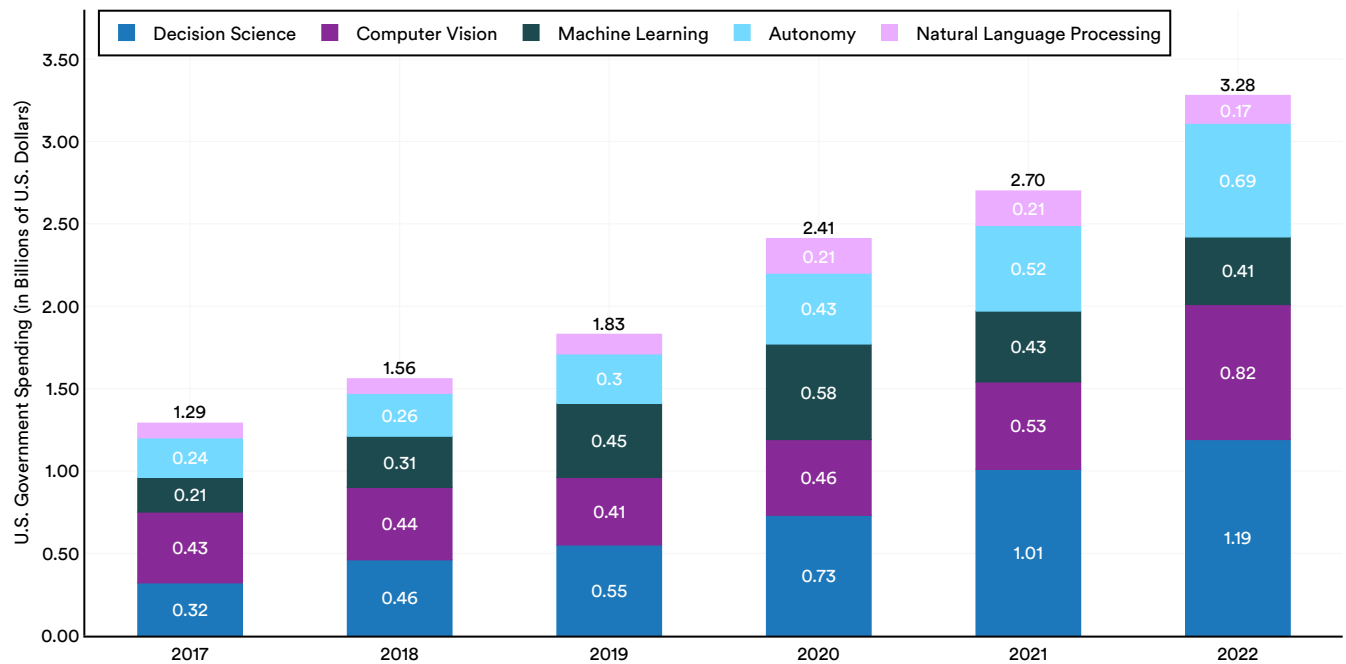


Figure 6.3.3

Figure 6.3.4 shows U.S. government spending by AI segment in FY 2021 and FY 2022. Spending increased for the decision science, computer vision, and autonomy segments, while spending on machine learning, and natural language processing dropped slightly.

U.S. Government Spending by Segment, FY 2021 Vs. 2022

Source: Govini, 2022 | Chart: 2023 AI Index Report

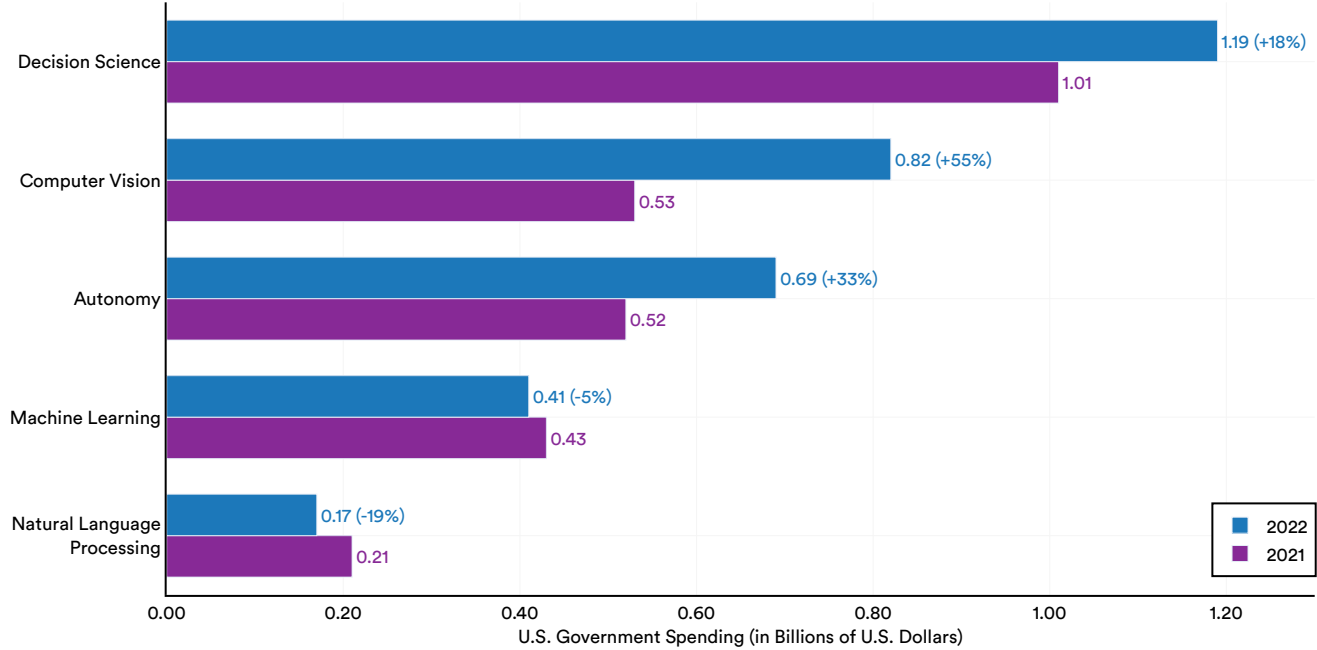


Figure 6.3.4



In FY 2022, the majority of federal AI contracts were prime contracts (62.5%), followed by grants (34.9%) and other transaction authority (OTA) awards (2.6%) (Figure 6.3.5). From FY 2021 to FY 2022, the share of contracts remained about the same, while the share of grants rose.

Total Value of Contracts, Grants, and OTAs Awarded by the U.S. Government for AI/ML and Autonomy, FY 2017–22

Source: Govini, 2022 | Chart: 2023 AI Index Report

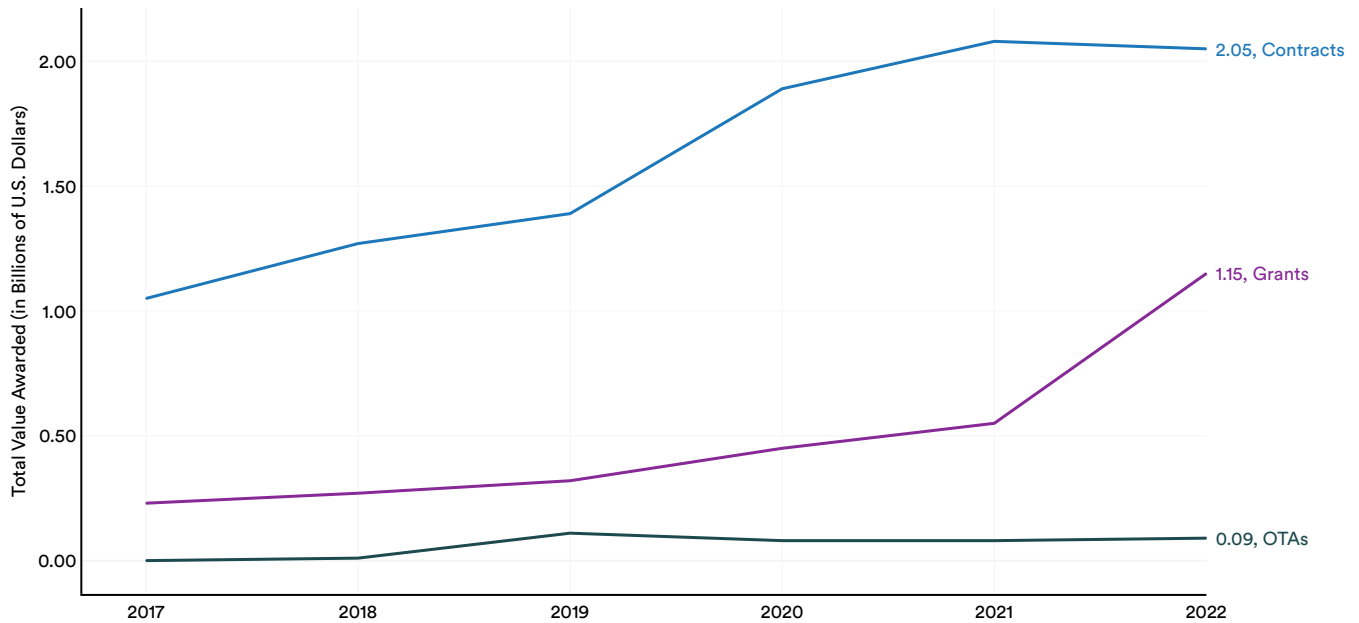


Figure 6.3.5



In 2022, the AI Index partnered with Elif Kiesow Cortez, a scholar of artificial intelligence law, in a research project tracking trends in American legal cases from 2000 to 2022 that contain AI-related keywords.⁷

6.4 U.S. AI-Related Legal Cases

Total Cases

In the last few years, there has been a sharp spike in AI-related jurisprudence in the United States. In 2022,

there were a total of 110 AI-related cases in U.S. federal and state courts, 6.5 times more than in 2016 (Figure 6.4.1).

Number of AI-Related Legal Cases in the United States, 2000–22

Source: AI Index, 2022 | Chart: 2023 AI Index Report

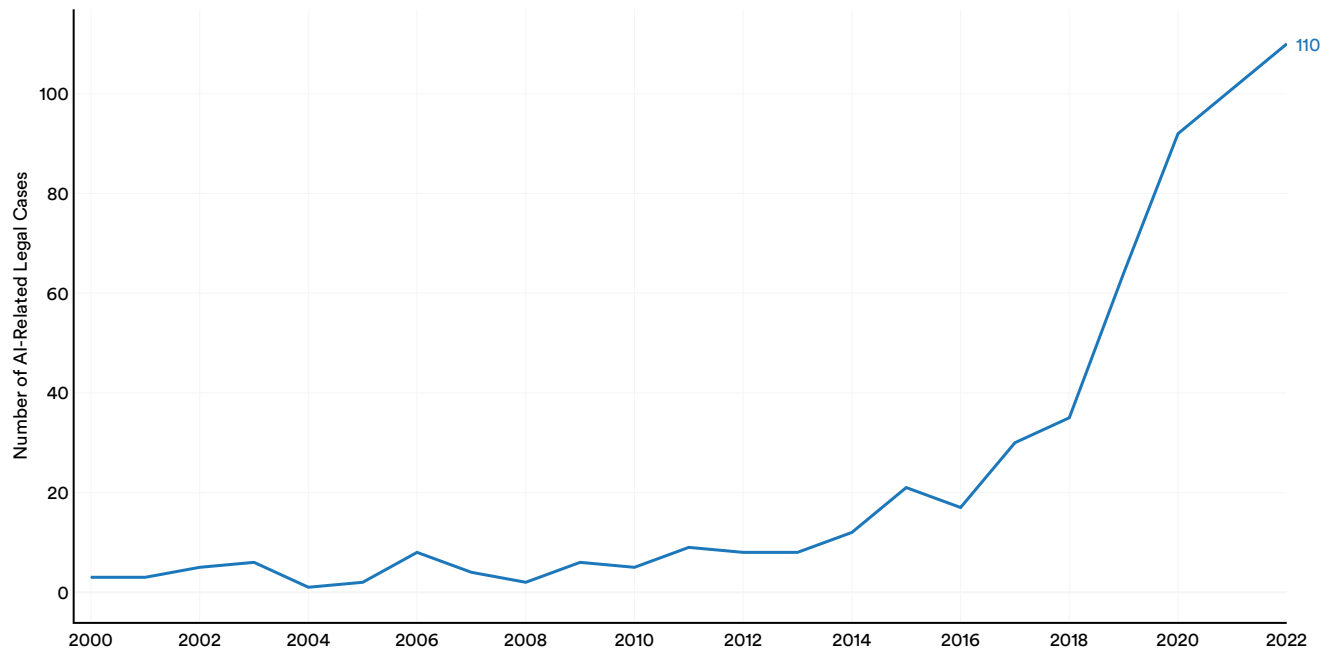


Figure 6.4.1

⁷ The Index analyzed both federal and state-level cases. Specific keywords in the search included “artificial intelligence,” “machine learning,” and “automated decision-making.” Some of these cases did not directly concern issues related to AI jurisprudence. As a next step of this project, we will aim to identify the cases that most centrally concern issues of AI-related law.

Geographic Distribution

In 2022, the majority of AI-related legal cases originated in California (23), Illinois (17), and New York (11) (Figure 6.4.2). The aggregate number of AI-related cases since 2000 show a similar geographic distribution (Figure 6.4.3). California and New York’s inclusion in the top three is unsurprising given that

they are home to many large businesses that have integrated AI. In recent years, there have been a greater number of AI-related legal cases originating from Illinois—this follows the state’s enactment of the Biometric Information Privacy Act (BIPA), which requires that companies doing business in Illinois follow a number of regulations related to the collection and storage of biometric information.

Number of AI-Related Legal Cases in the United States by State, 2022

Source: AI Index, 2022 | Chart: 2023 AI Index Report

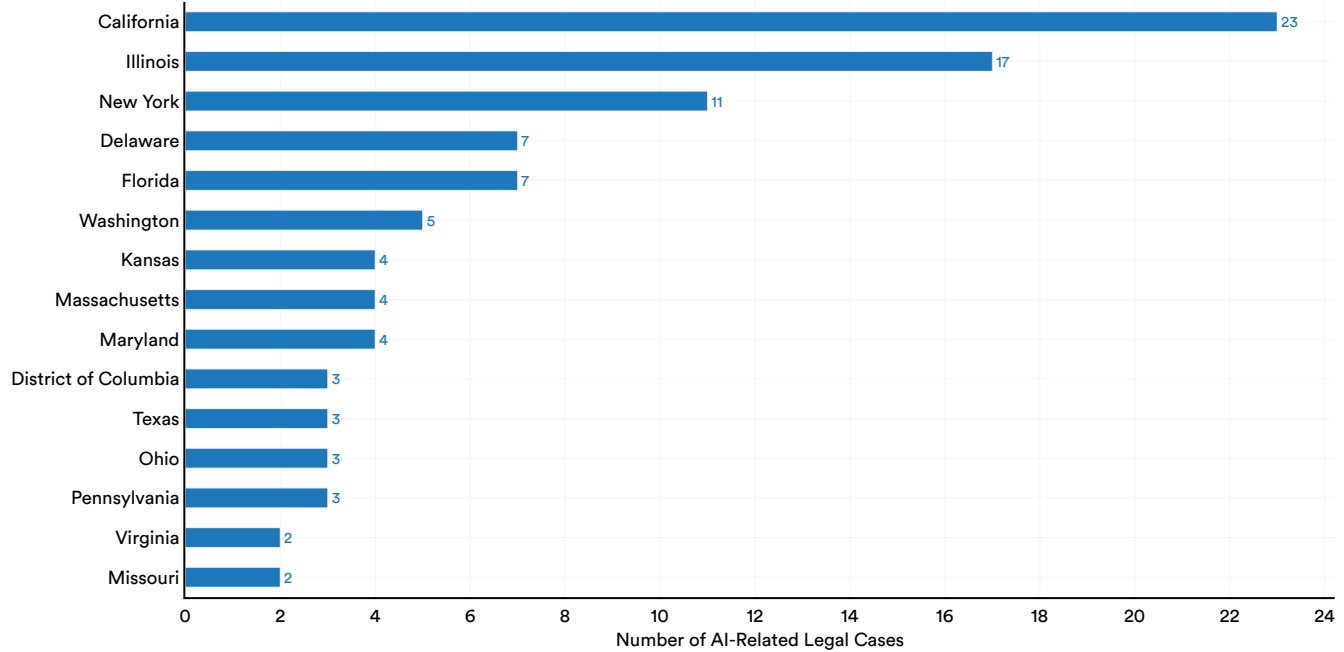


Figure 6.4.2⁸

⁸ Figures 6.4.2 and 6.4.3 include information for states and districts, given that cases sometimes originate from American districts like the District of Columbia or Puerto Rico

Number of AI-Related Legal Cases in the United States by State, 2000–22 (Sum)

Source: AI Index, 2022 | Chart: 2023 AI Index Report

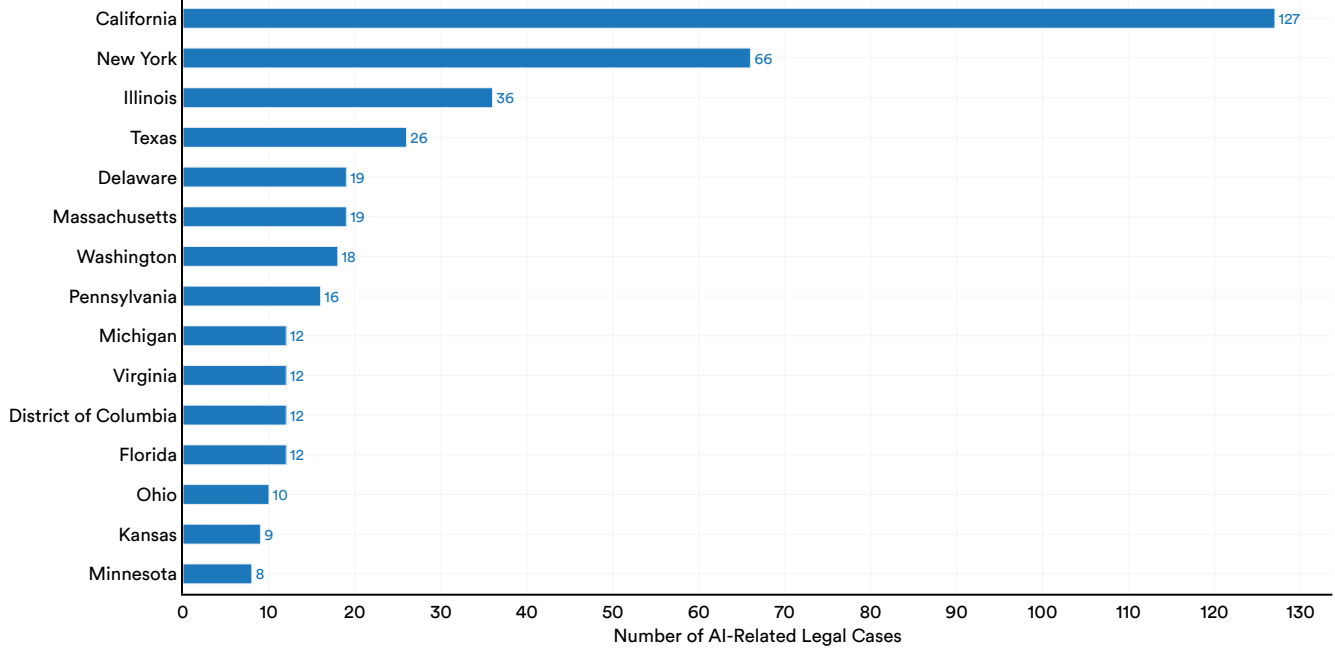


Figure 6.4.3

Sector

Figure 6.4.4 groups U.S.-based legal cases by economic sector. The predominant sector in 2022 was financial services and professional services (48 cases); followed by media, culture, graphical (18); and public service (14).

Sector at Issue in AI-Related Legal Cases in the United States, 2022

Source: AI Index, 2022 | Chart: 2023 AI Index Report

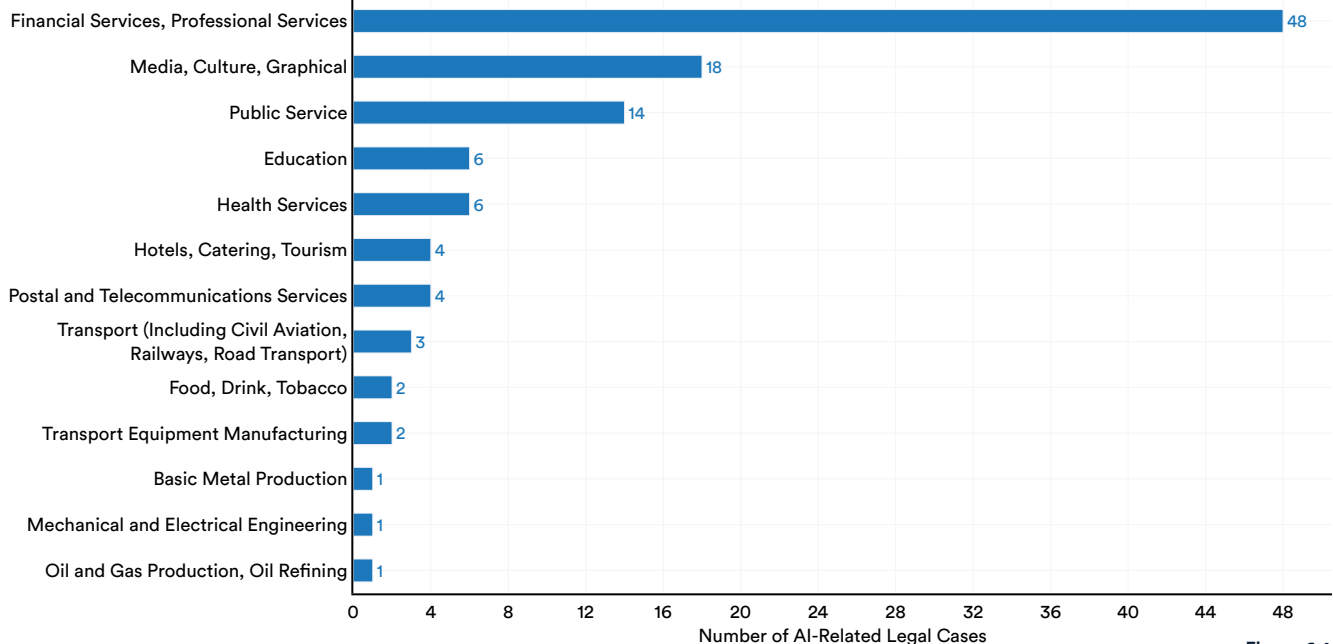


Figure 6.4.4

Type of Law

The greatest proportion of AI-related legal cases concerned civil law (29%) (Figure 6.4.5). There were also a large number of AI-related legal cases in the domain of intellectual property (19%), as well as contract law (13.6%).

Area of Law of AI-Related Legal Cases in the United States, 2022

Source: AI Index, 2022 | Chart: 2023 AI Index Report

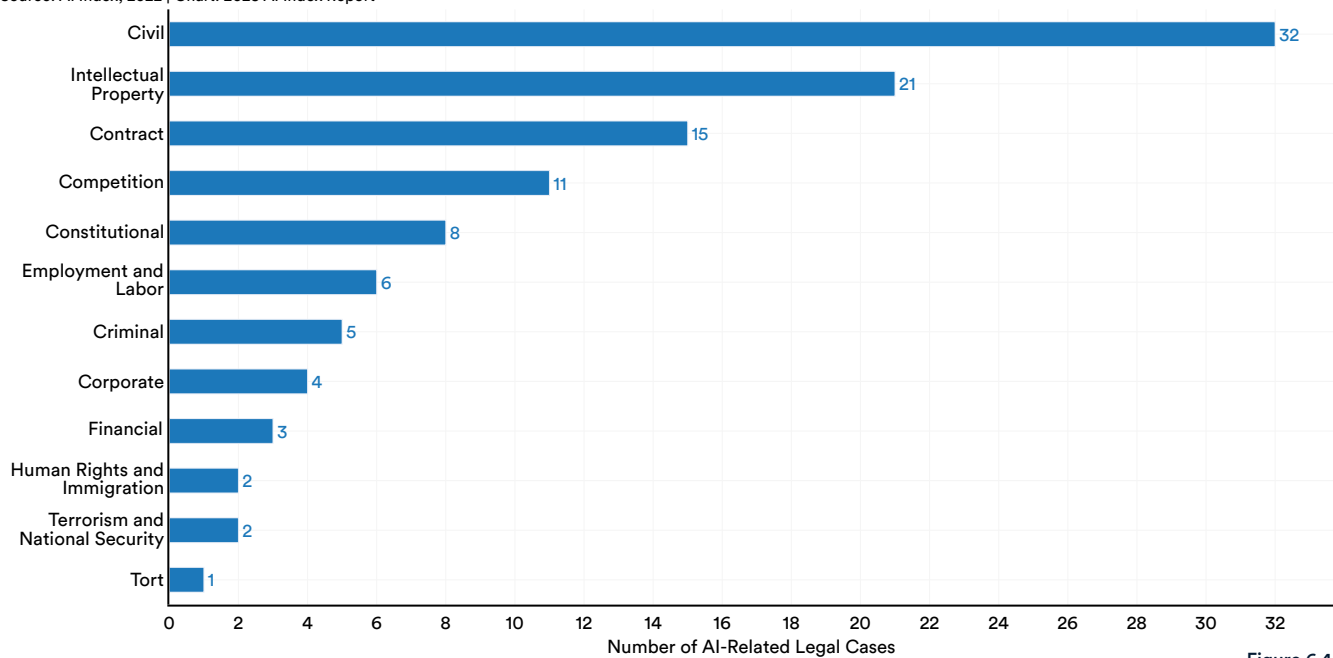


Figure 6.4.5

Narrative Highlight:

Three Significant AI-Related Legal Cases

The section below profiles three significant AI-related cases in the United States, highlighting some of the legal issues that are at stake when AI is brought into the courts.

Duerr v. Bradley University (2022-Mar-10) – United States Court of Appeals for the Seventh Circuit

The plaintiffs, who were enrolled as undergraduates in a private university in Peoria, Illinois, during the fall 2020 semester, were told to use a third-party proctoring tool called Respondus Monitor for remote, online exams. This tool made use of artificial intelligence technologies. The plaintiffs claimed that the defendants violated Illinois' Biometric Information Privacy Act (BIPA) by not adequately following its guidelines concerning the collection of biometric information. BIPA does not apply to financial institutions. Ultimately, the court ruled that under the Gramm-Leach-Bliley Act, the defendants were a financial institution by virtue of lending functions they engaged in and therefore exempt from BIPA. As such, the plaintiff's case was dismissed.

Flores v. Stanford⁹ (2021-Sep-28) – United States Court of Appeals for the Second Circuit

The plaintiffs, offenders denied parole, sued the New York State Board of Parole over being refused access to information used by the board in its review of their cases. Northpointe, Inc., petitioned the court as a non-party because its Correctional Offender Management Profiling for Alternative Sanctions (COMPAS), an AI-powered risk assessment tool, had been used by the parole board in its determinations. Northpointe wanted to prevent the disclosure of AI trade secrets to one of the plaintiff's expert witnesses. The court ruled that the confidential material in question was relevant to the plaintiff's case and posed little risk of competitive injury. As such, the material was ordered to be released under a supplemental protective order.

Dyroff v. Ultimate Software Grp., Inc (2017-Nov-26) – United States Court of Appeals for the Ninth Circuit

Plaintiff Kristanalea Dyroff sued Ultimate Software after her 29-year-old son died from an overdose of heroin laced with fentanyl, which he allegedly bought from a drug dealer that he encountered on Ultimate Software's social network site. Dyroff asserted seven claims against Ultimate Software which included negligence, wrongful death, and civil conspiracy. At the core of these claims was the argument that Ultimate Software mined the data of users and deployed that data, alongside an algorithm, to recommend drug-related discussion groups to her son. Ultimate Software moved to dismiss the claims and claimed partial immunity under the Communications Decency Act, which protects website operators from liability for third-party content on their site. The Court ruled that Ultimate Software was immune and that its use of algorithms did not sufficiently amount to novel content creation.

⁹ The defendant was Tina M. Stanford, as Chairwoman of the New York State Board of Parole.

Appendix

Global Legislation Records on AI

For AI-related bills passed into laws, the AI Index performed searches of the keyword “artificial intelligence” on the websites of 127 countries’ congresses or parliaments (in the respective languages) in the full text of bills. Note that only laws passed by state-level legislative bodies and signed into law (i.e., by presidents or through royal assent) from 2016 to 2022 are included. Laws that were approved but then repealed are not included in the analysis. In some cases, there were databases that were only searchable by title, so site search functions were deployed. Future AI Index reports hope to include analysis on other types of legal documents, such as regulations and standards, adopted by state- or supranational-level legislative bodies, government agencies, etc. The AI Index team surveyed the following databases:

Algeria	China	India	Monaco	Slovenia
Andorra	Colombia	Iran, Islamic Republic	Montenegro	South Africa
Antigua and Barbuda	Croatia	Iraq	Morocco	Spain
Argentina	Cuba	Ireland	Mozambique	Sri Lanka
Armenia	Curacao	Isle of Man	Nauru	St. Kitts and Nevis
Australia	Cyprus	Israel	The Netherlands	Suriname
Austria	Czech Republic	Italy	New Zealand	Sweden
Azerbaijan	Denmark	Jamaica	Nicaragua	Switzerland
The Bahamas	Estonia	Japan	Niger	Tajikistan
Bahrain	Faroe Islands	Kazakhstan	Northern Marina Islands	Tanzania
Bangladesh	Fiji	Kenya	Norway	Togo
Barbados	Finland	Kiribati	Panama	Tonga
Belarus	France	Korea, Republic	Papua New Guinea	Turkey
Belgium	The Gambia	Kosovo	Philippines	Tuvalu
Belize	Georgia	Kyrgyz Republic	Poland	Uganda
Bermuda	Germany	Latvia	Portugal	Ukraine
Bhutan	Gibraltar	Lebanon	Romania	United Arab Emirates
Bolivia	Greece	Liechtenstein	Russia	United Kingdom
Brazil	Greenland	Lithuania	Samoa	United States
Brunei	Grenada	Luxembourg	Saudi Arabia	Uruguay
Bulgaria	Guam	Macao SAR, China	Serbia	Vietnam
Burkina Faso	Guatemala	Malawi	Seychelles	Yemen
Cameroon	Guyana	Malaysia	Sierra Leone	Zambia
Canada	Hong Kong	Malta	Singapore	Zimbabwe
Cayman Islands	Hungary	Mauritius	Slovak Republic	
Chile	Iceland	Mexico		



United States State-Level AI Legislation

For AI-related bills passed into law, the AI Index performed searches of the keyword “artificial intelligence” on the legislative websites of all 50 U.S. states in the full text of bills. Bills are only counted as passed into law if the final version of the bill includes the keyword, not just the introduced version. Note that only laws passed from 2015 to 2022 are included. The count for proposed laws includes both laws that were proposed and eventually passed as well as laws that were proposed that have not yet been passed, or are now inactive. In some cases, databases were only searchable by title, so site search functions were deployed. The AI Index team surveyed the following databases:

<u>Alabama</u>	<u>Hawaii</u>	<u>Massachusetts</u>	<u>New Mexico</u>	<u>South Dakota</u>
<u>Alaska</u>	<u>Idaho</u>	<u>Michigan</u>	<u>New York</u>	<u>Tennessee</u>
<u>Arizona</u>	<u>Illinois</u>	<u>Minnesota</u>	<u>North Carolina</u>	<u>Texas</u>
<u>Arkansas</u>	<u>Indiana</u>	<u>Mississippi</u>	<u>North Dakota</u>	<u>Utah</u>
<u>California</u>	<u>Iowa</u>	<u>Missouri</u>	<u>Ohio</u>	<u>Vermont</u>
<u>Colorado</u>	<u>Kansas</u>	<u>Montana</u>	<u>Oklahoma</u>	<u>Virginia</u>
<u>Connecticut</u>	<u>Kentucky</u>	<u>Nebraska</u>	<u>Oregon</u>	<u>Washington</u>
<u>Delaware</u>	<u>Louisiana</u>	<u>Nevada</u>	<u>Pennsylvania</u>	<u>West Virginia</u>
<u>Florida</u>	<u>Maine</u>	<u>New Hampshire</u>	<u>Rhode Island</u>	<u>Wisconsin</u>
<u>Georgia</u>	<u>Maryland</u>	<u>New Jersey</u>	<u>South Carolina</u>	<u>Wyoming</u>

Global AI Mentions

For mentions of AI in AI-related legislative proceedings around the world, the AI Index performed searches of the keyword “artificial intelligence” on the websites of 81 countries’ congresses or parliaments (in the respective languages), usually under sections named “minutes,” “hansard,” etc. In some cases, databases were only searchable by title, so site search functions were deployed. The AI Index team surveyed the following databases:

Andorra	Ecuador	Japan	Northern Mariana Islands	South Africa
Angola	El Salvador	Kenya	Norway	South Korea
Armenia	Estonia	Kosovo	Pakistan	Spain
Australia	Fiji	Latvia	Panama	Sri Lanka
Azerbaijan	Finland	Lesotho	Papua New Guinea	Sweden
Barbados	France	Liechtenstein	Philippines	Switzerland
Belgium	The Gambia	Luxembourg	Poland	Tanzania
Bermuda	Germany	Macao SAR, China	Portugal	Trinidad and Tobago
Bhutan	Gibraltar	Madagascar	Romania	Ukraine
Brazil	Greece	Malaysia	Russia	United Kingdom
Cabo Verde	Hong Kong	Maldives	Samoa	United States
Canada	Iceland	Malta	San Marino	Uruguay
Cayman Islands	India	Mauritius	Seychelles	Zambia
China¹¹	Ireland	Mexico	Sierra Leone	Zimbabwe
Czech Republic	Isle of Man	Moldova	Singapore	
Denmark	Israel	Netherlands	Slovenia	
Dominican Republic	Italy	New Zealand		

¹¹ The National People’s Congress is held once per year and does not provide full legislative proceedings. Hence, the counts included in the analysis only searched mentions of “artificial intelligence” in the only public document released from the Congress meetings, the Report on the Work of the Government, delivered by the premier.

United States Committee Mentions

In order to research trends on the United States' committee mentions of AI, the following search was conducted:

Website: [Congress.gov](https://www.congress.gov)

Keyword: artificial intelligence

Filters: Committee Reports

United States AI Policy Papers

Organizations

To develop a more nuanced understanding of the thought leadership that motivates AI policy, we tracked policy papers published by 55 organizations in the United States or with a strong presence in the United States (expanded from last year's list of 36 organizations) across four broad categories:

- **Civil Society, Associations, and Consortia:** Algorithmic Justice League, Alliance for Artificial Intelligence in Healthcare, Amnesty International, EFF, Future of Privacy Forum, Human Rights Watch, IJIS Institute, Institute for Electrical and Electronics Engineers, Partnership on AI
- **Consultancy:** Accenture, Bain & Company, Boston Consulting Group, Deloitte, McKinsey & Company
- **Government Agencies:** Congressional Research Service, Defense Technical Information Center, Government Accountability Office, Library of Congress, Pentagon Library
- **Private Sector Companies:** Google AI, Microsoft AI, Nvidia, OpenAI
- **Think Tanks and Policy Institutes:** American Enterprise Institute, Aspen Institute, Atlantic Council, Brookings Institute, Carnegie Endowment for International Peace, Cato Institute, Center for a New American Security, Center for Strategic and International Studies, Council on Foreign Relations, Heritage Foundation, Hudson Institute, MacroPolo, National Security Institute, New America Foundation, RAND Corporation, Rockefeller Foundation, Stimson Center, Urban Institute, Wilson Center
- **University Institutes and Research Programs:** AI and Humanity, Cornell University; AI Now Institute, New York University; AI Pulse, UCLA Law; Belfer Center for Science and International Affairs, Harvard University; Berkman Klein Center, Harvard University; Center for Information Technology Policy, Princeton University; Center for Long-Term Cybersecurity, UC Berkeley; Center for Security and Emerging Technology, Georgetown University; CITRIS Policy Lab, UC Berkeley; Hoover Institution, Stanford University; Institute for Human-Centered Artificial Intelligence, Stanford University; Internet Policy Research Initiative, Massachusetts Institute of Technology; MIT Lincoln Laboratory; Princeton School of Public and International Affairs

Methodology

Each broad topic area is based on a collection of underlying keywords that describe the content of the specific paper. We included 17 topics that represented the majority of discourse related to AI between 2018–2021. These topic areas and the associated keywords are listed below:

- Health and Biological Sciences: medicine, healthcare systems, drug discovery, care, biomedical research, insurance, health behaviors, COVID-19, global health
- Physical Sciences: chemistry, physics, astronomy, earth science
- Energy and Environment: energy costs, climate change, energy markets, pollution, conservation, oil and gas, alternative energy
- International Affairs and International Security: international relations, international trade, developing countries, humanitarian assistance, warfare, regional security, national security, autonomous weapons
- Justice and Law Enforcement: civil justice, criminal justice, social justice, police, public safety, courts
- Communications and Media: social media, disinformation, media markets, deepfakes
- Government and Public Administration: federal government, state government, local government, public sector efficiency, public sector effectiveness, government services, government benefits, government programs, public works, public transportation
- Democracy: elections, rights, freedoms, liberties, personal freedoms
- Industry and Regulation: economy, antitrust, M&A, competition, finance, management, supply chain, telecom, economic regulation, technical standards, autonomous vehicle industry and regulation
- Innovation and Technology: advancements and improvements in AI technology, R&D, intellectual property, patents, entrepreneurship, innovation ecosystems, startups, computer science, engineering
- Education and Skills: early childhood, K–12, higher education, STEM, schools, classrooms, reskilling
- Workforce and Labor: labor supply and demand, talent, immigration, migration, personnel economics, future of work
- Social and Behavioral Sciences: sociology, linguistics, anthropology, ethnic studies, demography, geography, psychology, cognitive science
- Humanities: arts, music, literature, language, performance, theater, classics, history, philosophy, religion, cultural studies
- Equity and Inclusion: biases, discrimination, gender, race, socioeconomic inequality, disabilities, vulnerable populations
- Privacy, Safety, and Security: anonymity, GDPR, consumer protection, physical safety, human control, cybersecurity, encryption, hacking
- Ethics: transparency, accountability, human values, human rights, sustainability, explainability, interpretability, decision-making norms

National AI Strategies

The AI Index did a web search to identify national strategies on AI. Below is a list of countries that were identified as having a national AI strategy, including a link to said strategy. For certain countries, noted with an asterisk(*), the actual strategy was not found, and a news article confirming the launch of the strategy was linked instead.

Countries with AI Strategies in Place

Algeria*	Cyprus	Italy	Philippines	Switzerland
Argentina	Czech Republic	Japan	Poland	Thailand
Australia	Denmark	Kenya	Portugal	Tunisia*
Austria	Egypt, Arab Republic	Korea, Republic	Qatar	Turkey
Bangladesh	Estonia	Latvia	Romania	Ukraine
Botswana*	Finland	Lithuania	Russia	United Arab Emirates
Brazil	France	Luxembourg	Saudi Arabia	United Kingdom
Bulgaria	Germany	Malta	Serbia	United States
Canada	Greece	Mauritius	Sierra Leone	Uruguay
Chile	Hungary	Mexico	Singapore	Vietnam
China	India	The Netherlands	Slovenia	
Colombia	Indonesia	Norway	Spain	
Croatia	Ireland	Peru	Sweden	

Countries with AI Strategies in Development

Armenia
Azerbaijan
Bahrain
Belgium
Benin
Cuba
Iceland
Israel
Jordan
Morocco
New Zealand
Nigeria
Oman
Uzbekistan

Federal Budget for Nondefense AI R&D

Data on the federal U.S. budget for nondefense AI R&D was taken from previous editions of the AI Index (namely the [2021](#) and [2022](#) versions) and from the following National Science and Technology Council reports:

[Supplement to the President’s FY 2023 Budget](#)

[Supplement to the President’s FY2022 Budget](#)

U.S. Department of Defense Budget Requests

Data on the DoD nonclassified AI-related budget requests was taken from previous editions of the AI Index (namely the [2021](#) and [2022](#) versions) and from the following reports:

[Defense Budget Overview United States Department of Defense Fiscal Year 2023 Budget Request](#)

[Defense Budget Overview United States Department of Defense Fiscal Year 2022 Budget Request](#)

Govini

Govini is the leading commercial data company in the defense technology space. Built by Govini, [Ark.ai](#) is used at scale across the national security sector of the U.S. federal government. This platform enables government analysts, program managers, and decision-makers to gain unprecedented visibility into the companies, capabilities, and capital in national security to solve challenges pertaining to acquisition, foreign influence and adversarial capital, nuclear modernization, procurement, science and technology, and supply chain.

Govini curated USG AI spend data from their annual Scorecard Taxonomy by applying supervised machine learning (ML) and natural language processing (NLP) to parse, analyze, and categorize large volumes of federal contracts data, including prime contracts, grants, and other transaction authority (OTA) awards. Govini's most recent scorecard focused on critical technologies, of which AI/ML technologies was a segment and consistent of six subsegments: data-at-scale, decision science, computer vision, machine learning, autonomy, and natural language processing. By initially generating search terms and then subsequently excluding specific terms that yield erroneous results, Govini delivers a comprehensive yet discriminant taxonomy of subsegments that are mutually exclusive. Repeated keyword searches and filters allow a consensus, data-driven taxonomy to come into focus. Govini SMEs conduct a final review of taxonomic structure to complement this iterative, data-driven process.

The use of AI and supervised ML models enables the analysis of large volumes of irregular data contained in federal contracts—data that is often inaccessible

through regular government reporting processes or human-intensive analytical approaches.

Moreover, beyond simply making usable an expansive body of data sources, Govini's SaaS Platform and National Security Knowledge Graph establishes high fidelity standards in categorized and fused data to produce a comprehensive and accurate depiction of federal spending, and the supporting vendor ecosystem, over time.

U.S. AI-Related Legal Cases

To identify AI-related legal cases, the AI Index research team did a keyword search on the [LexisNexis](#) database, under their U.S. legal cases filter. The keywords that were searched include “artificial intelligence,” “machine learning,” and “automated decision-making.” Cases that contained one of these keywords were coded according to a variety of variables of interest.