Implementing a Global Artificial Intelligence Governance Program

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Preface

Current through August 14, 2024.

For the past two years, I attended the Digital Trust Summit held at The Watson Institute at Brown University, where the country's leading CEOs, board members, academics, and government members discussed what the rapid advancements in artificial intelligence (AI) meant for society. When I attended the inaugural Digital Trust Summit on March 31, 2023, it was only a few months after OpenAI launched ChatGPT and a week after leading AI researchers wrote an open letter[1] calling for a six-month pause on AI for time to develop and implement shared safety protocols for AI design and development. The summit's atmosphere was hopeful, but apprehensive, as our country's private and public sector leaders were still grappling with what advances in AI technology meant for our economy and society. We learned during the inaugural summit that AI is in its infancy stage and that we may observe the true AI risks when it "acts out" during its personified adolescent stage. We discussed the importance of high-quality training data so that AI does not learn negative characteristics from human beings, such as hate speech, violence, and other harmful content. We also talked about how we should "raise" AI as it progresses through its adolescent stage.

When I attended the second annual Digital Trust Summit on March 28, 2024, the atmosphere was different. We discussed our country's need to stay competitive in the AI arms race, the AI benefits in genomic research, psychology and health care, creating equity in access to AI technology, and having an adequately trained workforce for companies to develop and use AI. The conversation shifted from the risk of AI lashing out against humanity to, as one speaker put it, AI graduating from college and working as an intern. We anticipated that, by the time we meet again for the third Digital Trust Summit, AI would be a mature working professional.

In but a short year, the attitude of our country's leaders shifted on AI, as many realized the tremendous benefits AI can have on our society and economy. For example, in 2023, nearly 80% of all Fortune 500 companies mentioned AI in earning calls.[2] This is not surprising, as it is estimated that in 2030, AI can potentially contribute $15.7 trillion to the global economy.[3] Moreover, funding for generative AI has reached $25.2 billion, with major players reporting significant fundraising rounds.[4] While a vast majority of CEOs and leaders are trying to stay ahead in the AI arms race and considering ways to use this technology, it is important that AI governance not be an afterthought.

This book provides an overview of how organizations may implement a mature AI governance plan first or in parallel with ambitious AI goals. The AI governance plan described here is based on a reading of major global AI frameworks, guidelines, and laws (including draft legislation). It is intended to harmonize all of these requirements so that multinational companies can operationalize an AI governance plan at scale instead of developing siloed and fragmented AI oversight. In writing this book, I considered the conversations I had with organizations as they strategize on an

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[1] *See* Future of Life Institute, *Pause Giant AI Experiments: An Open Letter*, https://futureoflife.org/open-letter/pause-giant-ai-experiments/.

[2] *See* NESTOR MASLEJ ET AL., STANFORD UNIVERSITY INSTITUTE FOR HUMAN-CENTERED AI, THE AI INDEX 2024 ANNUAL REPORT 217 (Apr. 2024).

[3] *See* PWC, SIZING THE PRIZE, PWC'S GLOBAL ARTIFICIAL INTELLIGENCE STUDY: EXPLOITING THE AI REVOLUTION, WHAT'S THE REAL VALUE OF AI FOR YOUR BUSINESS AND HOW CAN YOU CAPITALISE? 3 (2017).

[4] *See* NESTOR MASLEJ ET AL., STANFORD UNIVERSITY INSTITUTE FOR HUMAN-CENTERED AI, THE AI INDEX 2024 ANNUAL REPORT 216 (Apr. 2024).

AI governance program. From my conversations, I understand that organizations are looking for ways to leverage existing leadership structures, workforce, management style, risk management plans, legal compliance programs, and resources for AI governance. For this reason, this book describes components for AI governance but gives flexibility on how to operationalize it.

I also note that this book is not intended to suggest that all of these measures are mandatory under applicable laws. Organizations may be subject to different laws depending on their jurisdiction and practices. Moreover, some of the frameworks cited in this book may not be practical for organizations depending on their size, sector, and/or industry. Please consult with appropriate professionals and legal counsel before developing an AI governance program.

Introduction

This book provides the components that a mature artificial intelligence (AI) governance program may include based on global guidelines, frameworks, and laws. When implementing an AI governance program, organizations should not view it as a traditional checklist of compliance tasks. Rather, AI professionals may need to be forward-looking and anticipate where the law and technology are headed. Taking this approach will require buy-in from company leadership and stakeholders, who may naturally ask to see the specific law requiring them to expend time and resources to build an AI governance program.

In some instances, this may be straightforward, because there are laws of general applicability in different countries, industries, and sectors that require AI compliance or comprehensive AI governance laws that apply, such as the European Union's Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (EU AI Act) and Colorado's Concerning Consumer Protections in Interactions with Artificial Intelligence Systems (Colorado AI Law). For companies that are not hyper-regulated by such laws, AI professionals may communicate to internal stakeholders the policy and practical justifications for implementing an AI governance program, such as protecting the organization's brand and customer trust, and avoiding dismantling AI systems if rapidly developing laws require specific requirements that the company did not consider when adopting AI, which can be costly.

Fortunately, the AI governance trends are progressing in a predictable manner, as countries on six continents and the G7 have subscribed to the Organisation for Economic Co-operation and Development's (OECD) AI Principles and look at global standards when adopting laws suitable for their jurisdictions.[1]

This book initially provides scoping topics that the AI governance team should consider before developing an AI governance program and background on AI. This book then describes the ingredients for a mature AI governance program, which is composed of the following high-level components: (A) forming an AI governance team, (B) data governance, (C) risk management, (D) legal compliance, (E) mitigation measures, and (F) accountability.

[1] *See* EUROPEAN COMMISSION, HIROSHIMA PROCESS INTERNATIONAL GUIDING PRINCIPLES FOR ORGANIZATIONS DEVELOPING ADVANCED AI SYSTEM, (Oct. 30, 2023) (reflecting the G7's adoption of a non-exhaustive list of guiding principles that "build on the existing OECD AI Principles").

As described in this book, these high-level components address the issues below.

- **AI Governance Team**. The first step in developing an AI governance program is to assemble an AI oversight team. Developing an AI governance program is not a one-person task. Regardless of a company's size, different stakeholders and employees with varying skillsets are necessary to develop and operationalize an AI governance program, from individuals trained in law, data privacy, intellectual property (IP), technical skills (e.g., data scientists, engineers, and computer scientists), human resources, marketing, and procurement. An organization will need internal and external specialists in these and other areas to adopt and implement a safe, secure, and trustworthy AI governance program. The AI governance team should be trained in regular cadence regarding the rapidly evolving laws and technologies in this area to ensure that the AI governance program is up to date and remains effective.
- **Data Governance**. It is important to use high-quality data to train, test, and validate an AI model and representative data as the input to ensure unbiased and accurate results. The AI governance team should consider maintaining a data provenance record that traces the data lineage in the AI system to identify the source of problems when it is deployed in the market and to demonstrate accountability.
- **Legal Compliance**. The AI governance team should understand which laws apply to the organization's development and use of AI. There could be laws of general applicability that apply to the AI systems, such as data privacy, product liability, employment, IP, and antitrust, as well as AI-specific laws that the organization needs to comply with. While the AI governance program described here provides the structure for AI oversight, the AI governance team will need to supplement it as necessary depending on specific laws that apply in a given use case.
- **Risk Management**. The AI governance team should understand the risks present in the organization's development and/or use of AI and rank them as prohibited, high, limited, or minimal. If the AI practice is prohibited, the AI governance team must stop the

practice. For high risks, the organization may only proceed with the AI practice if it implements appropriate mitigation measures to reduce the risks. For limited-to-minimal AI risks, the mitigation measures may be limited, such as providing a transparency notice for chatbots or AI-generated content. Ultimately, we recommend the AI governance team document in an AI impact assessment the risks, likelihood and severity of harm, mitigation measures, and benefits of AI to demonstrate accountability.

- **Mitigation Measures**. Depending on the risks identified, the AI governance team may need to implement mitigation measures to proceed with developing or using AI. These mitigation measures may include (A) providing transparency notices regarding the AI systems and explaining how the AI works, (B) measuring whether the AI systems are fair and without bias, (C) ensuring that the AI is beneficial for individuals, society, and the environment, (D) confirming that the AI is accurate, robust, safe, and secure, (E) enhancing privacy protection, (F) adopting appropriate human oversight (human-in-the-loop, over-the-loop, or out-of-the-loop), (G) keeping technical documentation and logs, (H) monitoring the AI systems after they have been placed in the market and making adjustments as necessary, (I) putting in place feedback and decision review channels, (J) adopting appropriate AI contractual provisions, and (K) having a process to decommission an AI system.
- **Accountability.** Finally, the AI governance team would implement policies and procedures to demonstrate accountability and conformity of its AI systems. The AI governance team should also keep records showing how these policies and procedures are and were applied in practice.

By adopting these components, multinational companies can help make their AI governance programs compatible with global standards and withstand rapidly evolving AI regulations and technologies.

Chapter 1. Initial Scoping Topics To Consider

Current through August 14, 2024.

1.I. OVERVIEW

If you are just starting to develop an artificial intelligence (AI) governance program, you should consider some initial scoping topics before putting pen to paper in preparing your AI governance policies, procedures, and practices. Below are some issues you should consider at the outset before developing your AI governance program.

- **The company's AI objectives.** You should first understand what your company's objectives are with AI. Some organizations with the resources and infrastructure train their own AI models for public consumption, while others may fine-tune an existing foundation model to develop an AI system. Other organizations do not develop their own AI solutions. Rather, these organizations utilize AI internally to maximize productivity, enhance customer service, or assist human resources functions. Those responsible for AI within an organization should talk to internal stakeholders to understand these goals.
- **The AI technologies your company is already developing or using.** AI governance is a subset of IT asset management. Thus, AI systems should be reflected in your broader technology oversight plan. AI leaders should inventory the technologies in operation to determine if the company is already using or developing AI systems. AI professionals may be surprised to learn that the company likely already has some semblance of AI within the organization or is working with vendors who incorporate AI within their products and services. AI professionals should review applicable procurement contracts to understand the rights and obligations related to the input data and output of AI.
- **Your company's role vis-à-vis AI.** The AI governance components you may need to adopt could vary if your company is an AI developer or deployer. Depending on your role during the AI product lifecycle, different aspects of risk mitigation are in your control. For example, an AI developer (also referred to as a "provider") is responsible for properly training and developing the AI system, while the AI deployer is responsible for using the AI system based on the developer's instructions for use and addressing deficiencies once the AI system is placed in the market. That said, sometimes these obligations may overlap because of downstream and upstream reporting of new AI risks.
- **Data rights.** Before using data to train or fine-tune an AI model or as the input prompt, companies should consider if they have the legal right to use the data for this purpose. This touches on a number of legal issues. Under data privacy laws, AI professionals should assess, among other things, whether the company gave an appropriate privacy notice to data subjects describing its use of personal data in AI, if the company documented an adequate lawful basis for processing and, where required, if the company obtained consent to use personal data for AI. AI professionals should also determine if they have the IP right to use the data and if there are any contractual terms limiting the company's use of data for its own commercial benefit. These are critical

issues because an AI system developed on unlawfully sourced data could be subject to model disgorgement.[1]

- **A workforce ready for AI.** Organizations may need a workforce with diverse skillsets to develop and use AI systems. Organizations making sophisticated uses of AI may need data scientists, engineers, computer scientists, attorneys, human resources personnel, and business professionals who understand the company's objectives and goals in connection with AI. Organizations should consider training their existing workforce to address these needs and hiring external candidates or retaining contractors to supplement missing skillsets.
- **Your company's risk tolerance level.** When the explosion of generative AI first started trending the news, companies had different perspectives on AI depending on their risk tolerance levels. On the one end of the risk spectrum, some companies took a hardline approach to AI and prepared policies and procedures to prevent their employees from developing and using AI within the company. These companies were not yet certain where the law and technology were headed and wanted to put a pause on AI until the horizon was clear. On the opposite side of the spectrum, some companies were apprehensive about falling behind in the AI arms race and were willing to move aggressively to develop or use AI. AI professionals should gauge their organization's temperature and understand where it falls within this spectrum. Organizations with a low risk tolerance level will want to implement the full nuts and bolts of AI governance before developing or using AI, while companies with higher risk tolerance may establish their AI governance program in parallel with AI development and/or use. If companies take the latter approach (which is not advisable), legal should confer with technical teams to ensure that the AI system has appropriate technical features to permit completing the AI governance program after the product is developed.
- **Understand your company's management approach.** Companies have different approaches for compliance oversight. Some have centralized management, whereby a single group at the top oversees compliance and communicates the implementation plan to local offices and regions. Others take a decentralized approach, whereby each office and region are responsible for complying with their local laws. Another approach is a hybrid of the two, which has both top-to-bottom and bottom-up reporting for compliance. This book provides the component parts that an organization can use for each of these management styles.

[1] *See* In the Matter of Everalbum, Inc., US FTC, Docket No. C-4743, Decision and Order (May 6, 2021) (requiring respondent to delete or destroy an AI model developed with data allegedly obtained without consumer consent).

Chapter 2. Background

Current through August 14, 2024.

2.I. BACKGROUND

This section provides background to help readers understand the basics of artificial intelligence (AI) as they develop their governance programs.

2.II. AI DEFINED

The term "artificial intelligence" or "AI" was first coined at Dartmouth College by John McCarthy, a computer scientist, at the 1956 Dartmouth Summer Research Project on Artificial Intelligence.[1] Since then, as AI technology and law have evolved, global laws, guidelines, principles, and frameworks have adopted different definitions for AI. For this book, we will use the AI definition adopted by the world's first comprehensive and horizontal AI governance law—the EU AI Act. The EU AI Act's definition of AI is suitable because it is derived from the Organisation for Economic Co-operation and Development's (OECD) AI Principles,[2] which have been adopted by countries on six continents, including the G7 (US, UK, Japan, Canada, France, Germany, and Italy). The EU AI Act's definition has also been adopted under the Colorado AI Law, which may serve as a model for state-by-state AI legislation in the US.

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[1] *See* John McCarthy, et al., *A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence* (Aug. 31, 1955), https://www-formal.stanford.edu/jmc/history/dartmouth/dartmouth.html; Dartmouth College, Artificial Intelligence Coined at Dartmouth, https://home.dartmouth.edu/about/artificial-intelligence-ai-coined-dartmouth (last visited Aug. 14, 2024).

[2] *See* Org. for Econ. Co-operation and Dev. [OECD], *Recommendation of the Council on Artificial Intelligence,* Legal Instrument 449 (July 11, 2023), https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449.

The EU AI Act defines an AI system as:

> a [1] machine-based system that is designed to [2] operate with varying levels of autonomy and that may [3] exhibit adaptiveness after deployment, and that, [4] for explicit or implicit objectives, [5] infers, from the input it receives, how to [6] generate outputs such as predictions, content, recommendations, or decisions that can influence [7] physical or virtual environments[.][3]

Below is an overview of each of these elements.

- **Machine-based system.** Machine-based system means that AI systems run on machines.[4] This includes systems using "techniques such as machine learning and knowledge-based approaches, and application areas such as computer vision, natural language processing, speech recognition, intelligent decision support systems, intelligent robotic systems, as well as the novel application of these tools to various domains."[5]
- **Levels of autonomy.** AI systems are designed to operate with some degree of independence and limited human intervention.[6] AI systems can "learn or act without human involvement following the delegation of autonomy and process automation by humans."[7] However, AI systems require human oversight during their lifecycle, "such as during AI system design, data collection and processing, development, verification, validation, deployment, or operation and monitoring."[8]

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[3] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; *see also* COLO. REV. STAT. ANN. §6-1-1701(2) (defining an AI system as "any machine-based system that, for any explicit or implicit objective, infers from the inputs the system receives how to generate outputs, including content, decisions, predictions, or recommendations, that can influence physical or virtual environments").

[4] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Recital 12, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[5] *See* Org. for Econ. Co-operation and Dev. [OECD], *Explanatory Memorandum on the Updated OECD Definition of an AI Sys.* Artificial Intelligence Papers No. 8 (Mar. 5, 2022), https://www.oecd-ilibrary.org/docserver/623da898-en.pdf?expires=1726780135&id=id&accname=guest&checksum=A143B27CE601FB8C7C801F979A3BF120.

[6] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Recital 12, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[7] *See* Org. for Econ. Co-operation and Dev. [OECD], *Explanatory Memorandum on the Updated OECD Definition of an AI Sys,* at 6, Artificial Intelligence Papers No. 8 (Mar. 5, 2022), https://www.oecd-ilibrary.org/docserver/623da898-en.pdf?expires=1726780135&id=id&accname=guest&checksum=A143B27CE601FB8C7C801F979A3BF120.

[8] *Id*.

- **Adaptiveness.** AI systems should be capable of self-learning and changing while in use.[9] AI systems, particularly those based on machine learning, can evolve after initial development and modify their behavior through direct interaction with input and data before or after deployment by inferring patterns and relationships in data.[10] Through this training process, some AI systems can make new inferences that their programmers did not initially consider.[11]
- **Explicitly defined or implicit objectives.** AI systems operate based on explicitly defined or implicit objectives, which may be different from the AI system's intended purpose in a specific context.[12] Explicitly defined objectives means that the developer encodes the objective directly into the AI system, such as game-playing systems, reinforcement learning systems, combinatorial problem-solving systems, planning algorithms, simple classifiers and dynamic programming algorithms.[13] Implicit objectives means that the rules dictate the action an AI system must take according to the current circumstances, such as applying a rule for a self-driving car to stop at a red traffic light.[14] The implicit objectives may also not be explicitly programmed to perform a task, but the objective is incorporated through training data and a system architecture that learns to emulate data.[15]
- **Inferences.** Inference means that the AI system generates an output from its input, usually after deployment.[16] AI systems "learn from data how to achieve certain objectives, and logic- and knowledge-based approaches that infer from encoded knowledge or symbolic representation of the task to be solved."[17]

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[9]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Recital 12, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[10]*See* Org. for Econ. Co-operation and Dev. [OECD], *Explanatory Memorandum on the Updated OECD Definition of an AI Sys.*, at 6, Artificial Intelligence Papers No. 8 (Mar. 5, 2022), https://www.oecd-ilibrary.org/docserver/623da898-en.pdf?expires=1726780135&id=id&accname=guest&checksum=A143B27CE601FB8C7C801F979A3BF120.

[11]*Id*.

[12]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Recital 12, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[13]*See* Org. for Econ. Co-operation and Dev. [OECD], *Explanatory Memorandum on the Updated OECD Definition of an AI Sys.,* at 7, Artificial Intelligence Papers No. 8 (Mar. 5, 2022), https://www.oecd-ilibrary.org/docserver/623da898-en.pdf?expires=1726780135&id=id&accname=guest&checksum=A143B27CE601FB8C7C801F979A3BF120.

[14]*Id*.

[15]*Id*.

[16]*Id.* at 9.

[17]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Recital 12, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

- **Generate output.** AI systems generate outputs, such as predictions, content, recommendations, or decisions, depending on the context of their operations.[18] These outputs correspond to the different levels of human involvement, with "decisions" being the most autonomous type of output and "predictions" the least autonomous.[19]
- **Environments.** The AI system's environment can be physical or virtual and include environments describing human activity, such as biological signals or human behavior.[20] The AI system observes the environment using data and sensor inputs and is influenced through actions (actuators). "Sensors and actuators are either humans or components of machines or devices."[21]

While the term "AI system" is broad in scope, it does not include traditional software systems or programming approaches and systems that are based on rules humans define to automatically execute operations.[22]

2.III. AI INCIDENTS, HAZARDS, AND HARMS

One of the most critical functions of an AI governance program is to manage risks and increase safety. Below are some of the global definitions and guidelines for AI incidents, hazards, and harms.

2.III.A. The OECD and EU AI Act

To help identify risks that may arise with AI system development and deployment, the OECD maintains the AI Incidents Monitor (AIM) to "show patterns and establish a collective understanding of AI incidents and their multifaceted nature and serve as an important tool for trustworthy AI."[23] For the past 10 years (2014–2024), the AIM has documented close to 10,000 AI incidents, which are tracked by AI principles, such as privacy and data governance, respect for human rights, robustness and digital security, transparency and explainability, accountability, reskill or upskill, performance, fairness, safety, and democracy and human autonomy, and harms, such as physical, psychological, economic/property, reputational, public interest, human rights, and other.[24] These harms impact a number of industries, such as digital security, government,

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[18] *Id.*

[19] *See* Org. for Econ. Co-operation and Dev. [OECD], *Explanatory Memorandum on the Updated OECD Definition of an AI Sys.,* at 9, Artificial Intelligence Papers No. 8 (Mar. 5, 2022), https://www.oecd-ilibrary.org/docserver/623da898-en.pdf?expires=1726780135&id=id&accname=guest&checksum=A143B27CE601FB8C7C801F979A3BF120.

[20] *Id*. at 7.

[21] *Id*.

[22] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Recital 12, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[23] *See OECD AI Incidents Monitor (AIM)*, OECD.AI POLICY OBSERVATORY, https://oecd.ai/en/incidents?search_terms=%5B%5D&and_condition=false&from_date=2014-01-01&to_date=2024-04-15&properties_config=%7B%22principles%22:%5B%5D,%22industries%22:%5B%5D,%22harm_types%22:%5B%5D,%22harm_levels%22:%5B%5D,%22harmed_entities%22:%5B%5D%7D&only_threats=false&order_by=date&num_results=20 (last visited Aug. 14, 2024).

[24] *Id*.

security and defense, mobility and autonomous vehicles, arts, entertainment and recreation, media, social platforms and marketing, health care, drugs and biotechnology, financial and insurance services, business processes and support services, education and training, and IT infrastructure and hosting.[25]

In identifying these harms, the OECD applies a uniform definition for "AI incidents," which is an event where the AI system development or use results in actual harm.[26] The OECD defines an AI incident as follows:[27]

> An AI incident is an event, circumstance or series of events where the development, use or malfunction of one or more AI systems directly or indirectly leads to any of the following harms:
>
> (a) injury or harm to the health of a person or groups of people;
>
> (b) disruption of the management and operation of critical infrastructure;
>
> (c) violations of human rights or a breach of obligations under the applicable law intended to protect fundamental, labour and IP rights;
>
> (d) damage to property, communities or the environment.

The EU AI Act has adopted a similar standard by defining the synonymous term "serious incident" as follows:[28]

> '[S]erious incident' means any incident or malfunctioning of an AI system that directly or indirectly leads to any of the following:
>
> (a) the death of a person, or serious damage to a person's health;
>
> (b) a serious and irreversible disruption of the management and operation of critical infrastructure;
>
> (c) the infringement of obligations under Union law intended to protect fundamental rights;
>
> (d) serious harm to property or the environment.

Under the EU AI Act, serious incidents involving high-risk AI systems trigger reporting and investigation obligations.[29]

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[25] *Id.*

[26] *See OECD AI Incidents Monitor, Methodology and Disclosures*, OECD.AI POLICY OBSERVATORY, https://oecd.ai/en/incidents-methodology (last visited Aug. 14, 2024).

[27] *Id.*

[28] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 3(49), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[29] *See generally id.* at Art. 73.

The OECD has also adopted a definition for "AI hazard," which is an event where the AI system's development or use may potentially harm someone.[30] The OECD defines an "AI hazard" as follows: [31]

> An AI hazard is an event, circumstance or series of events where the development, use or malfunction of one or more AI systems could plausibly lead to an AI incident, i.e., any of the following harms:
>
> (a) injury or harm to the health of a person or groups of people;
>
> (b) disruption of the management and operation of critical infrastructure;
>
> (c) violations to human rights or a breach of obligations under the applicable law intended to protect fundamental, labour and IP rights;
>
> (d) harm to property, communities or the environment.

2.III.B. The Harm Categories Under the National Institute of Standards and Technology (NIST)

The NIST organizes AI harms in three groups—harm to people, organization, and ecosystem.[32] Harm to people can involve harm to (1) an individual's civil liberties, rights, physical or psychological safety, or economic opportunity, (2) a group or community, such as discrimination against a population subgroup, and (3) society, such as to democratic participation or educational access.[33] Harm to an organization can involve disruption to business operations, security breaches, monetary loss, and impact on reputation.[34] Harm to an ecosystem relates to the impact on interconnected and interdependent elements and resources, the global financial system, supply chain or interrelated systems, and natural resources, the environment and planet.[35]

2.III.C. The OECD Classification of AI Impacts

The OECD Framework for the Classification of AI Systems describes the types of impact AI systems may have on human rights, democratic values, environment, well-being and society.[36] Examples of these impacts include:[37]

- Liberty, safety and security;
- Physical, psychological and moral integrity;
- Freedom of thought, conscience and religion;
- Rule of law, absence of arbitrary sentencing;
- Equality and non-discrimination;
- Social and economic rights (e.g., health, education);

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[30] *See OECD AI Incidents Monitor, Methodology and Disclosures*, OECD.AI Policy Observatory, https://oecd.ai/en/incidents-methodology (last visited Aug. 14, 2024).

[31] *Id*.

[32] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

[33] *Id*.

[34] *Id*.

[35] *Id*.

[36] *See* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems,* Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en.

[37] *Id*.

- Quality of democratic institutions (e.g., free elections);
- Right to property;
- Aggregate society-level risk;
- Physical and mental health;
- Housing;
- Income and wealth;
- Quality of job;
- Quality of environment;
- Social connections;
- Civic engagement;
- Education, knowledge and skills;
- Work-life balance; and
- Duration of impact.

2.III.D. Examples of AI Incidents

The severity of AI incidents will vary and have different impact. In the most extreme situation, AI systems may cause death. For example, in February, 2024, a partially automated vehicle collided with a vehicle that was stopped on a highway, resulting in a fatality.[38] This incident underscores the need for drivers to be fully "in the loop," particularly for partially automated driving vehicles.

An AI incident may also cause emotional distress and embarrassment. For example, it was reported that a mother was misidentified as a trespasser when a supermarket's facial recognition technology scanned her face and incorrectly identified her on the store's database of known offenders or suspects.[39] The supermarket staff told her to leave, even though she gave the store staff three forms of identification to show that she was not the culprit.[40] The mother said she felt discriminated because of her skin color and was embarrassed when the store staff accused her of theft.[41] The New Zealand Privacy Commissioner launched an inquiry related to the supermarket's alleged use of facial recognition technology based on concerns about the AI system's bias and accuracy.[42]

In the United States, the Federal Trade Commission (FTC) has also investigated a retail chain's alleged use of facial recognition technology.[43] The FTC alleged that the retail chain used facial recognition technology "to identify customers who may have engaged in shoplifting or other

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[38] *See Electric Ford SUV Driver Was Using Automated System Before Fatal Crash, Investigators Say, CBS News* (Apr. 12, 2024), https://www.cbsnews.com/detroit/news/electric-ford-suv-driver-was-using-automated-system-before-fatal-texas-crash-investigators-say/.

[39] *See* Sandra Conchie, *Supermarket Facial Recognition Trial: Rotorua Mother's 'Discrimination' Ordeal*, ROTORUA DAILY POST (Apr. 12, 2024), https://www.nzherald.co.nz/rotorua-daily-post/news/supermarket-facial-recognition-trial-rotorua-mothers-discrimination-ordeal/IK4ZEJHLQVFRLMDE6LX4AR57PE/.

[40] *Id*.

[41] *Id*.

[42] *Id*.

[43] *See* Press Release, Fed. Trade Comm'n, Rite Aid Banned from Using AI Facial Recognition After FTC Says Retailer Deployed Technology Without Reasonable Safeguards (Dec. 19, 2023), https://www.ftc.gov/news-events/news/press-releases/2023/12/rite-aid-banned-using-ai-facial-recognition-after-ftc-says-retailer-deployed-technology-without.

problematic behavior."[44] The FTC claimed that the facial recognition technology generated thousands of false-positive matches, which allegedly caused customers to be humiliated, embarrassed, and harassed by store staff.[45] The FTC also alleged that the facial recognition technology disproportionately impacted people of color.[46] These AI incidents demonstrate the need to use representative data for training AI and testing its accuracy and fairness before deploying it into the market.

Bad actors are also using AI systems to scam victims. In one incident, a scammer used a CEO's deepfake audio to call an employee and obtain the employee's contact details.[47] This incident demonstrates the need to be vigilant against deepfakes to protect personal information from similar security incidents.

Other AI manipulations may have a benign impact on individuals but harm public interest, such as a social media post that recently went viral about an AI-generated image depicting the sun covered by the moon's shadow with swirling sunrays.[48] Upon investigation, the image was found to not be a genuine image of the April 8, 2024 solar eclipse.[49] While this situation did not lead to any physical or emotional harm, it could impact the veracity of photographs maintained by the scientific community.

2.IV. STRONG/BROAD V. WEAK/NARROW AI

There are different ways to define and categorize AI, but one common distinction is between weak/narrow and strong/broad AI. Weak/narrow AI is trained and designed to perform specific tasks.[50] Weak/narrow AI is a bit of a misnomer because it is anything but weak, as it includes the current most advanced AI systems.[51] This includes virtual companions, real-time universal translation, next-gen cloud robotics, autonomous surgical robotics, robotic personal assistants, cognitive cybersecurity, neuromorphic computing, autonomous systems, spam filters, chatbots, and real-time emotion analytics.[52]

Strong/broad AI refers to the hypothetical or aspirational goal of creating AI that can perform any intellectual task that a human can.[53] The AI, like a human, is self-aware, conscious, able to solve problems and constantly evolves over time.[54] Strong/broad AI is only a theoretical concept

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[44] *Id.*

[45] *Id*.

[46] *Id.*

[47] *See* Michael Kan, *Scammers Target LastPass Employee With CEO Audio Deepfake*, PCMAG (Apr. 12, 2024), https://www.pcmag.com/news/scammers-target-lastpass-employee-with-ceo-audio-deepfake.

[48] *See* Srijanee Chakraborty, *AI Generated Image Viral As Photograph of Total Solar Eclipse 2024*, BOOM (Apr. 12, 2024), https://www.boomlive.in/fact-check/fact-check-total-solar-eclipse-2024-artificial-intelligence-ai-image-viral-fake-news-24886.

[49] *Id*.

[50] *See* Cole Stryker and Eda Kavlakoglu, *What is Artificial Intelligence (AI), Types of Artificial Intelligence: Weak AI vs. Strong AI*, IBM, https://www.ibm.com/topics/artificial-intelligence (Aug. 16, 2024).

[51] *Id*.

[52] *See* U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 14, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024).

[53] *Id*. at 14–15.

[54] *See What is Strong AI?*, IBM, https://www.ibm.com/topics/strong-ai (last visited Aug. 14, 2024); U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 14, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024).

and has not been developed yet.[55] Some leading scientists even contend that the notion of strong/broad AI does not exist in the first place.[56] There is also the term "super AI," which refers to AI that has cognitive abilities that surpass human intelligence.[57] However, this concept mostly exists in science fiction movies and does not exist.[58]

Notably, despite significant advances, AI fails to exceed human abilities in "more complex cognitive tasks, such as visual commonsense reasoning and advanced-level mathematical problem-solving (competition-level math problems)."[59] This explains why we do not yet have strong/broad or super AI.

2.V. MACHINE LEARNING, DEEP LEARNING, AND NEURAL NETWORKS

Machine learning, deep learning, and neural networks are all sub-disciplines of AI.[60] Both machine learning and deep learning are trained to learn on data.[61] However, machine learning requires more human involvement and structured data, while deep learning is a scalable type of machine learning that can learn from unstructured data in raw form.[62]Once trained, a machine learning model can ingest new or unseen data and predict outcomes by detecting patterns contained in the new data.[63] Machine learning models also continue to improve their ability to make predictions through each iteration of training, testing and tuning.[64] Machine learning includes such applications as speech recognition, video recommendation models, spam filtering, and targeted advertisement.[65]

Neural networks, also known as artificial neural networks, attempt to mimic the way a human brain works (but do not operate like the human brain).[66] Neural networks are made of node layers that contain input, hidden, and output layers, which are connected to each other and have an associated weight and threshold.[67] When any node's output is higher than the threshold, that

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[55]*See What is Strong AI?*, IBM, https://www.ibm.com/topics/strong-ai (last visited Aug. 14, 2024); U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 14–15, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024).

[56]*See* U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 14, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024).

[57]*Id.* at 15.

[58]*Id*.

[59]*See* NESTOR MASLEJ ET AL., INST. FOR HUMAN-CENTERED AI, STANFORD UNIV., THE AI INDEX 2024 ANNUAL REPORT 81 (Apr. 2024).

[60]*See* Cole Stryker and Eda Kavlakoglu, *What is Artificial Intelligence (AI)*, IBM, https://www.ibm.com/topics/artificial-intelligence (Aug. 16, 2024).

[61]*Id*.

[62]*Id*.

[63]*See* DAVID LESLIE ET AL., THE ALAN TURING INST., AI ETHICS AND GOVERNANCE IN PRACTICE: AN INTRODUCTION 20 (2023), https://www.turing.ac.uk/sites/default/files/2023-12/aieg-ati-ai-ethics-an-intro_1.pdf.

[64]*Id*.

[65]*See* U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 16, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024); David Leslie et al., THE ALAN TURING INST., AI ETHICS AND GOVERNANCE IN PRACTICE: AN INTRODUCTION 20 (2023), https://www.turing.ac.uk/sites/default/files/2023-12/aieg-ati-ai-ethics-an-intro_1.pdf.

[66]*See* U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 19, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024).

[67]*Id*.; *What is a Neural Network?*, IBM, https://www.ibm.com/topics/neural-networks (last visited Aug. 14, 2024).

node is activated and sends data to the next node.[68] However, if the output node is not above the threshold, it will not pass data to the next node.[69] Deep learning involves greater depth in the neural network's layers.[70]If a neural network has more than three layers, which includes inputs and the outputs, it is considered a deep-learning algorithm.[71]

2.VI. METHODS OF AI TRAINING

There are different methods to train an AI model—supervised, unsupervised, semi-supervised, and reinforcement learning. Supervised learning involves training an AI model using labeled data.[72] For example, if you want an AI system to distinguish between legitimate and spam email, you could label data as real email or spam as part of the training process. AI models trained using supervised learning perform (1) classification, which assign test data into categories through prediction (e.g., grouping images by cats or dogs), or (2) regression, which determines the relationship between features and a target variable (e.g., predicting household energy usage based on outside temperature).[73]

Unsupervised learning is trained on unlabeled data and is able to look for patterns in the data without labels.[74]Unsupervised learning is commonly used for dimensionality reduction or clustering, which involves grouping data points based on a similar metric.[75]For example, an AI model developed through unsupervised learning that is fed sales data can identify different types of clients who commonly purchase products.[76]This AI model could help a company's marketing team target specific customer groups based on consumption history and other characteristics.[77]Semi-supervised learning is trained on a mix of labeled and unlabeled data.[78]

Reinforcement learning, on the other hand, learns through trial and error whereby correct actions are rewarded while incorrect actions receive negative feedback.[79] The AI is able to learn from its mistakes by continuously interacting with the environment, instead of existing data.[80]

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[68]*See How Neural Network Models in Machine Learning Work*, TURING, https://www.turing.com/kb/how-neural-network-models-in-machine-learning-work (last visited Aug. 14, 2024).

[69]*Id*.

[70]*See* U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 19, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024).

[71]*See* IBM Data and AI Team, *AI vs. Machine Learning vs. Deep Learning vs. Neural Networks: What's the Difference?*, IBM (July 6, 2023), https://www.ibm.com/think/topics/ai-vs-machine-learning-vs-deep-learning-vs-neural-networks.

[72]*See* Sara Brown, *Machine Learning, Explained*, MIT SLOAN SCH. OF MGMT.: IDEAS MADE TO MATTER (Apr. 21, 2021), https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained.

[73]*See* DAVID LESLIE ET AL., THE ALAN TURING INST., AI ETHICS AND GOVERNANCE IN PRACTICE: AN INTRODUCTION 20 (2023), https://www.turing.ac.uk/sites/default/files/2023-12/aieg-ati-ai-ethics-an-intro_1.pdf.

[74]*See* Sara Brown, *Machine Learning, Explained*, MIT SLOAN SCH. OF MGMT.: IDEAS MADE TO MATTER (Apr. 21, 2021), https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained.

[75]*See* U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 18, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024).

[76]*Id*.

[77]*Id*.

[78]*See* Dave Bergman, *What is Semi-Supervised Learning?*, IBM (Dec. 12, 2023), https://www.ibm.com/topics/semi-supervised-learning.

[79]*See* Sara Brown, *Machine Learning, Explained*, MIT SLOAN SCH. OF MGMT.: IDEAS MADE TO MATTER (Apr. 21, 2021), https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained.

[80]*See* U.A.E., NAT'L PROGRAM FOR ARTIFICIAL INTEL., AI GUIDE 18, https://ai.gov.ae/wp-content/uploads/2020/02/AIGuide_EN_v1-online.pdf (last visited Aug. 14, 2024).

Reinforcement learning is used in games and autonomous driving with simulated environments.[81]

2.VII. GENERATIVE V. DISCRIMINATIVE MODELS

Generative AI refers to deep learning that focuses on creating new data or content that resembles the original data or content, such as images, text, and other content.[82] It is used to generate art, music, and natural language processing tasks.[83] Examples of generative AI models include naïve Bayes models, hidden Markov models, linear discriminant analysis, and generative adversarial networks.[84]

A discriminative AI model, however, is a type of machine learning method that learns to discriminate between classes.[85] Discriminative AI models focus on predicting data labels by distinguishing between dataset classes, but are not capable of generating new data.[86] This type of AI is used to perform classification tasks, such as spam filtering and image classification.[87] Examples of discriminative AI models include regression analyses, support-vector machines, traditional neural networks, decision trees and random forests.[88]

2.VIII. MULTI-MODAL MODELS

Multi-modal models refers to a subset of deep learning that can handle or integrate multiple types of data or modalities, such as images, text, speech, and video.[89] These models are trained on large amounts of data and learn patterns and the association between text descriptions and corresponding images, videos, or audio recordings.[90]

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[81] *Id*.

[82] *See* Kim Martineau, *What is Generative AI?*, IBM (Apr. 20, 2023), https://research.ibm.com/blog/what-is-generative-AI.

[83] Shradha Pujari, *Generative AI vs. Discriminative AI*, Medium (Sept. 16, 2023), https://pujarishradha.medium.com/generative-ai-vs-discriminative-ai-75415c8f7adf.

[84] *See* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems,* Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en.

[85] *See* Apostol Vassilev, et al., *Adversarial Machine Learning: A Taxonomy and Terminology of Attacks and Mitigations* 93, NIST (Jan. 2024) https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-2e2023.pdf, https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-2e2023.pdf.

[86] *See* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems,* Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en.

[87] Shradha Pujari, *Generative AI vs. Discriminative AI*, Medium (Sept. 16, 2023), https://pujarishradha.medium.com/generative-ai-vs-discriminative-ai-75415c8f7adf.

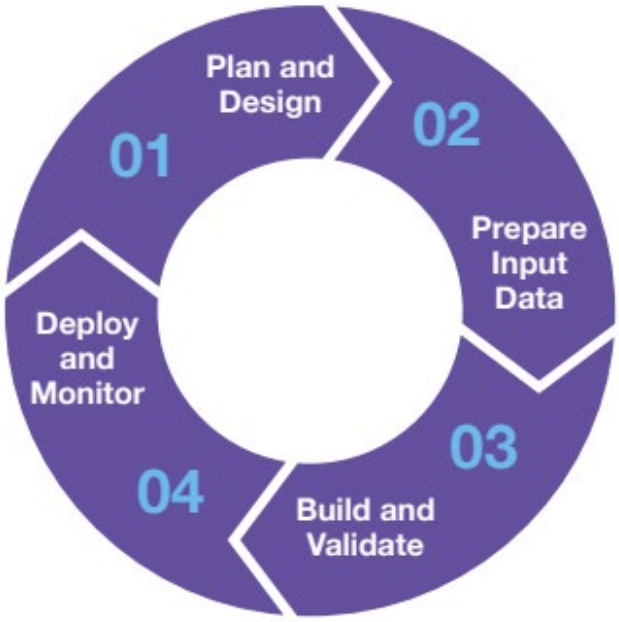
[88] *See* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems,* Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en.

[89] *See Multimodal Generative AI Systems,* Meta (Dec. 12, 2023), https://ai.meta.com/tools/system-cards/multimodal-generative-ai-systems/.

[90] *Id*.

2.IX. AI LIFECYCLE

An AI system's lifecycle is a cyclical process that can be split into four stages: (1) plan and design, (2) prepare input data, (3) build and validate, and (4) deploy and monitor.[91]



For the first stage, the developer will define the problem, find a data-driven approach to support the problem, select a framing approach on technology and system that govern AI, conduct a feasibility assessment for the selected approach, and define the key performance indicators.[92] For the second stage, the developer will gather, discover, assess, cleanse, and validate the data and transform the data into AI model input features. For the third stage, the developer will train and test the model, tune the hyperparameters, validate model performance, and conduct a risk evaluation.[93] And, for the final stage, the organization deploys the AI model to the system, creates versioning structures, periodically monitors the production model performance, and conducts an assessment to determine if there is a need to change the design according to the results of periodic reviews.[94]

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[91] *See* SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 9 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf; *see also* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems,* Digital Economy Papers No. 323, (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en ("The AI system lifecycle can serve as a complementary structure for understanding the key technical characteristics of a system. The lifecycle encompasses the following phases that are not necessarily sequential: planning and design; collecting and processing data; building and using the model; verifying and validating; deployment; and operating and monitoring. ...").

[92] *See* SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 9 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf.

[93] *Id.* at 10.

[94] *Id*.

Chapter 3. Players In The AI Supply Chain

Current through August 14, 2024.

3.I. OVERVIEW

As described in the scoping topics, it is important that the artificial intelligence (AI) governance team understand its role in connection with AI systems.[1] In the supply chain, there are a number of operators during the AI lifecycle—foundation model developers, AI system providers, AI system importers and distributors, product manufacturers, and AI system deployers. Moreover, because of the intersection of AI and data privacy laws, the organization needs to assess whether it is a controller or processor of the personal data it uses in connection with AI. Depending on its intended business plans, an organization may occupy several roles in the AI ecosystem and under data privacy laws.

While there are shared AI governance principles for all operators in the supply chain, there may be different risk mitigation obligations and considerations within the organization's control depending on its role.[2] However, actors in the AI supply chain may need to work together to manage AI risks.[3]

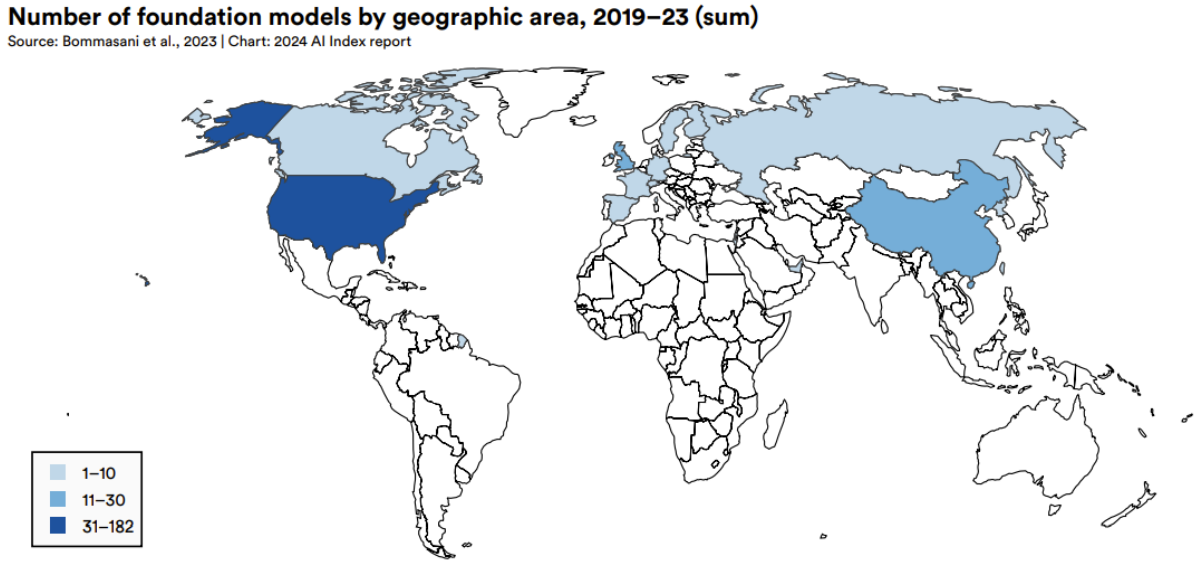
[1] *See* ISO/IEC 42001:2023(E), §4.1 (INT'L ORG. FOR STANDARDIZATION 2023) ("The organization shall consider the intended purpose of the AI systems that are developed, provided or used by the organization. The organization shall determine its roles with respect to these AI systems.").

[2] *See id.* ("External and internal issues to be addressed under this clause can vary according to the organization's roles and jurisdiction and their impact on its ability to achieve the intended outcome(s) of its AI management system.").

[3] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0) 10, (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

3.II. FOUNDATION MODELS

Foundation models—which are also referred to as dual-use foundation models,[4] general-purpose AI (GPAI) models,[5] and frontier models[6]—are pre-trained on high volume of data and often used to operate AI systems. Stanford University first coined this term in the publication, On the Opportunities and Risks of Foundation Models, which defines a foundation model as an AI "model that is trained on broad data (generally using self-supervision at scale) that can be adapted (e.g., fine-tuned) to a wide range of downstream tasks. ..."[7] Only a limited number of companies provide foundation models, because developing one requires massive amounts of data to train, expensive computational resources, and technical expertise.[8] For example, two of the leading foundation model providers—Open AI and Google—used an estimated $78 and $191 million worth of compute to train their AI models, respectively.[9] Since 2019, the United States has the greatest number of foundation models released, followed by China and the United Kingdom.[10]



[4]*See, e.g.*, Exec. Order No. 14110 §3(k) (Oct. 30, 2023), https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/.

[5]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 3(63), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[6]*See* AUSTRALIAN GOV'T, DEPT. OF INDUS., SCI., AND RES., SAFE AND RESPONSIBLE AI IN AUSTRALIA CONSULTATION 4 (2024), https://storage.googleapis.com/converlens-au-industry/industry/p/prj2452c8e24d7a400c72429/public_assets/safe-and-responsible-ai-in-australia-governments-interim-response.pdf.

[7]*See* RISHI BOMMASANI, ET AL., CTR. FOR RSCH. ON FOUNDATION MODELS, STANFORD INST. FOR HUMAN-CENTERED A.I., ON THE OPPORTUNITIES AND RISKS OF FOUNDATION MODELS 3 (July 12, 2023).

[8]*See* COMPETITION & MARKETS AUTH., AI FOUNDATION MODELS: INITIAL REPORT 27–39, (Sept. 18, 2023).

[9]*See* NESTOR MASLEJ ET AL., INST. FOR HUMAN-CENTERED AI, STANFORD UNIV., THE AI INDEX 2024 ANNUAL REPORT 5 (Apr. 2024).

[10]*Id.*

Foundation models are not developed to only perform a particular task. Rather, AI system providers can customize them through fine-tuning to perform specific functions. Fine-tuning is a process applied to the foundation model to add specific capabilities or improvements.[11] Through fine-tuning, foundation model users can (1) specialize the pre-trained foundation model to a particular domain or task and (2) adjust the model so that it performs as intended (e.g., to avoid biased, false, or harmful results).[12] AI service providers can integrate foundation models into new and existing products and services, such as productivity software, search engines, social media, financial tools, healthcare, robotics, education, and legal tools.[13]

Foundation models are uniquely regulated because of their impact on society and the economy. For example, on July 21, 2023, the White House secured voluntary commitments from the leading foundation model developers wherein they committed to a set of principles to ensure the safety, security, and trustworthiness of their AI.[14] Along with these voluntary commitments, the White House also issued an executive order on October 30, 2023, calling on federal agencies to establish guidelines, procedures, and processes for foundation models, study the risks and potential benefits, and require foundation model developers to provide (1) ongoing reports and information related to training, developing, or producing foundation models, (2) the ownership and possession of the model weights, and (3) the results of any red-team testing and mitigation steps taken.[15] Like the US, the UK and Australia are also considering whether they should issue bespoke regulations for foundation or frontier models because of their unique role in the AI supply chain.[16]

In the EU, the regulation of foundation models was a contentious topic during the last phase of the EU AI Act's legislative process in the fall of 2023.[17] France, Germany, and Italy wanted to avoid overregulation of foundation models and instead called for self-regulation through codes of conduct. Ultimately, a compromise was reached whereby unique obligations were included in the EU AI Act for GPAI models, depending on whether a model carries systemic or non-systemic risk. GPAI models with systemic risk are trained using a total computing power of more than 10^25 floating point operations (FLOPs),[18] which reflects the most powerful foundation models.

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[11] *See* COMPETITION & MARKETS AUTH., AI FOUNDATION MODELS: INITIAL REPORT 11, (Sept. 18, 2023).

[12] *Id*. at 12

[13] *Id*. at 25–26.

[14] *See* The White House, *FACT SHEET: Biden-Harris Administration Secures Voluntary Commitments from Leading Artificial Intelligence Companies to Manage the Risks Posed by AI,* (July 21, 2023), https://www.whitehouse.gov/briefing-room/statements-releases/2023/07/21/fact-sheet-biden-harris-administration-secures-voluntary-commitments-from-leading-artificial-intelligence-companies-to-manage-the-risks-posed-by-ai/.

[15] *See generally* Exec. Order No. 14110, 88 Fed. Reg. 75191 (Nov. 1, 2023).

[16] *See* DEPARTMENT FOR SCIENCE, INNOVATION, & TECHNOLOGY, A PRO-INNOVATION APPROACH TO AI REGULATION: GOVERNMENT RESPONSE, 2024, CP 1019, §6.9 (U.K.), https://www.gov.uk/government/consultations/ai-regulation-a-pro-innovation-approach-policy-proposals/outcome/a-pro-innovation-approach-to-ai-regulation-government-response; AUSTRALIAN GOV'T, DEPT. OF INDUS., SCI., AND RES., SAFE AND RESPONSIBLE AI IN AUSTRALIA CONSULTATION 4 (2024), https://storage.googleapis.com/converlens-au-industry/industry/p/prj2452c8e24d7a400c72429/public_assets/safe-and-responsible-ai-in-australia-governments-interim-response.pdf ("Submissions noted that 'frontier' AI models may require targeted attention.").

[17] *See* Luca Bertuzzi, *France, Germany, Italy Push for "Mandatory Self-Regulation" for Foundation Models in EU's AI Law*, EURACTIV (Nov. 24, 2023), https://www.euractiv.com/section/artificial-intelligence/news/france-germany-italy-push-for-mandatory-self-regulation-for-foundation-models-in-eus-ai-law/.

[18] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU)

Non-systemic risk GPAI model providers are required to (1) prepare and maintain the model's technical documentation, including its training and testing process and the results of its evaluation, (2) make available to providers information and documentation if they intend to integrate the GPAI model into their AI systems, (3) maintain a policy to respect EU copyright law, (4) make publicly available a summary of the content used to train the model, (5) cooperate with the European Commission and the national competent authorities, and (6) appoint an EU-authorized representative if the GPAI model provider is established outside the EU.[19]

Systemic risk GPAI model providers are also required to comply with the aforementioned obligations, along with (1) performing model evaluation and adversarial testing to identify and mitigate systemic risks, (2) assessing other systemic risks that may stem from the development, placement in the market, or use of the model, (3) reporting serious incidents and taking corrective actions, and (4) ensuring that there is an adequate level of cybersecurity.[20] GPAI model providers may also rely on codes of practices to demonstrate compliance with the EU AI Act.[21]

The EU AI Act limits the obligations of free and open-license GPAI model providers that do not have systemic risk, such as not requiring them to draw up and keep up-to-date technical documentation and making available information and documentation to providers of AI systems who intend to integrate the GPAI model into their AI systems.[22]

3.III. AI SYSTEM PROVIDERS

A provider develops, or has developed, an AI system and puts it into service or makes it available in the market.[23] A provider may also be the same organization that developed the foundation model, although it is not necessary for an AI system provider to train its own AI foundation model. Rather, a provider can integrate a foundation or other AI model into existing or new consumer-facing products or services.[24] Providers are expected to implement risk mitigation measures when developing AI, consider the potential AI uses and instruct users regarding the restrictions and limitations applicable to the AI system.[25] For the AI governance program described below, foundation model developers and AI system providers will generally be referred to as "developers" of AI systems.

No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 51, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[19] *See id.* at Art. 53 & 54.

[20] *See id.* at Art. 55.

[21] *See id.* at Art. 53(4).

[22] *See id.* at Art. 53(2).

[23] *See id.* at Art. 3(3).

[24] *See* COMPETITION & MARKETS AUTH., AI FOUNDATION MODELS: INITIAL REPORT 55–57, (Sept. 18, 2023).

[25] *See The Artificial Intelligence and Data Act - Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document.

3.IV. AI SYSTEM DEPLOYERS

A deployer is the user of an AI system.[26] The competency level of deployers may vary from (1) an amateur, who has no training, (2) trained practitioner, who has some specific training on how to use an AI system, and (3) an AI expert, who has specific training and knowledge on how the AI system works.[27] Deployers that use AI systems are expected to follow the instructions for use, assess and mitigate risks, and continuously monitor the AI system and the impact of its output.[28]

3.V. OTHER ACTORS IN THE AI SUPPLY CHAIN

There are other relevant actors in the AI supply chain, such as importers, distributors, product manufacturers, and impacted stakeholders.

The EU AI Act creates separate obligations for importers and distributors of AI systems. An importer is the entity that first makes a non-EU company's AI system available in the EU market, while a distributor makes an AI system available in the EU market but is not otherwise a provider or importer.[29] AI importers and distributors are primarily obligated to verify whether an AI system is in conformity and not place the AI system in the market if it is not compliant.[30]

While not defined, the EU AI Act also considers a "product manufacturer" as an operator in the AI value chain.[31] The manufacturer of certain regulated products may be considered a provider if it places a high-risk AI system on the market together with the product under its own name or trademark or puts the AI system into service under its name or trademark after the product is placed on the market.[32]

Finally, related to AI harms, the OECD indicates that "impacted stakeholders" are also parties in the AI value chain.[33] These are individuals who "can be indirectly or directly affected by the deployment of an AI system or application but do not necessarily interact with the system."[34]

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[26] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 3(4), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems*, at 25, Digital Economy Papers No.323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en ("Users of an AI system or application are the individuals or groups that utilize the system for a specific purpose.").

[27] *See* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems*, at 25–26, Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en.

[28] *See The Artificial Intelligence and Data Act - Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document.

[29] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 3(6) & (7), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[30] *Id*. at Art. 23 & 24.

[31] *Id*. at Art. 3(8).

[32] *Id*. at Art. 25(3).

[33] *See* Org. for Econ. Co-operation and Dev. [OECD], *Framework for the Classification of AI Systems*, at 25, Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en.

[34] *Id*.

Examples of impact stakeholders include workers, consumers, business, government agencies and regulators, scientists and researchers, and children or other vulnerable or marginalized groups.[35]

3.VI. AI ROLE UNDER DATA PRIVACY LAWS

Organizations should also assess whether they are a "controller" or "processor" of the personal data they use as developers or deployers of AI systems.

Under data privacy laws, the controller (also known as the "business") decides the purposes and means of processing personal data (i.e., how and why personal data should be processed).[36] The processor (also known as a "service provider"), on the other hand, processes personal data on the controller's behalf.[37] To help assess party roles, the UK Information Commissioner's Office (ICO) states that any of the following decisions could make the organization a controller in connection with AI processing activities:

- to collect personal data in the first place;
- what types of personal data to collect;
- the purpose or purposes the data are to be used for;
- which individuals to collect the data about;
- how long to retain the data; and
- how to respond to requests made in line with individuals' rights.[38]

The ICO also advises that an organization is considered a processor if it does not have its own purpose for processing the data and is simply following instructions.[39] A processor, however, may still make technical decisions about the means of processing in connection with AI, such as:

- the IT systems and methods you use to process personal data;
- how you store the data;
- the security measures that will protect it; and
- how you retrieve, transfer, delete or dispose of that data.[40]

Applying these guideposts, a developer would likely be a controller if it collects personal data to train its AI model because it decides to collect personal data, the type of personal data it needs to train its AI model, whose personal data it needs to collect (e.g., scrapping personal data from the internet), and how long it will keep the personal data in its model.[41] The developer, however, can also be a processor. For example, if a developer provides its AI system to customers, it could be a processor if it uses the personal data used as the input to only provide an output for the

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[35] *Id*. at 26.

[36] *See, e.g.*, Regulation (EU) 2016/679, General Data Protection Regulation, art. 4(7), O.J. (L 119, 04.05.2016), https://gdpr-info.eu/art-4-gdpr/; CAL. CIV. CODE §1798.140(d)(1).

[37] *See, e.g.*, Regulation (EU) 2016/679, General Data Protection Regulation, art. 4(7), O.J. (L 119, 04.05.2016), https://gdpr-info.eu/art-4-gdpr/; CAL. CIV. CODE §1798.140(ag)(1).

[38] *See What are the Accountability and Governance Implications of AI?*, INFO. COMM'R.'S OFF. (Mar. 15, 2023), https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/artificial-intelligence/guidance-on-ai-and-data-protection/what-are-the-accountability-and-governance-implications-of-ai/#howshouldweunderstand.

[39] *Id*.

[40] *Id*.

[41] *Id*. ("First, the prediction service provider decides how to create and train the model that powers its services, and processes data for these purposes. It is likely to be a controller for this element of the processing.").

customer.[42] In this scenario, the developer is providing the technical measures (i.e., the means) for the customer to make processing decisions, but is not deciding on the processing purpose.

A deployer would be the controller of personal data that it uses as input in an AI system, for AI processing activities that make decisions about data subjects, or if it used an AI service provider to process personal data or improve its own isolated AI model.[43] A deployer, however, may also act as a processor. For example, if the deployer uses a developer's AI system to provide a service to its own customers, it may be a processor of the customers' personal data, and the AI system developer could be a subprocessor of that personal data.

Ultimately, deciding whether the organization is a controller or processor is a fact-specific inquiry and may also depend on whether the organization can operate if it is restricted by contractual terms applicable to processors with respect to the personal data it is processing.

[42] *Id*. ("An organisation provides live AI prediction and classification services to clients. It develops its own AI models, and allows clients to send queries via an API ('what objects are in this image?) to get responses (a classification of objects in the image). ... [T]he provider processes data to make predictions and classifications about particular examples for each client. The client is more likely to be the controller for this element of the processing, and the provider is likely to be a processor.").

[43] *Id*. ("An AI service provider isolates different client-specific models. This enables each client to make overarching decisions about their model, including whether to further process personal data from their own context to improve their own model. As long as the isolation between different controllers is complete and auditable, the client will be the sole controller and the provider will be a processor.").

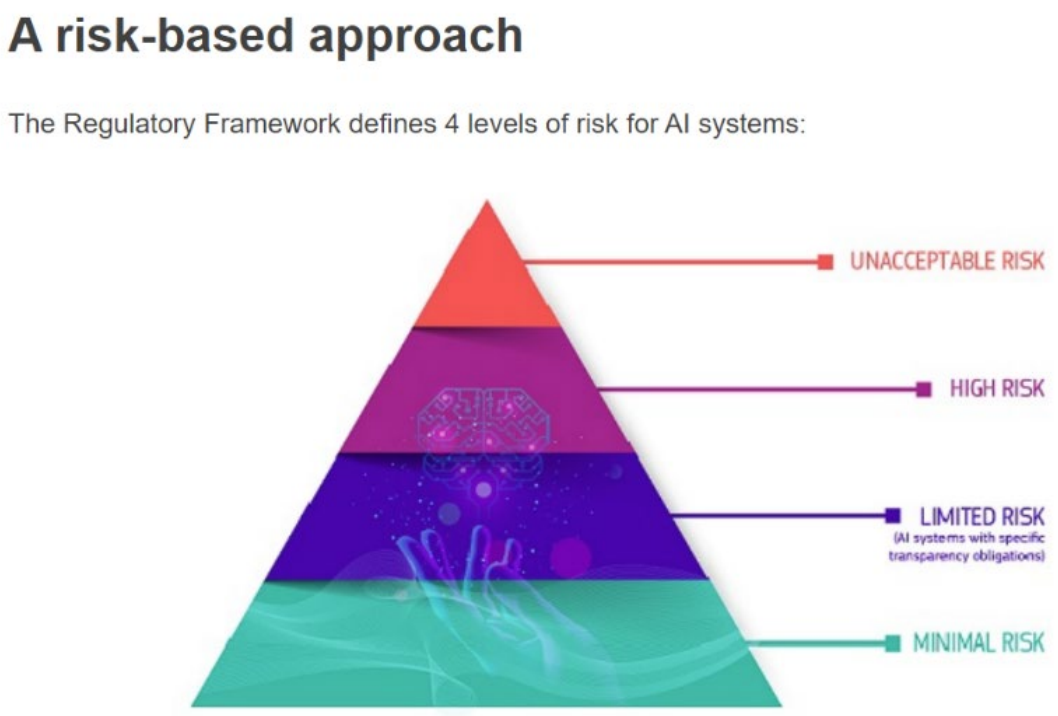
Chapter 4. Implementing An AI Governance Program

Current through August 14, 2024.

4.I. OVERVIEW

Globally, there are a number of guidelines, frameworks, and laws related to artificial intelligence (AI) governance. Adopting an AI governance program based on all of these global standards is practical, because they share common components but present the issues in a different way.

For example, the EU AI Act takes a risk-based and role-specific approach to AI governance. Organizations need to identify and rank risks and understand whether they are a provider or deployer (among other party roles) in deciding which measures to employ for risk mitigation. The European Commission uses the triangle visual below to describe the risk-based approach under the EU AI Act.[1]



The National Institute of Standards and Technology (NIST) takes a similar approach under its AI RMF framework by suggesting a three-prong governance structure that is focused on identifying and mitigating risks. This includes (A) map, which requires identifying risks based on context,

[1] *See* Eur. Comm'n, *AI Act*, SHAPING EUROPE'S DIGITAL FUTURE (July 22, 2024), https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai.

(B) measure, which requires assessing, analyzing, and tracking risks, and (C) manage, which requires prioritizing risks and acting on them based on projected impact.[2] The NIST depicts its AI governance framework in the three-prong circle below.[3]

The International Organization for Standardization's (ISO) Information Technology – Artificial Intelligence – Management System, ISO/IEC 42001, is another well-recognized AI governance framework. This standard provides a holistic approach to AI governance by addressing the organization's (A) context, (B) leadership and oversight, (C) risks and opportunities, (D) support needs, (E) operational planning and control of AI risks, (F) performance evaluation, and (G) continuous improvement.[4] Like the EU AI Act and NIST, the ISO framework is also focused on assessing and managing AI risks through shared principles, along with broader considerations.

The US (federal) and UK, on the other hand, take a principles-based and context-specific approach to AI governance. The White House provides the following AI principles in the Blueprint for an AI Bill of Rights: (A) safe and effective systems, (B) algorithmic discrimination

[2] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 20 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

[3] *Id*.

[4] *See* ISO/IEC 42001:2023(E) (INT'L ORG. FOR STANDARDIZATION 2023).

protections, (C) data privacy, (D) notice and explanation, and (E) human alternatives, consideration, and fallback.[5] The UK adopts similar AI principles, which are (A) safety, security, and robustness, (B) appropriate transparency and explainability, (C) fairness, (D) accountability and governance, and (E) contestability and redress.[6] The US and UK intend to enforce these principles based on an organization's sector and context of AI development and use.[7] In the US, however, states may end up following the EU's model by passing comprehensive AI legislation. For now, Colorado appears to have taken this approach under the Colorado AI Law by passing a light version of the EU AI Act, which focuses on high-risk categories and delineates obligations based on party role (developer v. deployer).[8]

Singapore offers a unique framework, the Model Artificial Intelligence Governance Framework, Second Edition, which is neither risk- nor principles-based. Rather, Singapore's framework provides practical guidance and use cases to help organizations implement measures to mitigate risks.[9] Similar to Singapore, the White House Blueprint for an AI Bill of Rights is accompanied by a handbook, From Principles to Practice, which provides guidance on how to operationalize the AI principles.[10]

Lastly, like the EU, Canada is also leaning toward a risk- and role-based approach[11] but has adopted AI principles (like the US and UK) and provides a companion document with operational guidance (like Singapore and US).[12]

This book puts these and other major global guidelines, frameworks, and laws together to formulate a plan to ensure the safe, secure, and trustworthy development and use of AI. Ultimately, organizations should not view these global standards as mutually exclusive. This will hopefully alleviate any hesitation that AI professionals may have in implementing an AI governance program, because they are unable to settle on a preferred framework.

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[5] *See* THE WHITE HOUSE OFF. OF SCI. AND TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE (Oct. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf.

[6] *See* DEPARTMENT FOR SCIENCE, INNOVATION, & TECHNOLOGY, A Pro-Innovation Approach to AI Regulation: Government Response, 2024, CP 1019, §5.10 (U.K.), https://www.gov.uk/government/consultations/ai-regulation-a-pro-innovation-approach-policy-proposals/outcome/a-pro-innovation-approach-to-ai-regulation-government-response.

[7] *See* Arsen Kourinian, *Regulation of AI Operators in the Global Supply Chain*, BLOOMBERG LAW (Mar. 2024), https://www.bloomberglaw.com/external/document/XATNH960000000/tech-telecom-professional-perspective-regulation-of-ai-operators (last visited Aug. 14, 2024).

[8] *See* COLO. REV. STAT. §6-1-1701, et seq.

[9] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.

[10] *See* THE WHITE HOUSE OFF. OF SCI. AND TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE (Oct. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf.

[11] *See* Arsen Kourinian, *Regulation of AI Operators in the Global Supply Chain*, BLOOMBERG LAW (Mar. 2024), https://www.bloomberglaw.com/external/document/XATNH960000000/tech-telecom-professional-perspective-regulation-of-ai-operators (last visited Aug. 14, 2024).

[12] *See Principles for Responsible, Trustworthy and Privacy-Protective Generative AI Technologies*, OFF. OF THE PRIV. COMM'R OF CAN. (Dec. 7, 2023), https://www.priv.gc.ca/en/privacy-topics/technology/artificial-intelligence/gd_principles_ai/; *The Artificial Intelligence and Data Act (AIDA) – Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document.

4.II. ASSEMBLING AN AI GOVERNANCE TEAM

Organizations that develop or use AI systems should consider forming an AI governance team that will oversee the technology.[13]

To form an AI governance team, organizations should identify relevant stakeholders and form a coordinating body.[14] This may include an AI ethics board or committee that will oversee the AI governance process, provide independent advice, and share the guidelines, standards, and tools to help other team members in the organization develop or use AI systems responsibly.[15]

The oversight body should be composed of multidisciplinary advisors with diverse skillsets,[16] backgrounds, and representation across the organization, such as the AI use case owner, engineers, data scientists, product developers, legal, human resources, customer support, marketing, and relevant leaders (e.g., Chief Operating Officer, Chief Data Officer, Chief Privacy Officer, Chief Information Security Officer, and/or Chief Technology Officer). The organization should clearly define each AI oversight team member's roles and responsibilities.

The AI governance team members should possess sufficient AI literacy and training to perform their duties.[17] The AI governance team should receive training on, among other things, AI laws

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[13] *See* U.S. NAT'L SEC. AGENCY, A.I. SEC. CTR. ET AL., DEPLOYING AI SYSTEMS SECURELY: BEST PRACTICES FOR DEPLOYING SECURE AND RESILIENT AI SYSTEMS (Apr. 2024), https://media.defense.gov/2024/Apr/15/2003439257/-1/-1/0/CSI-DEPLOYING-AI-SYSTEMS-SECURELY.PDF.

[14] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 21-22 (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.

[15] *See* ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 18 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

[16] *See* Integrated Innovation Strategy Promotion Council, *Social Principles of Human-Centric AI* 5, CABINET SECRETARIAT OF JAPAN, https://www.cas.go.jp/jp/seisaku/jinkouchinou/pdf/humancentricai.pdf (last visited Aug. 14, 2024) ("It is important to have sufficient human resources with acquired application skills such as implementation and design of AI systems and a basic knowledge of data and AI. These skills would be acquired in a cross-disciplinary range of fields in a combined and integrated framework."); Smart Dubai, *AI Ethics Principles & Guidelines* 7, DIGITAL DUBAI, https://www.digitaldubai.ae/docs/default-source/ai-principles-resources/ai-ethics.pdf (last visited Aug. 14, 2024) ("AI systems should be developed by diverse teams which include experts in the area in which the system will be deployed.").

[17] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 4, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689 ("Providers and deployers of AI systems shall take measures to ensure, to their best extent, a sufficient level of AI literacy of their staff and other persons dealing with the operation and use of AI systems on their behalf, taking into account their technical knowledge, experience, education and training and the context the AI systems are to be used in, and considering the persons or groups of persons on whom the AI systems are to be used."); PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 22 (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf ("Personnel and/or departments having internal AI governance functions should be fully aware of their roles and responsibilities, be properly trained, and be provided with the resources and guidance needed for them to discharge their duties."); Integrated Innovation Strategy Promotion Council, *Social Principles of Human-Centric AI* 8, CABINET SECRETARIAT OF JAPAN, https://www.cas.go.jp/jp/seisaku/jinkouchinou/pdf/humancentricai.pdf (last visited Aug. 14, 2024 ("AI users should have a general understanding of AI and should acquire sufficient education to use it properly, given that AI platforms are much more complicated than already developed conventional tools. Regarding developers of AI,

and regulations, how AI technology operates, AI use cases, AI risks, and sector- and geographic-specific issues applicable to the company. The AI training should not be stagnant. Rather, the AI oversight team should receive training in regular cadence (e.g., monthly, quarterly, semiannually, or annually) so that the organization is up to date on the latest developments in AI technologies and laws.[18]

The AI oversight team is responsible for the following tasks related to the organization's development and use of AI systems:

- Identifying the organization's AI objectives, which should be consistent with the AI policy, measurable, address applicable requirements, monitored, communicated, updated as necessary, and documented.[19]
- Ensuring that the organization's AI policies and objectives are established and compatible with the company's strategic direction.[20]
- Developing, documenting, and communicating within the organization an AI policy that is appropriate to the organization's purpose, provides a framework for setting AI objectives, and includes a commitment to meet applicable requirements and to continually improve.[21]
- Securing the resources needed to establish, implement, maintain, and continually improve the AI management system.[22]
- Integrating the AI management system into the organization's business process.[23]
- Communicating throughout the organization the importance of the AI governance program.[24]
- Overseeing the AI governance program to ensure that it achieves its intended results.[25]
- Providing direction and support to employees so that the AI governance program is effective.[26]

Lastly, companies should consider the talent that they employ and their management style as they develop their AI governance programs (e.g., centralized versus decentralized).[27]

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meanwhile, it is of course necessary for them to master the basics of AI technology."); U.N. Educ., Sci. and Cultural Org. [UNESCO], *Recommendation on the Ethics of Artificial Intelligence*, 23, U.N. Doc. SHS/BIO/PI/2021/1 (Nov. 23, 2021), https://unesdoc.unesco.org/ark:/48223/pf0000381137; ISO/IEC 42001:2023(E), §7.2 (INT'L ORG. FOR STANDARDIZATION 2023) ("The organization shall: ... where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken.").

[18]*See* Smart Dubai, *AI Ethics Principles & Guidelines* 11, DIGITAL DUBAI, https://www.digitaldubai.ae/docs/default-source/ai-principles-resources/ai-ethics.pdf (last visited Aug. 14, 2024) (last visited Aug. 14, 2024) (stating that "[e]ducation should evolve and reflect the latest developments in AI, enabling to adapt to societal change").

[19]*See* ISO/IEC 42001:2023(E), §6.2 (INT'L ORG. FOR STANDARDIZATION 2023).

[20]*See id.* at §5.1.

[21]*See id.* at §5.2.

[22]*See id.* at §7.1.

[23]*See id.* at §5.1.

[24]*See id.*

[25]*See id.*

[26]*See id.*

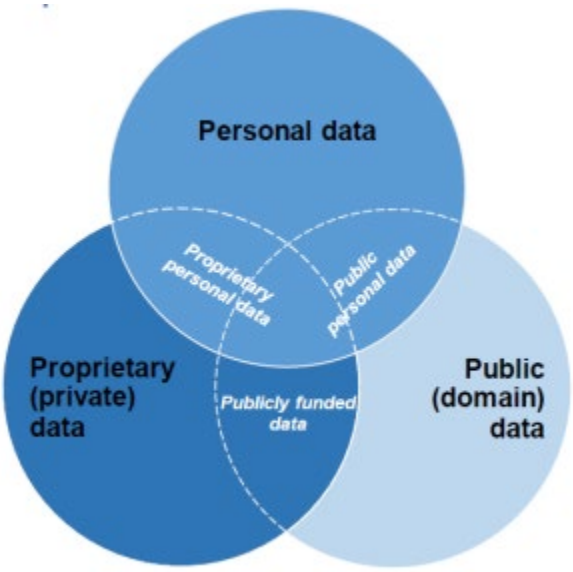
[27]*See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 21 (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf ("Organisations may also consider determining the appropriate features in their internal governance structures. For example, when relying completely on a centralised governance

Organizations may take different approaches for assembling their oversight bodies, depending on their size and resources. For example, smaller organizations may not have the resources or workforce to establish multidisciplinary, central governing bodies. Instead, smaller organizations may utilize existing staff to focus on mitigating high-risk areas in connection with their AI systems.

4.III. DATA GOVERNANCE

Organizations that develop or use AI systems should implement data governance to ensure that the AI systems are adequately trained, function as intended, and do not have harmful impacts on the public.

The data an organization may use generally fall within three categories: (1) proprietary data, which is private data a corporation has an economic interest to restrict access to and is protected under IP, trade secret, contract and/or cyber-criminal laws, (2) public data, which may in some situations not be protected by data privacy and IP laws and may be shared for access and reused through open data regimes, and (3) personal data, which relates to an identified or identifiable individual and is protected under data privacy laws.[28] As reflected in the OECD's Venn diagram below, these data sets may intersect: [29]



mechanism is not optimal, a de-centralised one could be considered to incorporate ethical considerations into day-to-day decisionmaking at the operational level, if necessary."); ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 19 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf ("Notably, the degree of centralisation or decentralisation of the governance structure needs to be suitable for the organisational structure and culture. This entails identifying the appropriate balance between flexibility and rigidity to ensure optimal business and process execution. In the case where the business needs to be nimble and responsive to changes in operational requirements, it might be more effective to go with a more decentralised approach, where AI governance considerations and decisions are made on a more frequent basis at the operational level.").

[28] *See* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems*, at 37-38, Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en.

[29] *Id*. at 38.

Organizations should initially assess if they have the legal right to use these types of data for training and/or as input in the AI system. This includes whether the organization has (1) given an appropriate privacy notice and/or obtained all necessary consents to use personal data for model training[30] or making decisions with AI systems, (2) the IP right to use data in the AI system,[31] and (3) the contractual right to use data, based on licensing rights and limitations in relevant commercial agreements pursuant to which the organization obtained the data.

Once an organization confirms that it has the legal right to use the data, it should then ensure that it adopts data governance best practices. While this AI governance component is particularly relevant to organizations developing an AI model or system, it is also important for those deployers who are required by law to ensure that the input data is relevant and representative for their use case.[32]

When developing AI systems, organizations may need to rely on data scientists and other professionals to (1) prepare the data using annotation, labeling, cleaning, updating, enrichment, and aggregation, (2) formulate assumptions regarding the information the data is supposed to measure and represent, (3) assess the quantity, availability, and suitability of the datasets[33] needed, (4) minimize or eliminate bias,[34] (5) seek to make the datasets representative of the

[30]*See* Complaint, Everalbum, Inc., Docket No. C-4743, FTC File No. 1923172 (May 6, 2021); *Interim Measures for Generative Artificial Intelligence Service Management*, CYBERSPACE ADMINISTRATION OF CHINA (Jul. 13, 2023), https://www.cac.gov.cn/2023-07/13/c_1690898327029107.htm (stating generative AI service providers shall train AI models with data from legal sources and, if personal information is involved, obtain the individual's consent, before using it).

[31]*See* W. Oremus, et al., *AI's Future Could Hinge on One Thorny Legal Question*, WASH. POST (Jan. 4, 2024), https://www.washingtonpost.com/technology/2024/01/04/nyt-ai-copyright-lawsuit-fair-use/ (noting that the law is unclear in the US regarding whether there are IP violations based on using newspaper articles to train AI models); *Interim Measures for Generative Artificial Intelligence Service Management*, CYBERSPACE ADMINISTRATION OF CHINA (Jul. 13, 2023), https://www.cac.gov.cn/2023-07/13/c_1690898327029107.htm (stating that the provision and use of generative AI services shall respect IP rights).

[32]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 26(4), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689 ("[T]o the extent the deployer exercises control over the input data, that deployer shall ensure that input data is relevant and sufficiently representative in view of the intended purpose of the high-risk AI system.").

[33]*See generally id.* at Art. 10(2).

[34]*See* Smart Dubai, *AI Ethics Principles & Guidelines* 7, DIGITAL DUBAI, https://www.digitaldubai.ae/docs/default-source/ai-principles-resources/ai-ethics.pdf (last visited Aug. 14, 2024) ("Steps should be taken to mitigate and disclose the biases inherent in datasets"); Andrew Smith, *Using Artificial Intelligence and Algorithms*, FED. TRADE COMM'N (Apr. 8, 2020), https://www.ftc.gov/business-guidance/blog/2020/04/using-artificial-intelligence-algorithms ("Focus on inputs, but also on outcomes. When we at the FTC evaluate an algorithm or other AI tool for illegal discrimination, we look at the inputs to the model – such as whether the model includes ethnically-based factors, or proxies for such factors, such as census tract. But, regardless of the inputs, we review the outcomes.") (emphasis in original).

environment,[35] of good quality, complete,[36] free of error,[37] and low noise,[38] and (6) determine whether the data is appropriate for the purpose it will be used based on industry practice.[39] Developers should also use different datasets for training, testing, and validation.[40] The organization should train the AI model using training data, measure accuracy using test data, and validate the model using the validation data.[41]

Both AI developers and deployers should understand the data lineage by tracking where the data came from, how it was collected, curated, and moved within the company, and how the data's accuracy is maintained over time.[42] This involves looking at the data flows from its originating source, end use and backdating it to its source, and entire solution.[43]

The organization should consider maintaining a data provenance record that documents (1) the date that the data was last updated or modified, (2) the categories of data used, including for machine learning (e.g., training, validation, test, and production data), (3) the data quality (from origin to transformation), (4) the process for labeling data, (5) applicable data retention and disposal policies, (6) known or potential biases in the data, (7) the sources of error, (8) updates to the data, (9) intended use of the data; (10) how the data was prepared; and (11) attributes data to their sources.[44] AI developers should track the data lineage for training or fine-tuning the AI model, while deployers should monitor the input data and output for their use of the AI system.

In sum, data governance is an important process to ensure that high-quality data is used to develop an AI system and produce reliable output. Data governance is not a one-time project; the AI governance team should review the datasets periodically to ensure accuracy, quality, currency, relevance, and reliability and update them as necessary with new data[45] based on expert advice, including from data scientists.

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[35] *See* Smart Dubai, *AI Ethics Principles & Guidelines* 7, DIGITAL DUBAI, https://www.digitaldubai.ae/docs/default-source/ai-principles-resources/ai-ethics.pdf (last visited Aug. 14, 2024) ("Data ingested should, where possible, be representative of the affected population").

[36] *See* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems*, at 39, Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en ("Sample is complete, with minimal missing or partial values. Outliers must not affect the quality of data.").

[37] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 10(3), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689

[38] *See* Org. for Econ. Co-operation and Dev. [OECD], *OECD Framework for the Classification of AI Systems*, at 39, Digital Economy Papers No. 323 (Feb. 2022), https://doi.org/10.1787/cb6d9eca-en ("Data is infrequently incorrect, corrupted or distorted (e.g. intentional or unintentional mistakes in survey data, data from defective sensors).").

[39] *Id*.

[40] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 40 (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.

[41] *Id*.

[42] *Id*. at 37.

[43] *Id*.

[44] *Id*.; ISO/IEC 42001:2023(E), Annex B, §B.4.3 (INT'L ORG. FOR STANDARDIZATION 2023).

[45] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 40 (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.

4.IV. LEGAL COMPLIANCE

AI is a hot topic among global policymakers. In 2023, policymakers around the world mentioned AI in legislative proceedings 2,175 times—nearly double from the year before.[46] Moreover, global AI laws have significantly increased from 2016 to 2023, with the legislation of 128 countries now mentioning AI.[47] With the rapid pace of AI laws passing, it is important for organizations to engage legal counsel to assess which laws and regulations apply to their development and/or use of AI systems.

While AI guidelines, frameworks, and principles are important sources for developing an AI governance plan, AI systems may trigger AI-specific laws (such as the EU AI Act and Colorado AI Law), sector and industry-specific regulations,[48] and general laws, such as data privacy,[49] IP,[50] antitrust,[51] and employment.[52] Organizations should consider understanding the legal landscape applicable to their practices and AI use cases to ensure legal compliance, particularly considering that enforcement authorities in major jurisdictions are motivated[53] to regulate AI under their general powers.

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[46]*See* NESTOR MASLEJ ET AL., INST. FOR HUMAN-CENTERED AI, STANFORD UNIV., THE AI INDEX 2024 ANNUAL REPORT 369 (Apr. 2024).

[47]*Id*. at 376.

[48]*See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 17 (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf ("[I]t should be noted that certain industry sectors (such as in the finance, healthcare, and legal sectors) may be regulated by existing sector-specific laws, regulations or guidelines relevant to the sector."); DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 15 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf ("While AI is currently regulated through existing legal frameworks like financial services regulation, some AI risks arise across, or in the gaps between, existing regulatory remits.").

[49]*See, e.g.*, VA. CODE ANN. §59.1-577(A)(5)(iii); COLO. REV. STAT. §6-1-1306(1)(a)(C); Regulation (EU) 2016/679, General Data Protection Regulation, Art. 22(1) O.J. (L 119, 04.05.2016), https://gdpr-info.eu/art-4-gdpr/.

[50]*See* Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190 (Mar. 16, 2023) (stating that copyright protection requires human authorship and providing guidance on when copyright may exist when there is both human-authored and AI generated material).

[51]*See* Staff in the Bureau of Competition & Off. of Tech., *Generative AI Raises Competition Concerns*, FED. TRADE COMM'N (June 29, 2023), https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2023/06/generative-ai-raises-competition-concerns ("Generative AI may raise a variety of competition concerns. In particular, control over one or more of the key building blocks that generative AI relies on could affect competition in generative AI markets.").

[52]*See* EQUAL EMP. OPPORTUNITY COMM'N, OLC CONTROL NO. EEOC-NVTA-2023-2, SELECT ISSUES: ASSESSING ADVERSE IMPACT IN SOFTWARE, ALGORITHMS, AND ARTIFICIAL INTELLIGENCE USED IN EMPLOYMENT SELECTION PROCEDURES UNDER TITLE VII OF THE CIVIL RIGHTS ACT OF 1964 (May 18, 2023), https://www.eeoc.gov/laws/guidance/select-issues-assessing-adverse-impact-software-algorithms-and-artificial; 2021 N.Y.C. LOCAL LAW No. 144, N.Y.C. ADMIN. CODE. §20-870; Artificial Intelligence Video Interview Act, 820 ILCS 42/1 et seq.

[53]*See* Lina M. Khan et al., *Joint Statement on Enforcement Efforts Against Discrimination and Bias in Automated Systems*, FED. TRADE COMM'N (Apr. 25, 2023), https://www.ftc.gov/legal-library/browse/cases-proceedings/public-statements/joint-statement-enforcement-efforts-against-discrimination-bias-automated-systems (stating that US regulators will enforce improper use of AI under existing laws and regulatory authority); *The Artificial Intelligence and Data Act (AIDA) – Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document (stating that existing Canadian "consumer protection regulators are already moving to address some of the impacts of AI within their legislative authorities").

4.V. RISK MANAGEMENT

Organizations developing or using AI systems should define and establish an AI risk management system.[54] The risk management system helps the AI system achieve its objectives, with limited or no undesired effects, and continually improves to mitigate future risks.[55] The AI governance team needs to establish, implement, document, and maintain the risk management system throughout the AI lifecycle. Risk management requires monitoring and evaluating emerging risks[56] based on data collected after the AI system is deployed, because some of the risks may not become apparent until the AI is used in the real environment.[57] The AI governance team should ensure that any risk remaining in the AI system is acceptable[58] and communicated to the deployer and that the risk is proportionate to the organization's benefits and goals. Organizations may address this AI governance component by documenting and mapping to a major AI risk management framework, such as NIST AI RMF or ISO/IEC 42001.

Organizations should also use appropriate metrics and thresholds to test the AI systems before marketing or using them.[59] The organization should pay special attention to the possible impacts

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[54]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 9(1), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689 (requiring adopting a risk management system); NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 4 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf. ("Addressing, documenting, and managing AI risks and potential negative impacts effectively can lead to more trustworthy AI systems."); *Australia's AI Ethics Principle*, AUSTL. GOV'T, DEPARTMENT OF INDUS., SCI. AND RES., https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principle (last visited Aug. 14, 2024) (stating that problems identified with AI "should be addressed with ongoing risk management as appropriate"); *Asilomar AI Principles*, FUTURE OF LIFE INST. (Aug. 11, 2017), https://futureoflife.org/open-letter/ai-principles/ ("Risks posed by AI systems, especially catastrophic or existential risks, must be subject to planning and mitigation efforts commensurate with their expected impact."); COLO. REV. STAT. §6-1-1703(2)(a).

[55]*See* ISO/IEC 42001:2023(E), §6.1.1 (INT'L ORG. FOR STANDARDIZATION 2023).

[56]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 9(2)(c), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[57]*See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 6 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf ("While measuring AI risks in a laboratory or a controlled environment may yield important insights pre-deployment, these measurements may differ from risks that emerge in operational, real-world settings.").

[58]*Id.* at 7 ("Risk tolerance and the level of risk that is acceptable to organizations or society are highly contextual and application and use-case specific.").

[59]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 9(8), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689 ("The testing of high-risk AI systems shall be performed, as appropriate, at any time throughout the development process, and, in any event, prior to their being placed on the market or put into service. Testing shall be carried out against prior defined metrics and probabilistic thresholds that are appropriate to the intended purpose of the high-risk AI system.").

on vulnerable groups (e.g., elderly and children)[60] and ensure that the risk management system is compatible with or integrated into any existing risk management procedures required by law.

Operationally, the organization should take the following steps for risk management: (1) identify and rank the risks applicable to the AI system, (2) assess the likelihood and severity of harm, and (3) document its risk assessment in an AI impact assessment, which contains a plan to mitigate risks.

4.V.A. Identify and Rank AI Risks

The initial step for a risk management system is to identify[61] and rank the risks based on the AI system's domain and application, intended uses, and external and internal context.[62] The risks may include harms to individuals, groups, societies, organizations, and the environment.[63] The AI governance team should categorize the risks as unacceptable, high, limited, or minimal.[64] If the organization identifies the risk as unacceptable, it is prohibited from developing or using the AI system.[65] However, if the AI risks are high-to-minimal risk, the organization should implement mitigation measures that correspond to the level of risk, likelihood of harm, and severity of impact.

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[60] *See id.*, Art. 9(9) ("When implementing the risk management system ... , providers shall give consideration to whether in view of its intended purpose the high-risk AI system is likely to have an adverse impact on persons under the age of 18 and, as appropriate, other vulnerable groups.").

[61] *See* Michael Atleson, *Keep Your AI Claims in Check*, FED. TRADE COMM'N: BUS. BLOG (Feb. 27, 2023), https://www.ftc.gov/business-guidance/blog/2023/02/keep-your-ai-claims-check ("Are you aware of the risks? You need to know about the reasonably foreseeable risks and impact of your AI product before putting it on the market. If something goes wrong – maybe it fails or yields biased results – you can't just blame a third-party developer of the technology. And you can't say you're not responsible because that technology is a 'black box' you can't understand or didn't know how to test.").

[62] *See* ISO/IEC 42001:2023(E), §6.1.1 (INT'L ORG. FOR STANDARDIZATION 2023).

[63] See NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 5 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf. (stating that there could be harm to people, organizations, or the ecosystem); ISO/IEC 42001:2023(E), Annex B, §§B.5.4 & B.5.5 (INT'L ORG. FOR STANDARDIZATION 2023).

[64] See NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 1 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf. ("Like risks for other types of technology, AI risks can emerge in a variety of ways and can be characterized as long- or short-term, high or low-probability, systemic or localized, and high- or low-impact."); SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 8 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf; (stating that "[t]he categories and levels of risks associated with the development and/or use of artificial intelligence are classified" as little or no risk, limited risk, high risk, or unacceptable risk).

[65] See Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 5, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 8 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf. ("In cases where an AI system presents unacceptable negative risk levels – such as where significant negative impacts are imminent, severe harms are actually occurring, or catastrophic risks are present – development and deployment should cease in a safe manner until risks can be sufficiently managed.").

Practically speaking, it is not possible for organizations to eliminate negative risks entirely, and it may be counterproductive to do so.[66] It is important for organizations to rank risks so that they can prioritize mitigation resources on risks that present the greatest harm and regulatory impact.[67] Below are some guidelines to help an organization rank and prioritize risks.

4.V.A.1. Prohibited AI Risks

Applicable law may outright prohibit certain AI risks. Examples of prohibited AI risks include:[68]

- Using AI for unfair or deceptive acts or practices;
- Use of an AI system that results in an unlawful differential treatment or impact that disfavors an individual or group of individuals based on protected classifications;
- AI-based credit decisions that prevent creditors from accurately identifying the specific reasons for denying credit or taking other adverse actions;
- AI-based scoring systems used to screen rental applicants based on race;
- Social scoring for public and private purposes;
- Exploiting the vulnerabilities of persons and using subliminal techniques;
- Real-time remote biometric identification in publicly accessible spaces by law enforcement, subject to narrow exceptions;
- Biometric categorization of natural persons based on biometric data to deduce or infer their race, political opinions, trade union membership, religious or philosophical beliefs, or sexual orientation;
- Individual predictive policing;
- Emotion recognition in the workplace and education institutions, unless for medical or safety reasons (e.g., monitoring the tiredness levels of a pilot); and
- Untargeted scraping of the internet or CCTV for facial images to build up or expand databases.

The AI governance team will need to stop developing or using the AI system if it falls within a prohibited category.

4.V.A.2. High AI Risks

If the AI use case is not prohibited, the AI governance team should next assess whether it is high risk.[69] Whether a risk is high may stem from specific legal authority that provides this

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[66] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 7 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

[67] *Id*.

[68] *See* Arsen Kourinian, *Conducting an AI Risk Assessment*, BLOOMBERG LAW, https://www.bloomberglaw.com/document/X3D03D2K000000 (last visited Aug. 14, 2024); *see also* COLO. REV. STAT. §6-1-1701(1); Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 5, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[69] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 6, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-

designation, such as the EU AI Act and Colorado AI law, be based on the context of use and development or be derived from applicable guidelines that indicate certain AI risks as presenting heightened concerns. Some examples of potential high-risk AI systems and processing activities are described below, but, depending on applicable law, some of these high-risk AI systems may be prohibited, in which case the organization cannot develop or use the AI system.[70]

4.V.A.2.a. EU AI Act High Risks

- Critical infrastructure;
- Product safety component or certain regulated products;
- Biometric identification and surveillance;
- Education and vocational training;
- Employment and recruitment;
- Essential goods, services, and benefits;
- Law enforcement and administration of justice; and
- Immigration and border control.

4.V.A.2.b. Colorado AI Law

- Education enrollment or an education opportunity;
- Employment or an employment opportunity;
- A financial or lending service;
- An essential government service;
- Healthcare services;
- Housing;
- Insurance; and
- A legal service.

4.V.A.2.c. Other High-Risk Considerations

- Consumer rights;
- Body scanners;
- Deepfakes;
- Sensitive personal data;
- Intrusion upon solitude, seclusion, or private affairs and other privacy violations;
- Sale of personal data and data broker activities;
- Extensive profiling activities and behavioral advertising;
- Discrimination against population subgroups;
- Physical or psychological harm and safety;
- Civil liberties or rights and democratic participation;

lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689 (stating classification rules for high-risk AI systems); *The Artificial Intelligence and Data Act (AIDA) – Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document.

[70] *See* Arsen Kourinian, *Conducting an AI Risk Assessment*, BLOOMBERG LAW, https://www.bloomberglaw.com/document/X3D03D2K000000 (last visited Aug. 14, 2024) (citing legal sources for potential high AI risks); *see also* COLO. REV. STAT. §6-1-1701(3).

- Harm to an organization's business, reputation and security;
- Harm to the global financial system, supply chain, or interrelated systems;
- Harm to natural resources, the environment, and the planet; and
- Infringement of IP rights.

If the AI use case is high risk, the organization may need to implement the mitigation measures described below, as appropriate for the context, circumstances, and/or applicable law.

4.V.A.3. Limited and Minimal AI Risks

If the AI risk is neither prohibited nor high, then the risk may be limited or minimal. Limited AI risks include chatbots and AI-generated audio, image, video, or text content.[71] For limited-risk AI systems, developers and deployers may need to be transparent with individuals that they are interacting with an AI system or that content is AI-generated. All other risks, such as spam filters, are considered minimal risk. For these systems, organizations may voluntarily choose to apply mitigation measures.

4.V.B. Likelihood and Severity of Harm

In addition to risk ranking, organizations should assess the likelihood that the risks will materialize and the severity of their impact.[72] For this analysis, organizations may assign a risk score by using a risk matrix that multiplies the probability a risk will occur with the severity of harm. Below is an example of a simple three-by-three risk matrix.[73]

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[71] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 50, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; *Artificial Intelligence – Questions and Answers*, EUR. COMM'N (Aug. 1, 2024), https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_1683.

[72] *See* ISO/IEC 42001:2023(E), §6.1.2 (INT'L ORG. FOR STANDARDIZATION 2023) (stating that an analysis of AI risks includes assessing "the realistic likelihood of the identified risks"); Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 3(2), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689 (stating that "'risk' means the combination of the probability of an occurrence of harm and the severity of that harm"); NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 4 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf ("When considering the negative impact of a potential event, risk is a function of 1) the negative impact, or magnitude of harm, that would arise if the circumstance or event occurs and 2) the likelihood of occurrence. ...").

[73] Arsen Kourinian, *Conducting an AI Risk Assessment*, BLOOMBERG LAW, https://www.bloomberglaw.com/document/X3D03D2K000000 (last visited Aug. 14, 2024).

Probability of Occurrence (Low to High)			
Severity of Harm (Low to High)	Low Risk / Low Likelihood (1)	Low Risk / Medium Likelihood (2)	Low Risk / High Likelihood (3)
	Medium Risk / Low Likelihood (2)	Medium Risk / Medium Likelihood (4)	Medium Risk / High Likelihood (6)
	High Risk / Low Likelihood (3)	High Risk / Medium Likelihood (6)	High Risk / High Likelihood (9)

Another sample comes from the New Zealand Government, which ranks the likelihood of impact from almost certain to rare, and impact severity from minimal to severe, with color-coded results.[74]

Table 1 – Harm assessment matrix

		Impact				
		Minimal	Minor	Moderate	Significant	Severe
Likelihood	Almost Certain	Low	Medium	High	Critical	Critical
	Likely	Low	Medium	Medium	High	Critical
	Possible	Very Low	Medium	Medium	Medium	High
	Unlikely	Very Low	Low	Medium	Medium	Medium
	Rare	Very Low	Very Low	Very Low	Low	Low

Table 2 – Likelihood rating & criteria

Likelihood of occurrence	Criteria: probability in 12 month period
Almost Certain	> 80%
Likely	60 - 80%
Possible	40 - 60%
Unlikely	20 - 40%
Rare	< 20%

Table 3 – Impact rating & criteria

Impact of harm	Impact criteria *(non-exhaustive & by way of illustration only)*
Severe	**Very significant or irreversible consequences:** E.g. excluded from accessing services; significant breach of human rights; significant loss of rights or freedoms; significant negative impacts on specific groups; financial distress; significant loss of agency or autonomy; serious or long-term psychological or physical damage, death (including suicide); significant public health implications
Significant	**Significant consequences and considerable damage:** E.g. inability to access services; serious breach of human rights; loss of rights or freedoms; material negative impacts on specific groups; financial loss; loss of employment; loss of agency or autonomy; negative impacts on mental and/or physical health; public health implications
Moderate	**Significant inconvenience:** E.g. difficulty accessing services; breach of human rights; negative impacts on rights or freedoms; disadvantages to specific groups; extra costs; employment changes; anxiety, confusion, stress; minor physical ailments
Minor	**Inconvenience:** E.g. harder to access services; difficulty asserting rights or freedoms; significant inconvenience, frustration or irritation;
Minimal	**Minor inconveniences or no impact**

Organizations may also leverage existing processes and procedures for risk analysis, which may involve more complex risk matrices that account for other considerations, such as risk velocity, which reflects the time to impact, and risk contagion, which assesses the potential for risk in one area to impact the organization's other areas.[75]

Developing these risk matrices may be difficult for organizations, because there is a lack of consensus on appropriate measurement methods.[76] This may lead to pitfalls in the risk measurement, such as oversimplified analysis, gamed outcomes, lack of critical nuance,

[74]NEW ZEALAND GOV'T, ALGORITHM IMPACT ASSESSMENT REPORT: ALGORITHM CHARTER FOR AOTEAROA NEW ZEALAND 9 (Dec. 2023).

[75]*See* Brenda Boultwood, *How to Develop an Enterprise Risk-Rating Approach*, GLOBAL ASSOCIATION OF RISK PROFESSIONALS (Aug. 26, 2021), https://www.garp.org/risk-intelligence/culture-governance/how-to-develop-an-enterprise-risk-rating-approach.

[76]*See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 6 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

unexpected reliance, and failure to account for differences in affected groups and context.[77] Organizations should consider having their risk matrices vetted by third-party auditors to ensure they are objective and adopt a methodology that recognizes context and harms to different groups, subgroups, and communities other than direct AI users.[78]

Figure 7: Risk-Scoring Examples

Risk	Probability	Impact	Velocity	Contagion	Risk Score
A	5	6	0	0	30
B	5	6	0	.5	33
C	2	4	.75	0	11
D	2	4	0	.2	8.8
E	2	4	.75	.5	13

4.V.C. Document an AI Impact Assessment

The AI governance team should document the risk analysis above in an AI impact assessment. In an AI impact assessment, an organization should address data privacy, AI legal requirements, and other suggested topics in AI guidelines and frameworks.[79] The AI impact assessment should document the risks, benefits, steps taken to mitigate risks, and whether, on balance, the organization should proceed with the AI use case. Developers may need to provide deployers documentation and information that they will need to complete an AI impact assessment,[80] which is an issue the parties should negotiate in their commercial agreement. A nonexclusive list of issues to cover in an AI impact assessment include:

- A summary of the AI processing activity;
- Relevant internal and external parties contributing to the impact assessment;

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[77] *Id.*

[78] *Id.*

[79] *See, e.g.*, ISO/IEC 42001:2023, §6.1.4 & Annex B, §B.5.3 (INT'L ORG. FOR STANDARDIZATION 2023); Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 26(9) & 27, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; 4 COLO. CODE REGS. §904-3-9.06 (listing the requirements under the Colorado Privacy Act that need to be included in a data protection impact assessment if profiling is used for automated decision-making); Regulation (EU) 2016/679, General Data Protection Regulation, Art. 35(3)(a) O.J. (L 119, 04.05.2016), https://gdpr-info.eu/art-4-gdpr/; PRIV. COMM'R FOR PERS. DATA, H.K. & THE INFO. ACCOUNTABILITY FOUND., ETHICAL ACCOUNTABILITY FRAMEWORK FOR HONG KONG, CHINA 29 (Oct. 2018); U.N. Educ., Sci. and Cultural Org. [UNESCO], *Recommendation on the Ethics of Artificial Intelligence*, 26, U.N. Doc. SHS/BIO/PI/2021/1 (Nov. 23, 2021), https://unesdoc.unesco.org/ark:/48223/pf0000381137 (stating that ethical impact assessments should "identify and assess benefits, concerns and risks of AI systems, as well as appropriate risk prevention, mitigation and monitoring measures, among other assurance mechanisms"); CAL. PRIV. PROT. AGENCY, DRAFT RISK ASSESSMENT AND AUTOMATED DECISIONMAKING TECHNOLOGY REGULATIONS §7152 (Mar. 8, 2024), https://cppa.ca.gov/meetings/materials/20240308_item4_draft_risk.pdf; S.B. 2 §3 (c)(2), 2024 Leg., Feb. Sess., (Conn. 2024); COLO. REV. STAT. §6-1-1703(3).

[80] *See* COLO. REV. STAT. §6-1-1702.

- Any internal or external audits conducted in relation to the impact assessment;
- The dates the impact assessment was reviewed and approved and the names, positions, and signatures of the individuals responsible for the review and approval;
- The categories and sources of data processed by the AI;
- The applicable transparency notice, including a privacy notice provided to individuals if their personal data will be processed and the lawful basis for processing;
- Any contractual or licensing rights related to using data in the AI processing activity;
- An explanation of the training data and logic used to create the AI system, including if the AI system is sourced from another party;
- A description of the AI system's output and how it will be used;
- The period of time and frequency the AI system will be used;
- The AI processing activity context, including the relationship between the organization and the categories of individuals impacted;
- If any decisions will be made about individuals using the AI system;
- The level of human involvement in the AI processing activity;
- Whether the AI system has been evaluated for fairness and disparate impact and the results of such evaluation, including metrics used;
- The technology or processors used and details regarding their involvement;
- Names or categories of data recipients as part of the AI processing activity;
- The number of individuals impacted and the volume of data processed using AI and applicable retention periods;
- The purpose and benefits of the AI processing activity, including the steps taken to ensure that it is used for its intended purpose;
- The sources and nature of risks, foreseeable misuse, and predictable failures;
- The mitigation measures and safeguards the organization will employ to reduce or eliminate the risks, misuse, and potential failures, including post-deployment monitoring;
- The measures to take if the identified risks materialize, including the organization's arrangements for internal governance and complaint mechanisms; and
- Whether the AI benefits outweigh the risks.

In preparing the AI impact assessment, the AI governance team should be mindful that the organization may need to produce this assessment if requested by a regulator or as part of an investigation. As such, the AI governance team should carefully assess the impact assessment's accuracy and whether it can implement the mitigation measures justifying the organization proceeding with the AI use case. A sample AI impact assessment template is attached to this book for reference.

4.VI. MITIGATION MEASURES

Organizations should consider implementing mitigation measures to eliminate and/or reduce the risks identified during the risk management stage. As described below, there are a number of risk mitigation measures available under AI laws, guidelines, and frameworks that an organization may consider during this stage.

4.VI.A. Transparency and Explainability

Organizations should be transparent that they are using AI systems and explain how it works to foster trustworthiness with the public.[81] Transparency addresses the question "what happened" in the AI system, while explainability provides information regarding "how" the AI system made the decision.[82] The purpose of transparency and explainability is to allow individuals to know that they are interacting with an AI system, how it works, the steps taken to manage risks, the type of decisions it makes, the impact an AI system can have on them, their ability to contest decisions, and that they have the option to request human review for significant decisions.[83] A transparency and explainability notice can also provide the organization an opportunity to solicit

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[81] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 53-54, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf; DUTCH DATA PROT. AUTH., DEP'T FOR THE COORDINATION OF ALGORITHMIC OVERSIGHT, ALGORITHMIC RISKS REPORT NETHERLANDS 6 (July 2023), https://autoriteitpersoonsgegevens.nl/uploads/2023-08/Algorithmic%20Risks%20Report%20Netherlands%20-%20July%202023_0.pdf (stating that "transparency and the complimentary understandable explanations can increase public trust and help improve the quality of these tools"); ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 11 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf ("In order to build public trust in AI, it is important to ensure that users are aware of the use of AI technology and understand how information from their interaction is used and how the AI system makes its decisions using the information provided.").

[82] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 17 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

[83] *See Artificial Intelligence – Questions and Answers*, EUR. COMM'N (Aug. 1, 2024), https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_1683; THE WHITE HOUSE OFF. OF SCI. AND TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE 40 (Oct. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf ("Designers, developers, and deployers of automated systems should provide generally accessible plain language documentation including clear descriptions of the overall system functioning and the role automation plays, notice that such systems are in use, the individual or organization responsible for the system, and explanations of outcomes that are clear, timely, and accessible."); *Canadian Guardrails for Generative AI – Code of Practice*, INNOVATION, SCI. AND ECON. DEV. CAN. (Aug. 16, 2023), https://ised-isde.canada.ca/site/ised/en/consultation-development-canadian-code-practice-generative-artificial-intelligence-systems/canadian-guardrails-generative-ai-code-practice (stating that "[i]t is important to ensure that individuals realize when they are interacting with an AI system or with AI-generated content"); Smart Dubai, *AI Ethics Principles & Guidelines* 7, DIGITAL DUBAI, https://www.digitaldubai.ae/docs/default-source/ai-principles-resources/ai-ethics.pdf (last visited Aug. 14, 2024) ("People should be told when significant decisions about them are being made by AI" and "[d]ecisions and methodologies of AI systems which have a significant effect on individuals should be explainable to them, to the extent permitted by available technology"); Org. for Econ. Co-operation and Dev. [OECD], Recommendation of the Council on Artificial Intelligence, Legal Instrument 449 (July 11, 2023), https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449; PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 44, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.; Andrew Smith, *Using Artificial Intelligence and Algorithms*, FED. TRADE COMM'N (Apr. 8, 2020), https://www.ftc.gov/business-guidance/blog/2020/04/using-artificial-intelligence-algorithms (stating that consumers "must know **what** data is used in your model and **how** that data is used to arrive at a decision.") (emphasis in original); INFO. COMM'R'S OFF. & THE ALAN TURING INST., EXPLAINING DECISIONS MADE WITH AI 17 (Oct. 17, 2022), https://ico.org.uk/media/for-organisations/guide-to-data-protection/key-dp-themes/explaining-decisions-made-with-artificial-intelligence-1-0.pdf.

external feedback regarding how its AI systems function in the real environment, detect model drift, and establish bug bounty programs to help improve the AI systems.[84]

To address this requirement, the AI governance team should prepare and publicly post a transparency and explainability notice regarding its AI use case. The notice should be written in plain language and easy to understand,[85] which organizations may validate using readability tools, such as the Fry readability graph, the Gunning Fog Index, and the Flesch-Kincaid readability test.[86] Organizations may also use visualization tools, graphical representations, and/or summary tables in their AI notices to enhance readability.[87]

In drafting a transparency and explainability notice, the AI governance team may consider incorporating the following elements:

- The name of the organization accountable for the AI system and its outcomes, and the type of AI systems it uses or makes available.[88]
- A statement that individuals are interacting with AI, the nature and purpose of the AI, and what decisions are made using an AI system.[89]
- The type of data (including personal and sensitive data) that were or will be processed as part of the AI decision, along with the data used to train the AI.[90]
- An explanation of the logic used in the AI decision, including the key parameters that affect the AI system's output.[91]
- The AI system's intended output (e.g., numerical score).[92]

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[84]*See generally*, NAT'L INST. OF STANDARDS AND TECH., AI RMF PLAYBOOK 40 (2023), https://airc.nist.gov/AI_RMF_Knowledge_Base/Playbook.

[85]*See* THE WHITE HOUSE OFF. OF SCI. AND TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE 40 (Oct. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf.

[86]*See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 57, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.

[87]*Id*.

[88]*See* DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 75 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf; S.B. 2 §2(d), 2024 Leg., Feb. Sess., (Conn. 2024).

[89]*See Artificial Intelligence – Questions and Answers*, EUR. COMM'N (Aug. 1, 2024), https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_1683.; CAL. BUS. & PROF. CODE §17941; DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 75 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf; 4 COLO. CODE REGS. §904-3-9.03; COLO. REV. STAT. §6-1-1703(4)(a).

[90]*See* 4 COLO. CODE REGS. §904-3-9.03; DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 75 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf; COLO. REV. STAT. §6-1-1703(5)(a)(III).

[91]*See* DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 75 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf; 4 COLO. CODE REGS. §904-3-9.03.

[92]*See* CAL. PRIV. PROT. AGENCY, DRAFT RISK ASSESSMENT AND AUTOMATED DECISIONMAKING TECHNOLOGY REGULATIONS §7152 (Mar. 8, 2024), https://cppa.ca.gov/meetings/materials/20240308_item4_draft_risk.pdf.

- An explanation of how the AI is used in the decision-making process, including the role of human involvement.[93]
- How risks are managed and whether the AI system has been evaluated for accuracy, validity, reliability, fairness, or bias and the outcome of any such evaluation.[94]
- The benefits and potential consequences of the decision made using AI.[95]
- Information about how individuals may exercise rights in connection with the AI, such as access to further information about the AI system and opting-out of or appealing AI decisions.[96]
- Contact methods if the public has any questions or feedback regarding the AI system.[97]

In addition, deployers may address transparency and explainability by focusing on the AI system's quality and maintaining documents that will help build user confidence in the AI's outcome.[98] This includes documents reflecting (1) that the AI system's results are repeatable, (2) the traceability of the decision-making process, (3) the data provenance record and a digitally centralized process log, and (4) AI model cards, which accompany AI systems and indicate their intended use, performance evaluations, and other information relevant to the AI system.[99]

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[93] *See* 4 COLO. CODE REGS. §904-3-9.03.

[94] *See id.*; COLO. REV. STAT. §6-1-1703(5)(a)(II).

[95] *See* 4 COLO. CODE REGS. §904-3-9.03.

[96] *See* DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 28 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf ("Parties directly affected by the use of an AI system should also be able to access sufficient information about AI systems to be able to enforce their rights."); 4 COLO. CODE REGS. §904-3-9.03; CAL. PRIV. PROT. AGENCY, DRAFT RISK ASSESSMENT AND AUTOMATED DECISIONMAKING TECHNOLOGY REGULATIONS §7152 (Mar. 8, 2024), https://cppa.ca.gov/meetings/materials/20240308_item4_draft_risk.pdf; PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 57, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf; COLO. REV. STAT. §6-1-1703(4)(a)&(b).

[97] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 56-57, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf; COLO. REV. STAT. §6-1-1703(4)(a)(II).

[98] *See* ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 12 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf; ISO/IEC 42001:2023, Annex B, B.7.2 (INT'L ORG. FOR STANDARDIZATION 2023) (noting that transparency and explainability include "data provenance and the ability to provide an explanation of how data are used for determining an AI system's output if the system requires transparency and explainability"); NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 16 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf ("Maintaining the provenance of training data and supporting attribution of the AI system's decisions to subsets of training data can assist with both transparency and accountability. Training data may also be subject to copyright and should follow applicable intellectual property rights laws.").

[99] *See* ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 12 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

Further, AI system developers should be transparent with deployers by providing them instructions for use and information regarding the AI system's limitations. The instructions for use and other documentation should contain the following information:[100]

- The developer's identity and contact details.
- The AI system's intended purpose, benefits, known limitations, and unacceptable uses.
- The AI system's level of accuracy, including its metrics, robustness, and cybersecurity, that can be expected and any known and foreseeable circumstances that may impact that level of accuracy, robustness, and cybersecurity.
- Any known or foreseeable situations that may lead to risks based on the AI system's intended purpose or under conditions of reasonably foreseeable misuse, including risk of algorithmic discrimination.
- Information to explain the AI system's output, such as its technical capabilities and characteristics.
- How the AI system will perform with respect to specific persons or groups on which it is intended to be used.
- Information regarding the input, training, validation, and testing data, taking into account the AI system's intended purpose.
- Information to enable deployers to interpret the AI system's output and use it appropriately.
- Any updates or changes to the AI system and its performance from the initial instruction for use the developer provided to the deployer.
- The human oversight measures the developer has implemented, including the technical measures put in place to facilitate the deployer's interpretation of the AI system's output.
- The computational and hardware resources needed, the AI system's expected lifetime, and any necessary maintenance and case measures, including their frequency, to ensure the AI system's proper functioning and necessary software updates.
- A description of the mechanisms included in the AI system that would allow users to properly collect, store, and interpret the logs.
- How the AI system has been evaluated for performance and mitigation of risks, including the mitigation measures implemented.

Lastly, organizations developing or using AI systems that generate or manipulate image, audio, or video content should consider placing appropriate watermarks for individuals to know that the

[100] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 13(3), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; COLO. REV. STAT. §6-1-1702; AB 2930, 2023-2024, Reg. Sess. (Calif. 2024); S.B. 2, §2(b) 2024 Leg., Feb. Sess., (Conn. 2024).

content has been artificially generated or manipulated.[101] This will help mitigate the risk of individuals being deceived by deepfakes.[102]

4.VI.B. Fair and Unbiased

The AI governance team needs to ensure that AI systems are developed and used in a manner that is fair for all human beings and not biased against individuals or groups based on protected categories.[103]

Fairness means that the organization takes necessary steps in the AI system's design, data, development, deployment, and use to eliminate bias, discrimination, or stigmatization of individuals, communities, or groups.[104] Bias may occur in an AI system because of data, representation, or algorithms and lead to discrimination.[105]

Organizations may need to identify and mitigate biases that can lead to different forms of discrimination, including (1) direct discrimination, whereby individuals are treated adversely due to their membership in a protected class, (2) indirect discrimination, whereby individuals in a

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[101] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 50, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[102] *See id.* at Recital 134.

[103] *See* DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 29 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf; U.N. Educ., Sci. and Cultural Org. [UNESCO], *Recommendation on the Ethics of Artificial Intelligence*, 21, U.N. Doc. SHS/BIO/PI/2021/1 (Nov. 23, 2021), https://unesdoc.unesco.org/ark:/48223/pf0000381137 ("AI actors should promote social justice and safeguard fairness and non-discrimination of any kind in compliance with international law. This implies an inclusive approach to ensuring that the benefits of AI technologies are available and accessible to all, taking into consideration the specific needs of different age groups, cultural systems, different language groups, persons with disabilities, girls and women, and disadvantaged, marginalized and vulnerable people or people in vulnerable situations."); *Canadian Guardrails for Generative AI – Code of Practice*, INNOVATION, SCI. AND ECON. DEV. CAN. (Aug. 16, 2023), https://ised-isde.canada.ca/site/ised/en/consultation-development-canadian-code-practice-generative-artificial-intelligence-systems/canadian-guardrails-generative-ai-code-practice; Org. for Econ. Co-operation and Dev. [OECD], Recommendation of the Council on Artificial Intelligence, Legal Instrument 449, at 1.2, (July 11, 2023), https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449; NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 17-18 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf; *Australia's AI Ethics Principle*, AUSTL. GOV'T, DEPARTMENT OF INDUS., SCI. AND RES., https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principle (last visited Aug. 14, 2024); THE WHITE HOUSE OFF. OF SCI. AND TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE 23 (Oct. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf; *Interim Measures for Generative Artificial Intelligence Service Management*, CYBERSPACE ADMINISTRATION OF CHINA Art. 4(2) (Jul. 13, 2023), https://www.cac.gov.cn/2023-07/13/c_1690898327029107.htm; Andrew Smith, *Using Artificial Intelligence and Algorithms*, FED. TRADE COMM'N (Apr. 8, 2020), https://www.ftc.gov/business-guidance/blog/2020/04/using-artificial-intelligence-algorithms ("Don't discriminate based on protected classes. Cavalier use of AI could result in discrimination against a protected class.") (emphasis in original).

[104] *See* SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 12–14 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf.

[105] *Id.* at 12.

protected class are disparately harmed or unfairly disadvantaged by the AI system, even though neutral policies, criteria, rules, and practices are applied, and (3) discriminatory harassment, whereby unwanted or abusive behavior linked to a protected characteristic violates someone's dignity, degrades their identity, or creates an offensive environment for them.[106] Examples of discrimination in connection with AI systems include:

- AI chatbots that learn hate speech and biases when trained on data from the internet. When an organization places the AI chatbot in the market, it may generate hateful or discriminatory content.[107]
- An AI system trained on historic human resources data for scoring applicants may incorrectly infer that, because companies have previously hired white male applicants, this is an appropriate factor to consider to assign a higher score. As a result, the AI system may assign a lower score and filter out qualified female and minority candidates.[108]
- A medical diagnosis AI system that is available on a cell phone application could predominantly be used by younger, digitally literate, and affluent groups. This may discriminate against elderly, less digitally literate, and economically disadvantaged groups, who may not have access to the application.[109]

The NIST also identifies three categories of bias an organization should mitigate against: (1) systemic bias, which is present in AI datasets, the organization, and society, (2) computational and statistical biases, which are present in AI datasets and algorithmic processes and stem from failing to use representative data, and (3) human cognitive bias, which relates to how an individual or group perceives AI systems.[110] These categories of bias can occur even if there is no prejudice, partiality, or discriminatory intent.[111]

Fairness and bias are difficult to define, because cultures and groups may perceive these issues differently and standards may shift depending on application.[112] However, the organization's risk mitigation measures will be more effective if they account for these cultural and group differences.[113] Some steps an organization may consider taking to mitigate unfair and biased impacts are as follows:[114]

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[106] *See* DAVID LESLIE, ET AL., THE ALAN TURING INST., AI FAIRNESS IN PRACTICE 13–14 (2023), https://www.turing.ac.uk/sites/default/files/2023-12/aieg-ati-fairness_1.pdf.

[107] *Id.* at 15.

[108] *Id.*

[109] *See id.* at 16.

[110] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 18 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

[111] *Id.*

[112] *Id.*

[113] *Id.* at 17.

[114] *See* DAVID LESLIE, ET AL., THE ALAN TURING INST., AI FAIRNESS IN PRACTICE 23 (2023), https://www.turing.ac.uk/sites/default/files/2023-12/aieg-ati-fairness_1.pdf; THE WHITE HOUSE OFF. OF SCI. AND TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE 23 (Oct. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf; *The Artificial Intelligence and Data Act (AIDA) – Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document ("Appropriate actions must be taken to mitigate discriminatory outcomes for individuals and groups.").

- Ensure that the AI system is trained, tested, and validated using representative data that is fit for the purpose, relevant, accurate, and applicable to broader groups;
- Ensure that the AI system's policies and objectives are non-discriminatory, acceptable, and within the expectations of impacted individuals;
- Ensure that the AI system's model architecture does not include discriminatory target variables, features, processes, or analytical structures and that it avoids encoded social and historical patterns of discrimination;
- Develop clear metrics for determining whether the AI system is fair and make them available to relevant stakeholders and impacted individuals;
- Ensure that AI system users are sufficiently trained on the limitations and strengths of the AI system and are aware of potential biases to affected individuals;
- Be aware of the economic, legal, cultural, and political structures or institutions in which the AI system operates and ensure that they do not impact AI research in ways that amplify asymmetrical and discriminatory power dynamics or generate inequitable outcomes for protected groups;
- Ensure that the AI systems are accessible for disadvantaged groups;
- Conduct disparity testing and migration; and
- Implement active oversight of the AI system.

The organization should monitor the biases and potential discriminatory outcomes throughout the AI system's development and operation and correct issues as they come up. The organization should also prepare and make publicly available a fairness position statement in plain and nontechnical language, explaining the metrics used to ensure fairness.[115] This fairness position statement will help the organization explain the rationale and logic behind the AI system's output by sharing the reasons and underlying fairness values used in the AI's decision-making process.[116]

4.VI.C. Human-Centered and Beneficial for the Environment and Society

Organizations should ensure that their AI systems are beneficial to individuals, society, and the environment throughout the AI's lifecycle, including during design, development, and deployment.[117] The human-centered principle focuses on building AI systems that are just and

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[115] *See* DAVID LESLIE, ET AL., THE ALAN TURING INST., AI FAIRNESS IN PRACTICE 54 (2023), https://www.turing.ac.uk/sites/default/files/2023-12/aieg-ati-fairness_1.pdf.

[116] *See* SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 34 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf.

[117] *See Australia's AI Ethics Principle*, AUSTL. GOV'T, DEPARTMENT OF INDUS., SCI. AND RES., https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principle (last visited Aug. 14, 2024) (stating that "AI systems should be used for beneficial outcomes for individuals, society and the environment"); Org. for Econ. Co-operation and Dev. [OECD], Recommendation of the Council on Artificial Intelligence, Legal Instrument 449, at 1.1, 1.2, (July 11, 2023), https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449; U.N. Educ., Sci. and Cultural Org. [UNESCO], *Recommendation on the Ethics of Artificial Intelligence*, 18, U.N. Doc. SHS/BIO/PI/2021/1 (Nov. 23, 2021), https://unesdoc.unesco.org/ark:/48223/pf0000381137 ("No human being or human community should be harmed or subordinated, whether physically, economically, socially, politically, culturally or mentally during any phase of the life cycle of AI systems."); ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 14 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

ethical and incorporate human rights and cultural values to generate a short- and long-term beneficial impact.[118]

To address this issue,[119] organizations (1) can test their AI systems with small groups of internal users from different backgrounds and demographics and incorporate their feedback in the AI systems, (2) should not use AI systems for malicious purposes, use dark patterns, or attempt to sway or deceive users into making decisions that are not beneficial for them or society, (3) should ensure that adopting AI systems does not significantly disrupt labor and job prospects until a proper assessment is conducted to determine if the AI systems can replace workers, (4) should periodically assess their AI systems after they have been deployed to ensure that the results align with human rights and cultural values, (5) should ensure that appropriate resources and energy levels are consumed in connection with their AI systems, and (6) should communicate their AI systems' benefits in their ESG messaging to reduce the public's concern[120] regarding the proliferation of AI in their daily lives.

In short, organizations should take steps to ensure that their AI systems are beneficial to humans, society, and the environment, document the steps they have taken, and properly message this information to the public.

4.VI.D. Accuracy

The AI governance team should test and document the AI system's accuracy by benchmarking how close initial observations, computations, or estimates are to true values.[121] The organization should also document the relevant metrics that it used to evaluate the accuracy level.[122]

The AI governance team can measure accuracy by assessing whether the AI system is underfit or overfit by comparing how it performs on training data to test and holdout data. This will help the organization determine if the AI system functions as intended in the real environment.

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[118] *See* SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 17 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf.

[119] *See* ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 14 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf; SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 17-19 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf.

[120] *See* LEE RAINE, ET AL., PEW RESEARCH CTR., HOW AMERICANS THINK ABOUT ARTIFICIAL INTELLIGENCE, (Mar. 17, 2022), https://www.pewresearch.org/internet/2022/03/17/how-americans-think-about-artificial-intelligence/ ("In broad strokes, a larger share of Americans say they are 'more concerned than excited' by the increased use of AI in daily life than say the opposite. Nearly half of US adults (45%) say they are equally concerned and excited."); Sabrina Ortiz, *Most Americans Want Federal Regulation of AI, Poll Shows*, ZDNET (Aug. 14, 2023), https://www.zdnet.com/article/most-americans-want-federal-regulation-of-ai-poll-shows/ ("Of the participants polled, 62% reported being somewhat or mostly 'concerned' about AI, with 86% believing AI could accidentally cause a catastrophic event.").

[121] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 14 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf; Andrew Smith, *Using Artificial Intelligence and Algorithms*, FED. TRADE COMM'N (Apr. 8, 2020), https://www.ftc.gov/business-guidance/blog/2020/04/using-artificial-intelligence-algorithms (stating that, to avoid consumer harm, algorithm operators should ask "[h]ow accurate are your predictions based on big data").

[122] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 15, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

Underfitting occurs when an AI model is unable to accurately draw a relationship between the input and output variables, which leads to a high error rate and poor performance.[123] If there is high bias and low variance, the AI model is likely underfit.[124] To correct underfitting, the organization should use more input features and training time so that the AI model is capable of generalization, which will allow it to make predictions and classify data.[125] However, this is a balancing act, because, if the AI model is overtrained, it may also lead to high error rates because of overfitting.[126]

An overfit model is fit to closely to its training data and is unable to generalize.[127] To remedy overfitting, an organization can diversify and scale its training data and use data science techniques, such as early stopping (stopping the model in time to avoid learning the noise in data), pruning (eliminating irrelevant features in the training set and focusing on the important ones), regularization (eliminating the factors that do not impact the prediction outcomes), ensembling (using multiple models), and data augmentation (periodically changing the input data in small ways).[128] An organization should work with data scientists to ensure that the AI model is neither under nor overfit.

The AI governance team can also measure accuracy using traditional metrics and methodologies, such as by calculating the AI system's overall accuracy, precision, recall, and/or F1 score, as described below:[129]

- **Overall accuracy.** Overall accuracy is measured by calculating the AI system's number of correct predictions divided by the total number of predictions.
- **Precision**. Another method to calculate accuracy is by evaluating the precision, which assesses the portion of positive indications that was actually correct. The formula for precision is true positive divided by the total of true positive and false positive.

$$\text{Precision} = \frac{True\ Positive}{True\ Positive + False\ Positive}$$

- **Recall**. Recall measures what portion of actual positives was correctly identified. The formula for recall is true positive divided by the total of true positive and false negative.

$$\text{Recall} = \frac{True\ Positive}{True\ Positive + False\ Negative}$$

[123] *See What is Underfitting?*, IBM, https://www.ibm.com/topics/underfitting (last visited Aug. 14, 2024).
[124] *Id.*
[125] *Id.*
[126] *Id.*
[127] *Id.*
[128] *See What is Overfitting?*, AWS, https://aws.amazon.com/what-is/overfitting/ (last visited Aug. 14, 2024).
[129] *See* Koo Ping Shung, *Accuracy, Precision, Recall or F1?*, MEDIUM: TOWARDS DATA SCI. (Mar. 15, 2018), https://towardsdatascience.com/accuracy-precision-recall-or-f1-331fb37c5cb9.

- **F1 Score**. The F1 score accounts for both precision and recall in a single metric. The formula for the F1 score is 2×(Precision×Recall)/(Precision+Recall). F1 score helps balance these two metrics.

$$F1 = 2 \times \frac{Precision * Recall}{Precision + Recall}$$

There are trade-offs between precision and recall.[130] For example, if you place more importance on recall to find as many positive cases as possible, this could result in some false positives, which lowers precision.[131] Notably, AI systems cannot achieve 100% in both recall and precision, which means that they can make wrong predictions at times.[132]

Finally, the organization should test the AI system's accuracy continuously and after it has been placed in the market.[133] The organization may conduct the initial accuracy testing on static test data that is held back from the training data. However, the AI system's accuracy level may change when it is applied in the real environment, which has new and changing populations.[134] This phenomenon is called concept or model drift.[135] Organizations can mitigate this risk by measuring the distance between classification errors over time.[136] If the measurements show that there is an increasing error frequency, this may suggest model drift.[137]

4.VI.E. Robustness

The organization should ensure that the AI system is robust, which reflects its capability to perform comparably on new data as it did on its training data or the data used in typical operations.[138] Robustness requires the system to perform as intended under expected uses and to minimize potential harms to people if it is operating in unexpected settings.[139]

To ensure robustness, the AI governance team can take a number of steps, including (1) through technical redundancy solutions, which may include backup or fail-safe plans, (2) conducting rigorous testing before deployment to ensure consistent results across different situations and environments, (3) maintaining proper documentation of data sources, tracking data processing steps and data lineage, which help troubleshoot the AI system if issues arise, (4) adopting

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[130] *See What Do We Need To Know About Accuracy And Statistical Accuracy?*, INFO. COMM'R'S OFF. (Mar. 15, 2023), https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/artificial-intelligence/guidance-on-ai-and-data-protection/what-do-we-need-to-know-about-accuracy-and-statistical-accuracy.

[131] *Id.*

[132] *See* Eur. Union Agency for Cybersecurity, *Cybersecurity of AI and Standardisation*, at 10 (Mar. 14, 2023), https://www.enisa.europa.eu/publications/cybersecurity-of-ai-and-standardisation.

[133] *See What Do We Need To Know About Accuracy And Statistical Accuracy?*, INFO. COMM'R'S OFF. (Mar. 15, 2023), https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/artificial-intelligence/guidance-on-ai-and-data-protection/what-do-we-need-to-know-about-accuracy-and-statistical-accuracy.

[134] *Id.*

[135] *Id.*

[136] *Id.*

[137] *Id.*

[138] *See* ISO/IEC 42001:2023(E), Annex C, §C.2.8 (INT'L ORG. FOR STANDARDIZATION 2023).

[139] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 14 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

continuous learning practices, where the AI system's learned parameters are not fixed and can continue to change when it is deployed in the real world, (5) conducting continuous monitoring to ensure that the AI system does not learn unintended behavior in the process, and (6) putting in place back-up systems, protocols, or procedures in case the AI system produces unacceptable or inaccurate results or fails to function.[140]

4.VI.F. Safe and Secure

The AI governance team should ensure that the AI system is safe and secure throughout its lifecycle[141] by conducting continuous monitoring and managing risks.[142]

For AI safety, the AI governance team should implement processes to prevent danger to human life, health, property, and the environment.[143] For example, an autonomous vehicle can pose a risk to people's lives if it does not recognize a pedestrian on the road or if it malfunctions.[144] To help ensure that the AI system is safe, the governance team can (1) employ responsible design, development, and deployment practices, (2) provide clear instructions to deployers regarding how to use the AI system, as described above, (3) if it is a deployer, make responsible decisions using AI systems, and (4) document and explain AI risks based on empirical evidence of incidents.[145] The AI governance team can also consider adopting safety guidelines, [146] as relevant to the organization's industry or sector.

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[140] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 15(4), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 16, 37, 69 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

[141] *See Asilomar AI Principles*, FUTURE OF LIFE INST. (Aug. 11, 2017), https://futureoflife.org/open-letter/ai-principles/ ("AI systems should be safe and secure throughout their operational lifetime, and verifiably so where applicable and feasible."); U.N. Educ., Sci. and Cultural Org. [UNESCO], *Recommendation on the Ethics of Artificial Intelligence*, 20, U.N. Doc. SHS/BIO/PI/2021/1 (Nov. 23, 2021), https://unesdoc.unesco.org/ark:/48223/pf0000381137; *FACT SHEET: Biden-Harris Administration Secures Voluntary Commitments From Leading Artificial Intelligence Companies to Manage the Risks Posed by AI*, THE WHITE HOUSE, (July 21, 2023) https://www.whitehouse.gov/briefing-room/statements-releases/2023/07/21/fact-sheet-biden-harris-administration-secures-voluntary-commitments-from-leading-artificial-intelligence-companies-to-manage-the-risks-posed-by-ai/ (stating that "[c]ompanies have a duty to make sure their products are safe before introducing them to the public ... build systems that put security first").

[142] *See* DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 27 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf.

[143] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 14 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf; *Canadian Guardrails for Generative AI – Code of Practice*, INNOVATION, SCI. AND ECON. DEV. CAN. (Aug. 16, 2023), https://ised-isde.canada.ca/site/ised/en/consultation-development-canadian-code-practice-generative-artificial-intelligence-systems/canadian-guardrails-generative-ai-code-practice.

[144] *See* SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 21 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf.

[145] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 14 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

[146] *Id*. at 15.

The organization's risk-mitigation measures should be tailored to the AI system's safety risk, with risk of serious injury or death requiring the most urgent priority and risk management.[147] Critically, the organization should have a process in place to intervene and safely turn off an AI system that poses a high safety risk.[148]

Security refers to the organization's ability to protect the AI system from malicious attacks.[149] These attacks can include data poisoning, model inversion, exfiltration of models, training data or IP, tampering of datasets, byzantine attacks in federated learning, and other reverse engineering attacks.[150] Related to security is resilience, which reflects the AI system's ability to withstand such adverse events and return to normal function.[151]

Organizations may apply the traditional cybersecurity paradigm of confidentiality, integrity, and availability (CIA) to safeguard AI systems.[152] Attackers may try to compromise the "confidentiality" of the AI system by using carefully crafted inputs and observing the outputs.[153] By making the model talk, bad actors may obtain information about the AI model or its training data.[154] The AI model's parameter values may also leak because of human error or inadequate security.[155] The AI system's "integrity" may also be compromised when attackers work on the AI model's inputs to find small perturbations, which lead to modified outputs.[156] In addition, bad actors may modify the AI model's behavior by altering the data or models.[157] An AI system's "availability" can be jeopardized in a denial of service attack if an attacker uses an inappropriate input data format to increase the model's computation time.[158]

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[147] *Id*. at 14.

[148] *See* ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 13 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

[149] *See id.* at 14; NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 15 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf ("While resilience is the ability to return to normal function after an unexpected adverse event, security includes resilience but also encompasses protocols to avoid, protect against, respond to, or recover from attacks.").

[150] *See* ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 13 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf; NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 15 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf.

[151] *See* NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 15 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf ("AI systems, as well as the ecosystems in which they are deployed, may be said to be *resilient* if they can withstand unexpected adverse events or unexpected changes in their environment or use – or if they can maintain their functions and structure in the face of internal. ...") (emphasis in original).

[152] *See* Eur. Union Agency for Cybersecurity, *Cybersecurity of AI and Standardisation*, at 16 (Mar. 14, 2023), https://www.enisa.europa.eu/publications/cybersecurity-of-ai-and-standardisation; NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 15 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf ("AI systems that can maintain confidentiality, integrity, and availability through protection mechanisms that prevent unauthorized access and use may be said to be *secure*.") (emphasis in original).

[153] *See* Eur. Union Agency for Cybersecurity, *Cybersecurity of AI and Standardisation*, at 16 (Mar. 14, 2023), https://www.enisa.europa.eu/publications/cybersecurity-of-ai-and-standardisation.

[154] *See id.*

[155] *See id*

[156] *See id*

[157] *See id*

[158] *See id*

To address these security threats, organizations can apply traditional cybersecurity techniques to AI systems, like they do with other IT assets.[159] The organization's security team can monitor and regularly check log files to detect anomalies in the AI system, apply technical protection measures, such as firewalls, encryption, multi-factor authentication and security patches, limit access to the AI system during development and inference time, require the AI system's core developers to undergo background checks, protect proprietary data sources used to train or fine-tune the AI model, apply security-by-design and zero-trust frameworks, monitor abnormal behavior and potential security threats, cryptographically protect important information for the AI system's entire lifecycle, and conduct audits and penetration testing.[160] Cybersecurity defenses should be diverse and comprehensive because there are many attack vectors in connection with AI systems.[161]

The AI governance team should also ensure that its existing cybersecurity policies and procedures incorporate the organization's AI use cases.[162] For example, the organization can update its incident response[163] plan to address third-party bad actors[164] potentially misusing[165] the AI system and exploiting vulnerabilities.[166] The AI governance team can also regularly test

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[159]*See id* at 17; FED. OFF. FOR INFO. SEC., AI SECURITY CONCERNS IN A NUTSHELL – PRACTICAL AI SECURITY GUIDE 5 (Sept. 3, 2023) (Ger.), https://www.bsi.bund.de/SharedDocs/Downloads/EN/BSI/KI/Practical_AI-Security_Guide_2023.pdf? ("AI systems are IT systems, meaning classical measures can be applied to increase IT security. Moreover, AI systems, in practice, do not operate in isolation but are embedded in a more extensive IT system consisting of various components.").

[160]*See* FED. OFF. FOR INFO. SEC., AI SECURITY CONCERNS IN A NUTSHELL – PRACTICAL AI SECURITY GUIDE 5 (Sept. 3, 2023) (Ger.), https://www.bsi.bund.de/SharedDocs/Downloads/EN/BSI/KI/Practical_AI-Security_Guide_2023.pdf?; U.S. NAT'L SEC. AGENCY, A.I. SEC. CTR. ET AL., DEPLOYING AI SYSTEMS SECURELY: BEST PRACTICES FOR DEPLOYING SECURE AND RESILIENT AI SYSTEMS 4-8 (Apr. 2024), https://media.defense.gov/2024/Apr/15/2003439257/-1/-1/0/CSI-DEPLOYING-AI-SYSTEMS-SECURELY.PDF.

[161]*See* U.S. NAT'L SEC. AGENCY, A.I. SEC. CTR. ET AL., DEPLOYING AI SYSTEMS SECURELY: BEST PRACTICES FOR DEPLOYING SECURE AND RESILIENT AI SYSTEMS 2 (Apr. 2024), https://media.defense.gov/2024/Apr/15/2003439257/-1/-1/0/CSI-DEPLOYING-AI-SYSTEMS-SECURELY.PDF.

[162]*Id*. at 1 ("As agencies, industry, and academia discover potential weaknesses in AI technology and techniques to exploit them, organizations will need to update their AI systems to address the changing risks, in addition to applying traditional IT best practices to AI systems.").

[163]*See* ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 13 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf ("Deployers should also develop incident response plans to safeguard AI systems from ... attacks.").

[164]*See* Andrew Smith, *Using Artificial Intelligence and Algorithms*, FED. TRADE COMM'N (Apr. 8, 2020), https://www.ftc.gov/business-guidance/blog/2020/04/using-artificial-intelligence-algorithms ("If you're in the business of developing AI to sell to other businesses, think about how these tools could be abused and whether access controls and other technologies can prevent the abuse.").

[165]*See The Artificial Intelligence and Data Act (AIDA) – Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document.

[166]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 15(5), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 15 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf ("Common security concerns relate to adversarial examples, data poisoning, and the exfiltration of models, training data, or other intellectual property through AI system

and conduct diligence on its AI system throughout its lifecycle[167] by conducting red-teaming of models or systems in high-risk areas[168] and updating technical standards for safety and security.[169] Further, the organization should include AI use cases in their business continuity and disaster recovery plans.[170]

While adopting existing cybersecurity techniques are helpful to address an AI system's security, it is worth noting that proper AI governance is not just about protecting the AI asset.[171] Instead, it also involves correctly implementing trustworthiness in cybersecurity[172] through other mitigation measures described above, such as data governance, risk assessment, transparency, etc.

4.VI.G. Enhancing Privacy Protection

As mentioned above, there are laws of general applicability, such as data privacy laws, that apply to AI systems. Some of the core requirements to address data privacy compliance when developing and/or using AI systems include (1) being transparent that the organization is using personal data to train or make decisions with AI systems, (2) documenting a lawful basis for the AI system processing personal data (e.g., legitimate interest or obtaining consent, based on applicable privacy laws and practices), (3) employing privacy-by-design techniques that, among other things, allow the organization to honor data subject rights requests for personal data used in AI systems (e.g., right to delete, access, correct, and opt-out/objection to processing), (4) including appropriate data privacy terms in agreements with AI service providers, and (5) employing privacy enhancing techniques (PETs) to minimize the use of personal data in AI

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endpoints."); *Australia's AI Ethics Principle*, AUSTL. GOV'T, DEPARTMENT OF INDUS., SCI. AND RES., https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principle (last visited Aug. 14, 2024) (stating that AI system security measures include identifying "potential security vulnerabilities, and assurance of resilience to adversarial attacks").

[167] *See* DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 27 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf ("AI systems should function in a robust, secure and safe way throughout the AI life cycle, and risks should be continually identified, assessed and managed.").

[168] *See FACT SHEET: Biden-Harris Administration Secures Voluntary Commitments From Leading Artificial Intelligence Companies to Manage the Risks Posed by AI*, THE WHITE HOUSE, (July 21, 2023) https://www.whitehouse.gov/briefing-room/statements-releases/2023/07/21/fact-sheet-biden-harris-administration-secures-voluntary-commitments-from-leading-artificial-intelligence-companies-to-manage-the-risks-posed-by-ai/.

[169] *See* DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 27 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf ("System developers should be aware of the specific security threats that could apply at different stages of the AI life cycle and embed resilience to these threats into their systems. Other actors should remain vigilant of security issues when they interact with an AI system.").

[170] *See* ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE AND ETHICS 14 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

[171] *See* Eur. Union Agency for Cybersecurity, *Cybersecurity of AI and Standardisation*, at 19 (Mar. 14, 2023), https://www.enisa.europa.eu/publications/cybersecurity-of-ai-and-standardisation.

[172] *See id.* at 19 & 24.

systems, such as anonymization, de-identification, aggregation, pseudonymization, masking, encryption, and tokenization.[173]

The AI governance team's privacy specialists should be involved in this process to ensure that the above-mentioned practices comport with privacy laws and apply appropriate PET techniques to help prevent the AI system revealing personal data as output or during a malicious attack.

4.VI.H. Human Oversight

When organizations develop or deploy AI systems, it is critical that automation does not completely override human agency, particularly in sensitive domains like critical infrastructure.[174] The AI governance team should ensure that there is appropriate human involvement[175] when developing or using AI that is commensurate with the risk level and the severity and probability of harm.[176]

Generally speaking, there are three levels of human involvement to consider: (1) human-out-of-the-loop, whereby the AI system operates with no human oversight, (2) human-over-the-loop, whereby a human can control and override unexpected and undesirable events while monitoring or supervising AI decisions, and (3) human-in-the-loop, whereby a human is in full control over the AI system and treats its output as a recommendation.[177] If the risk score identified during the

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[173] *See* THE WHITE HOUSE OFF. OF SCI. AND TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE 6 (Oct. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf; NAT'L INST. OF STANDARDS AND TECH., U.S. DEP'T OF COM., ARTIFICIAL INTELLIGENCE RISK MANAGEMENT FRAMEWORK (AI RMF 1.0), at 17 (Jan. 2023), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.100-1.pdf; SAUDI DATA & AI AUTH., AI ETHICS PRINCIPLES 39 (Sept. 2023), https://sdaia.gov.sa/en/SDAIA/about/Documents/ai-principles.pdf.

[174] *See* SANJEEV SANYAL, ET. AL., ECON. ADVISORY COUNCIL TO THE PM, A COMPLEX ADAPTIVE SYSTEM FRAMEWORK TO REGULATE ARTIFICIAL INTELLIGENCE 22 (Jan. 2024) (India), https://eacpm.gov.in/wp-content/uploads/2024/01/EACPM_AI_WP-1.pdf.

[175] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 30-31, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf; Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art.14, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; *The Artificial Intelligence and Data Act (AIDA) – Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document ("[H]igh-impact AI systems must be designed and developed in such a way as to enable people managing the operations of the system to exercise meaningful oversight. This includes a level of interpretability appropriate to the context."); *Asilomar AI Principles*, FUTURE OF LIFE INST. (Aug. 11, 2017), https://futureoflife.org/open-letter/ai-principles/ ("Humans should choose how and whether to delegate decisions to AI systems, to accomplish human-chosen objectives.").

[176] *See generally*, PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 30-31, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf; *The Artificial Intelligence and Data Act (AIDA) – Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document (stating that human oversight requires "considering the scale of deployment, the manner in which the system is being made available for use, and its user base.").

[177] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 30, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf; ASS'N OF SE. ASIAN NATIONS, ASEAN GUIDE ON AI GOVERNANCE

risk assessment is high (e.g., in the medical context), [178] the AI governance team should utilize human-in-the-loop to mitigate risks.[179] On the other hand, if the risk score is low (e.g., spam filters and product recommendations on websites), human-out-of-the-loop may be adequate to a certain degree.[180] In some situations, a moderate risk score could justify using human-over-the-loop (e.g., GPS recommending driving routes).[181]

Lastly, the AI governance team may consider other variables as part of proper human oversight, such as (1) incorporating a kill switch[182] if the AI system goes awry and poses a danger, (2) ensuring that the organization understands that AI systems are not always accurate by avoiding automation bias[183] (e.g., an attorney relying on a brief written by an AI system without checking the case law and analysis), (3) understanding the AI system's capacities and limitations, (4) receiving training on how to properly interpret the AI system's output, and (5) knowing when to override, ignore, or reverse the AI system's decisions, which may be due to inaccuracy, hallucination, or drift.[184]

4.VI.I. Technical Documentation and Logs

AND ETHICS 25-26 (2024), https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf.

[178] *See* U.N. Educ., Sci. and Cultural Org. [UNESCO], *Recommendation on the Ethics of Artificial Intelligence*, 22, U.N. Doc. SHS/BIO/PI/2021/1 (Nov. 23, 2021), https://unesdoc.unesco.org/ark:/48223/pf0000381137 ("As a rule, life and death decisions should not be ceded to AI systems.").

[179] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 30, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.

[180] *Id.*

[181] *Id.*

[182] *See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 31, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf ("For safety-critical systems, it would be prudent for organisations to ensure that a person be allowed to assume control, with the AI system providing sufficient information for that person to make meaningful decisions or to safely shut down the system where human control is not possible."); Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 14(4)(e), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689 (stating that humans should be able "to intervene in the operation of the high-risk AI system or interrupt the system through a 'stop' button or a similar procedure that allows the system to come to a halt in a safe state.").

[183] *See* Integrated Innovation Strategy Promotion Council, *Social Principles of Human-Centric AI* 4, CABINET SECRETARIAT OF JAPAN, https://www.cas.go.jp/jp/seisaku/jinkouchinou/pdf/humancentricai.pdf (last visited Aug. 14, 2024) (noting that society should not be "overly dependent on AI" or let AI "control human behavior").

[184] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 14(4)(d) (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; Smart Dubai, *AI Ethics Principles & Guidelines* 9, DIGITAL DUBAI, https://www.digitaldubai.ae/docs/default-source/ai-principles-resources/ai-ethics.pdf (last visited Aug. 14, 2024) (stating that AI "systems should be able to be overridden or their decisions reversed by designated people").

The organization may need to maintain technical documentation and logs throughout the AI system's lifecycle to demonstrate accountability and trace the AI system's sources of error if it drifts or hallucinates.

The technical documentation should include, among other things described under the EU AI Act, a description of (1) the AI system, (2) the AI system's elements and development process, (3) the AI system's monitoring, functioning, and control, particularly with regard to its capabilities and limitations in performance (including accuracy), (4) the appropriateness of the AI system's performance metrics, (5) the risk management system the organization adopted, (6) any relevant changes made to the AI system through its lifecycle, and (7) the process in place to evaluate the AI system's performance when deployed in the market.[185]

The AI governance team should also ensure that there is a process to automatically record events (i.e., logs) during the AI system's lifetime, such as (1) the period of each AI use (start and end date and time of each use), (2) the reference database against which the AI system has checked the input data, (3) the input data that led to a match for a search, and (4) the individuals who verified the AI system's results.[186]

These documents will allow the AI governance team to identify and mitigate risks that may arise when the AI system is operating in the real environment by ensuring that there is a sufficient level of traceability.

4.VI.J. Post-Market Monitoring

AI governance is not a one-time task. Rather, after an organization develops and/or deploys an AI system into the market, it needs to monitor it throughout its lifecycle, because the AI system may drift or hallucinate.[187] For post-market monitoring, the AI governance team needs to have procedures to collect, document, and analyze how the AI system is performing and interacting with other systems or environments after deployment.[188] While monitoring the AI system, the AI governance team should identify and address any risks, defects, or non-conformities arising from the AI system. This will then allow the AI governance team to correct any deficiencies and make necessary adjustments.

4.VI.K. Communication Channels and Contestability

While AI systems may perform well on test and validation data, they may function differently when interacting with users, as mentioned above. Thus, in addition to having an automated process for post-market monitoring, the organization should have open communication channels for the public to provide feedback regarding their observed concerns.[189]

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[185]*See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 11, Annex IV (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[186]*See id.* at Art. 12.

[187]*See generally*, *id.* at Art. 72.

[188]*See id*.

[189]*See* PERSONAL DATA PROT. COMM'N SINGAPORE, MODEL ARTIFICIAL INTELLIGENCE GOVERNANCE FRAMEWORK 57, (2nd ed. Jan. 21, 2020), https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf.

The AI governance team should also have internal procedures in place to give individuals an opportunity to opt out and request human review of AI decisions, especially if the organization is subject to emerging privacy laws giving consumers the right to opt out of profiling from automated decisions that have legal or similarly significant effects.[190] Individuals should have an opportunity to contest decisions[191] and access to a person who can quickly consider and remedy problems they may have experienced. The AI governance team should designate individuals in the organization to monitor the public's feedback and to ensure that communication channels are accessible, equitable, effective, and maintained and do not impose an unreasonable burden on the public.[192]

4.VI.L. Adopt Appropriate AI Contractual Provisions

Whether your organization is a developer or deployer of an AI system, it may need to adopt appropriate contractual provisions to mitigate risks.[193]

Generally speaking, unlike data privacy laws that require specific terms between controllers and processors, comprehensive AI laws, like the Colorado AI Law and EU AI Act, do not have a long list of specific terms that developers and deployers must include in their agreements. That said, there is a narrow situation where the EU AI Act requires an agreement between a high-risk AI system provider "and the third party that supplies an AI system, tools, services, components, or processes that are used or integrated in a high-risk AI system. ..."[194] The EU AI Act requires the agreement to specify "the necessary information, capabilities, technical access and other assistance based on the generally acknowledged state of the art, in order to enable the provider of the high-risk AI system to fully comply with the obligations set out in [the EU AI Act]."[195]

Moreover, if the parties are subject to the EU AI Act, they should include a provision addressing shifting of party roles. Under Article 25 of the EU AI Act, a distributor, importer, deployer or other third-party could transform into an AI system provider (New Provider) if one of the following conditions are met:[196]

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[190] *See*, e.g., VA. CODE ANN. §59.1-577(A)(5)(iii); COLO. REV. STAT. §6-1-1306(1)(a)(C); Regulation (EU) 2016/679, General Data Protection Regulation, Art. 22(1) O.J. (L 119, 04.05.2016), https://gdpr-info.eu/art-4-gdpr/; *Australia's AI Ethics Principle*, AUSTL. GOV'T, DEPARTMENT OF INDUS., SCI. AND RES., https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principle (last visited Aug. 14, 2024) ("In the case of decisions significantly affecting rights, there should be an effective system of oversight, which makes appropriate use of human judgment.").

[191] *See* DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 31-32 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf.

[192] *See* THE WHITE HOUSE OFF. OF SCI. AND TECH. POL'Y, BLUEPRINT FOR AN AI BILL OF RIGHTS: MAKING AUTOMATED SYSTEMS WORK FOR THE AMERICAN PEOPLE 7 (Oct. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf.

[193] *See* ISO/IEC 42001:2023(E), Annex A, §§A.10.3 & A.10.4 (INT'L ORG. FOR STANDARDIZATION 2023).

[194] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 25(4), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

[195] *See id.*

[196] *See id.* at 25(1).

(a) they put their name or trademark on a high-risk AI system already placed on the market or put into service, without prejudice to contractual arrangements stipulating that the obligations are otherwise allocated;

(b) they make a substantial modification to a high-risk AI system that has already been placed on the market or has already been put into service in such a way that it remains a high-risk AI system pursuant to Article 6;

(c) they modify the intended purpose of an AI system, including a general-purpose AI system, which has not been classified as high-risk and has already been placed on the market or put into service in such a way that the AI system concerned becomes a high-risk AI system in accordance with Article 6.

If the New Provider meets one of the above conditions, the initial provider (Initial Provider) will no longer be the provider of that specific AI system under the EU AI Act.[197] Instead, the Initial Provider will only be obligated to "closely cooperate with new providers and ... make available the necessary information and provide the reasonably expected technical access and other assistance that are required for the fulfilment of the obligations set out in [the EU AI Act], in particular regarding the compliance with the conformity assessment of high-risk AI systems."[198]

To address this scenario, the parties should include a provision in the agreement stating whether the AI system may be changed. If the AI system provider includes a provision prohibiting the counterparty from changing the AI system, the Initial Provider is not required to assist the New Provider under Article 25.[199]

Further, the parties may consider utilizing voluntary model terms under the EU AI Act. For example, on October 5, 2023, the European Commission published EU model contractual clauses for public organizations procuring AI systems.[200] Further, under the EU AI Act, "[t]he AI Office may develop and recommend voluntary model terms for contracts between providers of high-risk AI systems and third parties that supply tools, services, components or processes that are used for or integrated into high-risk AI systems."[201] Model contractual terms for AI agreements may ultimately become commercial practice, similar to the EU standard contractual clauses for cross-border data transfers.

Organizations may also consider including a mutual provision in the agreement requiring both developers and deployers to comply with their respective obligations under AI laws and not engage in prohibited AI practices. The parties may either draft this provision broadly or they can detail the specific obligations each of them must comply with based on their role. For example, an AI system developer may want provisions requiring the deployer to (1) provide the transparency and explainability notice to end users, (2) use the AI system pursuant to the

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[197] *See id.* at Art. 25(2).

[198] *See id.*

[199] *See id.*

[200] *See EU Model Contractual AI Clauses to Pilot in Procurements of AI*, EUR. COMM'N, (Sept. 29, 2023), https://public-buyers-community.ec.europa.eu/communities/procurement-ai/resources/eu-model-contractual-ai-clauses-pilot-procurements-ai.

[201] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 25(4), (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689.

developer's documentation and instructions of use, (3) represent that it has the legal right to use the input data and that the input data is appropriate for the AI system's intended use, and (4) be primarily responsible for honoring individual rights requests under AI laws (with the developer merely providing assistance to the deployer).

On the other hand, the deployer of the AI system may want provisions requiring the developer to represent that it (1) developed the AI system using appropriate data governance techniques and had the legal right to the data used to train, test, validate and/or fine-tune the AI system, (2) has provided the deployer with accurate and appropriate documentation and instructions of use for the AI system, (3) tested the AI system for accuracy, robustness, and security, (4) designed the AI system with the capability to automatically record events (i.e., logs), and (5) developed the AI system so that when end users prompt the AI, it communicates that it is an AI system and not a human.

The parties may also consider expanding the compliance with AI laws provision to require adopting industry best practices in connection with their development or use of AI systems, such as NIST AI RMF or ISO/IEC 42001. Including such a requirement will depend on the parties' negotiation posture, leverage, size and sophistication. For example, if the AI system developer is a small startup, it may not have adopted a mature AI governance program to comfortably provide such a representation to its customers. Likewise, a small company contracting for AI services may not have the resources to comply with a major risk management framework or the leverage needed to require a large AI provider to agree to such a term.

Lastly, organizations should consider including a provision in the agreement requiring the parties to cooperate together with respect to certain AI obligations, such as investigating, correcting and reporting serious incidents or instances of algorithmic discrimination, preparing AI impact assessments, handling individual rights, post-market monitoring of AI systems and human oversight, and responding to regulatory inquiries and investigations.

4.VI.M. Decommissioning the AI System

Organizations should have processes and procedures in place to decommission the AI system in a safe manner so that it does not increase the risks or decrease the organization's trustworthiness.[202] Before decommissioning or deleting AI systems, organizations may need to consider whether the AI systems are subject to regulatory or other legal requirements that require archiving in a model inventory for a certain period of time.[203] Organizations should also assess whether the AI system is dependent or linked to other systems or currently utilized by individuals who rely on it before decommissioning or deleting.[204]

[202] *See* NAT'L INST. OF STANDARDS AND TECH., AI RMF PLAYBOOK 14 (2023), https://airc.nist.gov/AI_RMF_Knowledge_Base/Playbook.

[203] *See id.*

[204] *See id.*

4.VII. ACCOUNTABILITY

A mature AI government program should ensure that the organization is accountable for its AI systems.[205] The AI governance team should consider implementing measures to oversee the AI system, with accountability throughout its lifecycle.[206]

The AI governance team should consider documenting the above steps through auditable policies and procedures,[207] which may include:

- An AI leadership policy describing the roles and responsibilities of individuals responsible for AI oversight in the organization;
- An IT asset inventory that includes the AI systems the organization develops and/or uses and a data provenance record reflecting the AI systems' data lineage;
- A deployer's AI use policy;
- A developer's governance policy for AI development;
- An AI impact assessment that identifies the AI risks and mitigation measures implemented to reduce the risks, which incorporates by reference the technical documentation and logs maintained for the AI system and the risk management system adopted by the organization (e.g., NIST AI RMF or ISO/IEC 42001);
- A legal assessment that identifies the AI laws applicable to the organization and the steps taken (or to be taken) to address compliance, such as procedural requirements under the EU AI Act (e.g., conformity assessments, EU declaration of conformity, the CE marking affixed to the AI system, registration requirements, and appointment of an EU representative);

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[205] *See Australia's AI Ethics Principle*, AUSTL. GOV'T, DEPARTMENT OF INDUS., SCI. AND RES., https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principle (last visited Aug. 14, 2024) (stating that the accountability principle acknowledges "organisations' and individuals' responsibility for the outcomes of the AI systems that they design, develop, deploy and operate"); Org. for Econ. Co-operation and Dev. [OECD], Recommendation of the Council on Artificial Intelligence, Legal Instrument 449, at 1.5, (July 11, 2023), https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449 ("AI actors should be accountable for the proper functioning of AI systems and for the respect of the above principles, based on their roles, the context, and consistent with the state of art.").

[206] DEP'T FOR SCI., INNOVATION & TECH., A PRO-INNOVATION APPROACH TO AI REGULATION, 2023, CP 815, at 30 (U.K.), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1176103/a-pro-innovation-approach-to-ai-regulation-amended-web-ready.pdf; *Australia's AI Ethics Principle*, AUSTL. GOV'T, DEPARTMENT OF INDUS., SCI. AND RES., https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principle (last visited Aug. 14, 2024); *Canadian Guardrails for Generative AI – Code of Practice*, INNOVATION, SCI. AND ECON. DEV. CAN. (Aug. 16, 2023), https://ised-isde.canada.ca/site/ised/en/consultation-development-canadian-code-practice-generative-artificial-intelligence-systems/canadian-guardrails-generative-ai-code-practice.

[207] *See* Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 on harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), Art. 17, (OJ L, 2024/1689, 12.7.2024) (July 12, 2024), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202401689; *The Artificial Intelligence and Data Act (AIDA) – Companion Document*, INNOVATION, SCI. AND ECON. DEV. CAN. (Mar. 13, 2023), https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document (stating that accountability "includes the proactive documentation of policies, processes, and measures implemented").

- An AI trust center for transparency and explainability with the public that also includes mechanisms for internal and external stakeholders to provide feedback regarding the organization's AI systems and contest decisions; and
- An AI bias and fairness report that analyzes whether the AI system presents risks of algorithmic discrimination or other unfair outcomes based on the circumstances.

Attached to this book are sample high-level and generic template developer and deployer policies and a template AI impact assessment for organizations to understand how such documents may look like. Organizations will ultimately need to draft custom policies and assessments as relevant to their practices and applicable laws.

The AI governance team may also review other policies within the organization and integrate them with the company's AI use and development, such as incorporating AI in a security incident response plan, data privacy policies and procedures, or human resources and marketing practices. The AI governance team may also consider conducting third-party audits to objectively test the organization's AI systems to validate its governance program.[208]

[208] *See* Andrew Smith, *Using Artificial Intelligence and Algorithms*, FED. TRADE COMM'N (Apr. 8, 2020), https://www.ftc.gov/business-guidance/blog/2020/04/using-artificial-intelligence-algorithms ("Consider how you hold yourself accountable, and whether it would make sense to use independent standards or independent expertise to step back and take stock of your AI. ... Such outside tools and services are increasingly available as AI is used more frequently, and companies may want to consider using them.").

Chapter 5. Conclusion

Current through August 14, 2024.

5.I. Conclusion

An organization developing or deploying an AI system should consider being proactive and develop the internal framework necessary to address rapidly evolving AI laws and ethics. To address these requirements, multi-national corporations may consider governing their AI systems using an approach that harmonizes global standards, frameworks and laws, which are composed of common components. This will give organizations the ability to develop and deploy AI systems at scale, without having siloed and fragmented governance programs for each country they operate in. Adopting this strategy may also allow organizations to gain the public's trust by having a consistent approach across jurisdictions, instead of extending additional protections in certain countries (e.g., the EU), but not others.

Appendix A. Artificial Intelligence Leadership Policy

I. Purpose

The purpose of this Artificial Intelligence Leadership Policy ("Policy") is to set forth the policy on how our organization and its affiliates (the "Company") shall designate leaders for its artificial intelligence oversight committee ("AI Oversight Committee") and the tasks they will need to perform. This Policy may be updated as there are developments in AI Requirements.

II. Scope

This Policy applies to members of the AI Oversight Committee. The Company's current list of AI Oversight Committee members can be found in the Company's directory.

III. Definitions

A. ***"AI Governance Policies"*** means policies, procedures, guidelines, frameworks, and/or principles adopted by the Company for AI governance.

B. ***"AI Laws"*** means laws, legislation, regulations, and regulatory guidance applicable to the Company's use and/or development of AI Systems, each as updated or replaced from time to time.

C. ***"AI Requirements"*** means AI Laws and AI Governance Policies.

D. ***"AI Systems"*** means any machine-based system that, for any explicit or implicit objectives, infers from the inputs the system receives how to generate outputs, including content, decisions, predictions, decisions or recommendations, that can influence physical or virtual environments they interact with.

IV. Designation of the AI Oversight Committee Members

The Company shall designate AI Oversight Committee Members based on the following criteria:

A. The AI Oversight Committee members shall be designated on the basis of professional qualities, knowledge of the AI Requirements, and the ability to fulfill the tasks described in this Policy.

B. The AI Oversight Committee members shall be composed of individuals with diverse skillsets, backgrounds, and representation across the Company, such as those with

legal, data privacy, cybersecurity, engineering, technical, data science, management, human resources, and other relevant skillsets and perspectives.

C. The AI Oversight Committee members shall be designated according to specific geographic regions within the Company.

D. The AI Oversight Committee members may be Company employees or, if necessary, external professional services providers.

V. Authority of the AI Oversight Committee Members

A. The AI Oversight Committee members will report directly to senior leadership in the Company.

B. The AI Oversight Committee members will have an appropriate degree of independence to fulfill the responsibilities described in this Policy.

C. The AI Oversight Committee members will be trained in regular cadence regarding AI Requirements.

D. The AI Oversight Committee members will be informed and involved, properly and in a timely manner, in all issues that are related to the Company's oversight, development and use of AI Systems.

E. Individuals may contact the AI Oversight Committee members in their geographic region with respect to issues pertaining to AI Requirements.

VI. Responsibilities of the AI Oversight Committee

The AI Oversight Committee shall perform the following tasks within their designated geographic region of administrative responsibility:

A. Identify the Company's objectives with AI Systems and ensure that they are established and compatible with the Company's strategic direction.

B. Document and update the Company's AI Governance Policies at planned intervals or additionally as needed based on changes in AI Laws, industry best practices, and technological developments to ensure their continuing suitability, adequacy and effectiveness.

C. Assess whether other policies in the Company may be impacted by or apply to the Company's objectives with respect to AI Systems.

D. Oversee and monitor compliance with the AI Requirements.

E. Define and put in place a process for Company employees and external parties to report concerns about the Company's use and/or development of AI Systems.

F. Identify, document and secure the resources needed to establish, implement, maintain, and continually improve the Company's development and/or use of AI Systems and integrate them into the Company's business process.

G. Identify and document the human resources and their competencies utilized for the development and/or use of AI Systems.

H. Communicate the importance of the AI Requirements throughout the Company.

I. Provide direction, support and training to employees commensurate with their roles and experience so that the AI Requirements can be effectively implemented.

J. Develop and impose corrective measures for violations of the AI Requirements.

K. Manage and oversee compliance with AI Requirements vis-à-vis third-party vendors, suppliers, service providers, contractors, processors and third parties.

VII. Contact Information

Please consult other members of the AI Oversight Committee if you have any questions or need to request an exception to the Policy requirements.

VIII. Revision History

Version	Date	Author	Description	Sections Affected

Appendix B. Artificial Intelligence Impact Assessment (AIIA)

ARTIFICIAL INTELLIGENCE IMPACT ASSESSMENT (AIIA)	DOCUMENT NUMBER	DATE
	PAGE | 1	

APPENDIX B: Artificial Intelligence Impact Assessment (AIIA)

AIIA DETAILS		
Contact details of project owner.	Click or tap here to enter text.	
Target launch date, period of time within which the AI system will be used and frequency of usage.	Click or tap here to enter text.	
Has this AIIA been reviewed and approved at the company?	☐ Yes ☐ No	Provide the approval date and names and positions of the individuals responsible for the review and approval. Click or tap here to enter text.
Has this AIIA been presented to company leadership, including its data protection officer (if applicable)?	☐ Yes ☐ No	
Has an internal or external audit been conducted in relation to this AIIA?	☐ Yes ☐ No	

	Name and title	Click or tap here to enter text.
	Company	Click or tap here to enter text.
	Date	Click or tap here to enter text.
	Results of audit (include report as attachment)	Click or tap here to enter text.
Provide a list of internal employees or teams and external parties that contributed to this AIIA.	Click or tap here to enter text.	
Who is responsible for ensuring that this project is maintained as stated in this AIIA? Describe how that person monitors compliance and the process for reporting non-compliance.	Click or tap here to enter text.	
Which of the following does this project involve?	☐ Commencement of a new project ☐ Changes to an existing project	
Has an AIIA or data protection impact assessment been previously completed for this project?	☐ Yes ☐ No	
	If yes, please describe the changes or developments triggering an update to the AIIA.	

	Click or tap here to enter text.	
GENERAL DESCRIPTION OF THE AI SYSTEM		
Provide a description of the AI system (e.g., purpose, intended use cases, deployment context and general benefits).	Click or tap here to enter text.	
Is the Company developing or deploying an AI system?	☐ Developing ☐ Deploying	
	If the company is deploying a third-party's AI system, provide the name of the third party's AI system and attach copies of any internal or external evaluations sufficient to show the accuracy and reliability of the AI system. Click or tap here to enter text.	
Will individuals directly interaction with the AI system?	☐ Yes ☐ No	
What output is produced by the AI system and how will it be used?	Click or tap here to enter text.	
If applicable, describe the decisions that will be made using or	Decisions	Benefits Over Manual Processing
	Click or tap here to enter text.	Click or tap here to enter text.

supported by the AI system and its benefits over manual processing.	Click or tap here to enter text.	Click or tap here to enter text.
Describe the logic used by the AI system, and any assumptions of the logic.	Click or tap here to enter text.	
What metrics are used to evaluate the performance and known limitations of the AI system?	Click or tap here to enter text.	
Describe how the AI system's use directly and reasonably relates to the company's goods or services.	Click or tap here to enter text.	
Describe the technology that will be used in connection with the AI system?	Click or tap here to enter text.	
AI OVERSIGHT		
Has an AI oversight team been assembled?	☐ Yes ☐ No	
Does the AI oversight team have training and AI literacy?	☐ Yes ☐ No	
Describe the frequency of AI training received by the oversight team.	Click or tap here to enter text.	

DATA GOVERNANCE			
Was a foundation model utilized for the AI system?	☐ Yes ☐ No If yes, please describe: Click or tap here to enter text.		
If the company is training an AI model and/or developing an AI system, describe the data governance technics used by data scientists or other specialists in the development.	Describe or attach a copy of a report regarding the data governance technics used, which address, among other things, the below. • *Relevant design choices.* • *Data collection processes and the origin of data, and in the case of personal information, the original purpose of the data collection.* • *Relevant data-preparation processing operations, such as annotation, labelling, cleaning, updating, enrichment and aggregation.* • *The formulation of assumptions, in particular related to the information that the data are supposed to measure and represent.* • *Whether an assessment been done regarding the availability, quantity and suitability of the data sets that are needed.* • *Whether an assessment has been done for biases in the data, and mitigation steps necessary for same.* • *Whether there are any gaps or shortcomings that would prevent proper data governance.* • *Whether the datasets are sufficiently representative, free of errors, and complete for the intended purpose.*		
What data will be used for the AI system?	Data Type	Source	Purpose
	☐ Name	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider	☐ Train AI model ☐ Fine-tune AI system ☐ Test or validate AI system ☐ Input prompt for AI system

		☐ Other	
	☐ Phone number	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Address	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Email address	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Job title	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system

	☐ Username	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Password	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Internet protocol address	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Persistent identifiers	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system

	☐ Internet or other electronic network activity information	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Audio, electronic, visual, thermal, olfactory, or similar information	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Professional or employment-related information	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Financial or business information	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Government identification and	☐ Directly from individual	☐ Train AI model

	numbers (Social Security, driver's license, passport, or other government-issued numbers)	☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Geolocation data	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Biometric data	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Health and medical data	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Genetic data	☐ Directly from individual	☐ Train AI model ☐ Fine-tune AI model

		☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Demographic information (family, race, ethnicity, tribal origin, religious or philosophical beliefs, sex life or sexual orientation, or immigration or citizenship status)	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Intellectual or political opinions	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Trade union membership	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Children's data	☐ Directly from individual	☐ Train AI model ☐ Fine-tune AI model

		☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Test or validate AI system ☐ Input prompt for AI system
	☐ Other (*describe*)	☐ Directly from individual ☐ Web scrapping or crawling ☐ Third-party data provider ☐ Other	☐ Train AI model ☐ Fine-tune AI model ☐ Test or validate AI system ☐ Input prompt for AI system
Attach or provide a link to the privacy policy applicable to the personal information processed by the AI system or in connection with the project.	Click or tap here to enter text.		
If applicable, describe the lawful bases for processing the data, if personal information is involved.	☐ Consent ☐ Contract with the individual ☐ Public interest ☐ Legitimate interests of our company ☐ Privacy notice at or before the point of collection ☐ Other: Click or tap here to enter text.		
	If consent is a legal basis for the processing of personal information, is such consent being obtained in compliance with privacy laws, particularly in relation to the following requirements? ☐ Consent is being obtained in accordance with legally prescribed formalities		

	☐ Separate consent is being obtained for each category of processing (e.g., collection/use, provision to third parties, and cross-border transfers) ☐ Separate consent is being obtained for sensitive data and unique identification data ☐ N/A consent is not required for this processing activity
Does the company have procedures in place to honor individuals' privacy rights?	☐ Yes ☐ No
Describe the nature and approximate volume of personal information to be collected, including the number of individuals' personal information involved.	Click or tap here to enter text.
Describe (a) from which category or categories of individuals the personal information will be collected; (b) the relationship of the individuals to the company; and (c) whether it is within the reasonable expectation of the individuals that their personal information will be processed in connection with the AI system.	Click or tap here to enter text.
Which of the following individuals and entities	☐ Our employees ☐ Our contractors

associated with the company will have access to the personal information?	☐ Our customers ☐ Our suppliers ☐ Other (please specify): Click or tap here to enter text.
Can the purpose of processing be achieved by collecting less personal information?	☐ Yes ☐ No If yes, specify and explain which personal information elements could be excluded: Click or tap here to enter text.
Is the personal information subject to a retention schedule?	☐ Yes ☐ No If yes, please attach or provide a link to the retention policy Click or tap here to enter text.
Where and how will personal information be stored?	Click or tap here to enter text.
Is the personal information going to be returned, deleted, or anonymized/de-identified/aggregated at the conclusion of the project?	☐ Yes ☐ No If no, please explain whether the personal information will be pseudonymized instead. Click or tap here to enter text.
List the countries in which individuals' whose personal	Click or tap here to enter text.

<table>
<tr><td>information are collected are located.</td><td colspan="2"></td></tr>
<tr><td rowspan="3">Cross-border data transfers.</td><td colspan="2">In which country and systems will the personal information be stored?

Click or tap here to enter text.</td></tr>
<tr><td>List of countries from which the personal information will be transferred and/or accessed (including remote access through login).

Click or tap here to enter text.</td><td>List of countries to which the personal information will be transferred to and/or accessed (including remote access through login).

Click or tap here to enter text.</td></tr>
<tr><td colspan="2">List the bases or mechanisms for any cross-border transfers of personal data (e.g., binding corporate rules, data privacy agreements, standard contractual clauses, derogations, consent, disclosure of details in the privacy policy, or other).

Click or tap here to enter text.</td></tr>
<tr><td rowspan="2">For what purpose will data be processed for the AI system?</td><td colspan="2">☐ As a product offering that is sold or licensed to our customers
☐ To provide other products or services to our customers that are not the AI system itself
☐ To carry out internal business functions
☐ To make decisions about individuals (if selected complete the below)
☐ Other (describe)</td></tr>
<tr><td colspan="2"></td></tr>
</table>

	If applicable, select the decision(s) that will be made using the AI system. ☐ Provision or denial of financial or lending services ☐ Housing ☐ Insurance ☐ Education enrollment or opportunity or vocational training ☐ Criminal justice or law enforcement ☐ Employment or recruitment ☐ Healthcare services ☐ Access to essential goods or services ☐ Safety component of a product or AI system ☐ Biometric and biometric-based systems ☐ Management and operation of critical infrastructure ☐ Administration of justice and democratic processes ☐ Immigration and border control ☐ Other: Click or tap here to enter text.
Is any of the data explicitly restricted or prohibited from being collected or processed by applicable laws or court decisions?	☐ Yes ☐ No If yes, please describe: Click or tap here to enter text.
Will external service providers or third parties have access to personal information	☐ Yes ☐ No

<table>
<tr><td rowspan="4">or other data processed in connection with the AI system?</td><td colspan="5">If yes, describe the steps taken to ensure that disclosing or making available personal information to service providers or third parties is in compliance with privacy laws and complete the details below.

Click or tap here to enter text.</td></tr>
<tr><td>Name</td><td>Has the service provider or third party signed a data protection agreement?</td><td>Is the service provider or third party in compliance with an approved code of conduct or any certifications, seals, or marks? If yes, please list.</td><td>Purpose of processing</td><td>Countries the personal information will be processed in.</td></tr>
<tr><td>Click or tap here to enter text.</td><td>☐ Yes
☐ No</td><td>☐ Yes
☐ No

Click or tap here to enter text.</td><td>Click or tap here to enter text.</td><td>Click or tap here to enter text.</td></tr>
<tr><td>Click or tap here to enter text.</td><td>☐ Yes
☐ No</td><td>☐ Yes
☐ No
Click or tap here to enter text.</td><td>Click or tap here to enter text.</td><td>Click or tap here to enter text.</td></tr>
<tr><td rowspan="2">Please fill out the following table reflecting the result</td><td>Processing activity</td><td>Purpose and benefit</td><td>Necessity</td><td colspan="2">Proportionality</td></tr>
<tr><td></td><td></td><td></td><td colspan="2"></td></tr>
</table>

of the necessity and proportionality assessment performed, taking into consideration each processing activity and its respective purpose. This assessment is based on the premise that the data retention periods indicated above are implemented.				
	Based on the above, are the processing activities carried out necessary and proportionate? ☐ Yes ☐ No			
RISK MANAGEMENT				
Has legal conducted a review to determine if the AI system falls within a prohibited category?	☐ Yes – the AI system is not prohibited ☐ No			
Risk analysis <u>without</u> mitigation measures in place.	Description of risk and ranking (high, limited, minimal).	Likelihood (high, medium, low).	Severity (high, medium, low).	
Risk analysis <u>with</u> mitigation measures described below implement.	Description of risk and ranking (high, limited, minimal).	Likelihood (high, medium, low).	Severity (high, medium, low).	

MITIGATION MEASURES		
Have measures been taken to address transparency and explainability?	☐ Yes ☐ No	☐ Website statement regarding AI systems ☐ AI pre-use notice(s), including for adverse decisions (if applicable) ☐ Instructions for use and documentation to deployer ☐ Disclosure in privacy policy ☐ The AI system discloses to individuals with whom it interacts, if asked or prompted by the individual, that the individual is interacting with an AI system and not a human ☐ Other (describe)
Watermarking	Does the AI system generate synthetic audio, image, video or text content? ☐ Yes ☐ No	If yes, are the AI system's outputs marked in a machine-readable format and detectable as artificially generated or manipulated? ☐ Yes ☐ No
Has a risk management system (RMS) been adopted?	☐ Yes ☐ No	☐ RMS has been adopted per a legal standard (*specify*) ☐ NIST AI RMF ☐ ISO/IEC 42001 ☐ Other (*specify*)
Do you maintain technical documentation	☐ Yes ☐ No	☐ The company maintains documentation provided by the developer of the AI system

regarding the AI system?		☐ The company has prepared technical documentation regarding the AI system that it has developed
Record-keeping	Does the AI system technically allow for the automatic recording of events (logs) over the lifetime of the system?	☐ Yes ☐ No If yes, do the logging capabilities provide: ☐ Recording of the period of each use of the system (start date and time and end date and time of each use) ☐ The reference database against which input data has been checked by the system ☐ The input data for which the search has led to a match ☐ The identification of the natural persons involved in the verification of the results for remote biometric identification systems. Check this box if not applicable ☐.
Human oversight	Level of human oversight ☐ Human in the loop (a human is in full control over the AI system and treats its output as a recommendation) ☐ Human over the loop (a human can control and override unexpected and undesirable events while	Describe: Click or tap here to enter text.

	monitoring or supervising AI decisions) ☐ Human out of the loop (the AI system operates with no human oversight)	
Accuracy	Has the AI system been tested for accuracy? ☐ Yes ☐ No	Description of accuracy testing, including as applicable, precision, recall, F1 score, and overfitting/underfitting: Click or tap here to enter text.
Robustness	Has the AI system been tested for robustness to assess its resiliency to errors, faults or inconsistencies that may occur within the system or the environment it operates in? ☐ Yes ☐ No	Describe: Click or tap here to enter text.
Bias and fairness	Has the AI system been tested for bias, fairness, and algorithmic discrimination? ☐ Yes ☐ No	Describe: Click or tap here to enter text.
Human-centered and beneficial for society and the environment	Has the AI system been assessed to determine its benefit for humans, society and the environment? ☐ Yes ☐ No	Describe: Click or tap here to enter text.
Safety	Has the AI system been tested for safety?	Describe:

	☐ Yes ☐ No	Click or tap here to enter text.
Cybersecurity	Have appropriate cybersecurity measures been adopted to safeguard the AI system? ☐ Yes ☐ No	Description of cybersecurity measures, including procedures for reporting serious incidents: Click or tap here to enter text.
Post-deployment monitoring	Has a post-deployment monitoring system been established and documented? ☐ Yes ☐ No	Describe: Click or tap here to enter text.
Privacy-enhanced	Have steps been taken to minimize use of personal information and adopt other privacy-protective measures? ☐ Yes ☐ No	Describe: Click or tap here to enter text.
Communication channels	Have communication channels been established for external feedback regarding the AI system? ☐ Yes ☐ No	Describe: Click or tap here to enter text.
Does the company provide opt-out, access to decision, appeal and other rights?	☐ Right to opt-out of decisions using the AI system ☐ Right to access information about decisions made using the AI system ☐ Right to appeal the decision made by the AI system ☐ Not applicable – the company does not make regulated decisions about individuals using the AI system ☐ Rights provided under applicable data privacy laws	

Decommissioning	Has a plan been established for decommissioning the AI system?	Describe: Click or tap here to enter text.
ACCOUNTABILITY		
Does the company maintain policies and procedures related to the development or deployment of the AI system?	☐ Yes ☐ No	Describe: Click or tap here to enter text.
CONCLUSION		
Based on the risks, mitigation measures implemented, and the benefits of the AI system, should the company proceed with developing or deploying the AI system?	☐ Yes ☐ No	Describe: Click or tap here to enter text.

Appendix C. Artificial Intelligence Developer Policy

I. Purpose

Our organization (the "Company") is committed to the safe, secure and responsible development of artificial intelligence ("AI") systems ("AI Systems") as part of our business operations. The purpose of this AI Developer Policy ("Policy") is to establish the governance principles and practices the Company should abide by when developing AI Systems as part of our business operations. While the definition of AI Systems will vary across countries, frameworks, guidelines and laws, we define AI Systems to mean any machine-based system that, for any explicit or implicit objectives, infers from the inputs the system receives how to generate outputs, including content, decisions, predictions, decisions or recommendations, that can influence physical or virtual environments they interact with.

II. Scope

This Policy applies to officers, directors and employees in our organization that are involved in and oversee the development of AI Systems as part of our business operations ("AI Members").

III. AI Governance

The Company is committed to the safe, secure and trustworthy development of AI Systems within our organization. For this reason, the Company requires AI Members to follow the AI governance procedures described below before developing AI Systems as part of our business operations. The AI governance procedures include: (A) involving the AI Oversight Committee; (B) implementing proper data governance; (C) conducting a legal compliance analysis; (D) conducting a risk assessment; (E) initiating measures to mitigate risks; and (F) demonstrating accountability.

III.A. Involving the AI Oversight Committee

The Company has formed an AI Oversight Committee to oversee the use and development of AI Systems in our organization. The AI Oversight Committee is subject to the Company's AI Leadership Policy. Before developing an AI System, AI Members shall inform and consult the AI Oversight Committee and follow any instructions and directions they provide.

III.B. Data Governance

AI Members should involve individuals with appropriate training in data science, engineering and other relevant skillsets to ensure that the Company's development of AI Systems comports with proper data governance practices. If the Company is fine-tuning AI Systems developed by another organization, AI Members should conduct due diligence on the AI System or model developer to ensure that proper data governance practices were involved in developing the AI

System or model, and that the data used for finetuning the AI Systems comports with appropriate data governance practices.

For data governance, the Company needs to adopt appropriate data collection practices; prepare the data (e.g., through annotation, labeling, cleaning, updating enrichment, and aggregation); formulate assumptions for the information the data is supposed to measure and represent; assess the availability, quantity, and suitability of the datasets needed; minimize or eliminate bias; and ensure that the datasets are representative of the environment, free of errors, complete, of good quality, and respectful of the intellectual property rights of others. The Company should also use different datasets for training, testing, and validation. The AI System needs to be trained using training data; assessed for accuracy using test data, and validated using the validation dataset.

AI Members also should understand the data lineage by tracking where the data came from; how it was collected, curated, and moved within the Company; and how the data's accuracy is maintained over time. AI Members should maintain a data provenance record that documents the data quality (from origin to transformation), traces sources of error, updates the data, and attributes data to their sources.

III.C. Legal Compliance

Before developing AI Systems, AI Members should identify which laws and regulations apply, assess whether additional steps should be taken to ensure compliance, and implement compliance steps as necessary. AI laws may require the Company to take additional procedural steps as part of developing AI Systems, such as indicating the name, registered trade name or mark and address on the AI Systems, packaging or accompanying documentation; maintaining a quality management system that ensures compliance with AI laws; ensuring that the AI Systems undergo a conformity assessment procedure prior to placing it on the market or putting it into service; preparing a declaration of conformity; affixing mandatory markings on the AI Systems; registering the AI Systems and the Company in a database; cooperating with regulatory authorities; and appointing a representative in certain regions. AI Members should involve legal counsel to help with this assessment.

III.D. Risk Management

AI Members should follow the Company's risk management system, which is used to identify, mitigate, and manage risk to ensure that the development of the AI Systems is safe, secure and trustworthy. As part of the risk management program, AI Members should rank the AI risks, identify the likelihood and severity of harm, and document an AI impact assessment.

III.D.1. Risk Ranking

III.D.1.a. Prohibited AI Systems

AI Members should evaluate the AI Systems and determine whether the AI practice is prohibited under applicable laws. Examples of prohibited AI practices may include the following:

- AI Systems using subliminal techniques to distort a person's behavior in a harmful manner;
- AI Systems used to exploit vulnerabilities of disadvantaged groups (e.g., due to age, disability, social or economic situation, and other protected classifications);

- AI Systems used for social scoring based on social behavior or personal characteristics;
- AI Systems used to create or expand facial recognition databases through the untargeted scrapping of facial images from the internet or CCTV footage;
- AI Systems used for emotion recognition in the workplace;
- AI Systems used for biometric categorization to infer sensitive data;
- AI Systems used for predictive policing or discipline;
- AI Systems that discriminate against an applicant or employee due to protected classifications;
- AI-based credit decisions that prevent creditors from accurately identifying the specific reasons for denying credit or taking other adverse actions;
- Unfair and deceptive practices; and
- AI Systems that cause algorithmic discrimination.

If the AI processing activity is prohibited, AI Members must cease such practices and reconsider developing the AI Systems.

III.D.1.b. High-Risk AI Systems

If the AI Systems are not prohibited, AI Members should assess whether the AI Systems are high risk, which may vary depending on applicable laws and jurisdictions. Examples of potential high-risk AI Systems are provided below:

- Critical infrastructure;
- Product safety component or certain regulated products;
- Biometric identification and surveillance;
- Education and vocational training;
- Employment and recruitment;
- Essential goods, services, and benefits;
- Law enforcement and administration of justice;
- Immigration and border control;
- Financial or lending services;
- Essential government services;
- Health-care services;
- Housing;
- Insurance; and
- Legal services.

If the AI Systems are identified as high risk, AI Members should take additional mitigation measures to reduce the risk.

III.D.1.c. Medium or Low Risk AI

Certain AI Systems that are not high risk may fall within the medium- or low-risk category, depending on how they are used. Examples include GPS navigation, chatbots or AI in video games. AI Members may still need to implement some mitigation measures in connection with low-to-medium risk AI Systems (e.g., transparency and explainability).

III.D.2. Likelihood and Severity of Harm

AI Members should conduct a risk analysis to determine the likelihood that the AI risks will materialize and severity of harm. Depending on the likelihood and severity of harm, AI Members may need to implement additional mitigation measures to reduce the risk.

III.D.3. AI Impact Assessment

AI Members should document the above risk analysis in an AI impact assessment. The AI impact assessment should address requirements under applicable data privacy and AI laws, frameworks, and guidelines. The Company maintains a template AI impact assessment that AI Members should utilize following consultation with the Company's AI Oversight Committee.

III.E. Mitigation Measures

Depending on the severity and likelihood of harm and applicable laws and best practices, AI Members should consider the following mitigation measures in connection with developing AI Systems. AI Members should discuss with individuals with appropriate technical and legal training regarding the mitigation measures necessary based on the risk score.

III.E.1. Transparency and Explainability

AI Members should prepare transparency and explainability notices providing information and instructions of use regarding the Company's AI Systems. The AI transparency and explainability notice and information should also be included in our public-facing trust center.

III.E.2. Fairness, Avoidance of Bias, Algorithmic Discrimination, and Accessibility

AI Members should implement appropriate measures (including during the data governance stage) to ensure that the AI Systems are fair, unbiased and avoid algorithmic discrimination. The Company should engage internal or external auditors to evaluate fairness, bias and algorithmic discrimination as needed depending on the intended use of the AI Systems. In addition, the AI Members should take steps to make the AI Systems accessible for those with disabilities under applicable standards.

III.E.3. Human-Centered and Beneficial for the Environment and Society

AI Members should communicate to the public the benefits of the AI Systems to individuals, the environment, and society. AI Members should also incorporate the benefits of the AI Systems to humans, society, and the environment as part of the Company's Environmental, Social, and Governance messaging.

III.E.4. Accuracy

AI Members should test and document the accuracy of the AI Systems by benchmarking how close initial observations, computations, or estimates are to true values. The Company should engage individuals with relevant skillsets to assess the AI Systems for underfitting or overfitting, and accuracy levels (e.g., precision, recall, and/or F1 score).

III.E.5. Robustness

AI Members should test the AI Systems to ensure that they are robust so that they can cope with erroneous inputs or errors during execution and function correctly in non-ideal circumstances. This also includes ensuring that the AI Systems perform in a manner that will not harm people or operate in unexpected settings. AI Members should assess the AI Systems' robustness by conducting ongoing testing or monitoring to confirm that the AI Systems perform as intended, including through adversarial "red team" testing on the AI Systems to ensure that they are able to handle a broader range of unexpected input variables.

III.E.6. Safe and Secure

AI Members should test the AI Systems to ensure that they are safe and secure throughout the AI lifecycle by continually identifying, assessing, and managing risks. AI Systems should be safe so that they do not endanger human life, health, property, or the environment. For security, AI Members should implement appropriate cybersecurity (i.e., confidentiality, integrity, and availability) and ensure that AI security incident use cases are implemented within the Company's incident response plan to address potential misuse of the AI Systems and respond to third-party bad actors who may, for example, try to exploit vulnerabilities and manipulate the training dataset (data poisoning) or pre-trained components used in training (model poisoning), which may lead to harmful decision-making. AI Members should regularly test and conduct diligence on the AI Systems throughout their lifecycle and update technical standards addressing safety and security. This also includes, for example, conducting internal and external red-teaming of the AI Systems.

III.E.7. Privacy-Enhanced

AI Members should test the AI Systems to ensure that they are compliant with applicable privacy laws (e.g., providing privacy notices, honoring privacy rights, and implementing internal business obligations), comport with the Company's data privacy policies and procedures, and adopt privacy-enhancing technologies ("PETs"), as necessary. PETs include data minimization methods, such as anonymization, de-identification, or aggregation so that, where possible, personal data is not used in the AI Systems.

III.E.8. Human Oversight

AI Members should determine the level of human oversight necessary for the AI Systems to prevent or minimize risks. To decide on the level of human oversight, AI Members should consider the severity and probability of harm based on the above-described risk assessment. The levels of human oversight may include: (a) human-out-of-the-loop, which has no human oversight over AI decisions; (b) human-over-the-loop, which has a human involved in monitoring or supervising AI decisions with the ability to take over control when the AI Systems encounter unexpected or undesirable events; and (c) human-in-the-loop, which has active and involved human oversight, with a human retaining full control and the AI Systems only providing recommendations or input. If the severity and probability of harm are high, human-in-the-loop is the appropriate level of oversight. However, if the severity and probability of harm are low, human-out-of-the-loop is sufficient. Further, if there is moderate severity and likelihood of harm, AI Members may consider human-over-the-loop as an option.

AI Members should also consider the following factors as part of the human oversight: (a) developing a kill switch if the AI Systems pose a danger; (b) avoiding automation bias by understanding that AI Systems are not always right; (c) understanding the capacities and limitations of the AI Systems; (d) learning how to correctly interpret the AI Systems' output; and (e) knowing when to disregard, override, or reverse AI decisions.

III.E.9. Technical Documentation, Logs, and AI Inventory

AI Members should maintain technical documentation related to the AI Systems and automatically recorded events. For the technical documentation, AI Members should include, among other things, a description of: (a) the AI Systems; (b) the elements of the AI Systems and their development process; (c) the monitoring, functioning, and control of the AI Systems, particularly with regard to their capabilities and limitations in performance; (d) the appropriateness of the performance metrics for the AI Systems; (e) the risk management system adopted; (f) any change made to the AI Systems through their lifecycle; and (g) the system in place to evaluate the AI Systems' performance in the post-market phase. AI Members should also ensure that the AI Systems are capable of automatically recording events (i.e., logs) while they are in operation, including: (a) the period of each AI System use (start and end date and time of each use); (b) the reference database against which the AI Systems have checked the input data; (c) the input data for which the search has led to a match; and (d) the persons involved in verifying the results. AI Members should also ensure that the AI Systems developed are documented in the Company's IT asset inventory.

III.E.10. Post-Market Monitoring System and Communication Channels

AI Members should implement a post-market monitoring system to ensure that the AI Systems are in compliance throughout their life cycle. This involves collecting, documenting, and analyzing data about how the AI Systems perform and interact with other systems or environments, and identifying and addressing any risks, defects, or non-conformities that may arise from the AI Systems. This also includes establishing communication channels for members of the public to provide feedback and report issues related to the AI Systems.

III.E.11. Adopt Appropriate AI Contractual Provisions

Before making the Company's AI Systems available to customers, the AI Members should enter into appropriate contracts that describe the roles, responsibilities and allocation of liability and risks of the Company and customers. The Company maintains a template AI contract that should be utilized following consultation with legal counsel.

III.E.12. Decommissioning the AI System

If AI Members decide to decommission the AI System because they will no longer be used by the Company, they should consider the risks posed to linked systems, legal or regulatory concerns, and impact to customers and the public in doing so.

III.F. Accountability

AI Members should ensure that measures are in place to oversee the AI Systems, with accountability across the AI life cycle. AI Members should confirm that the above steps are properly documented through auditable policies, procedures, and practices. This may also require

third-party audits to objectively test the AI Systems to validate that the Company has implemented appropriate governance.

IV. Contact Information

AI Members should contact the AI Oversight Committee if they have any questions regarding this Policy or need to request an exception to the Policy requirements.

V. Revision History

Version	Date	Author	Description	Sections Affected

Appendix D. Artificial Intelligence Deployer Policy

I. Purpose

Our organization (the "Company") is committed to the safe, secure, and responsible use of artificial intelligence ("AI") systems ("AI Systems") as part of our business operations. The purpose of this AI Deployer Policy ("Policy") is to establish the governance principles and practices AI Members should abide by when using AI Systems as part of the Company's business operations. While the definition of AI Systems varies across countries, frameworks, guidelines, and laws, we define AI Systems to mean any machine-based system that, for any explicit or implicit objectives, infers from the inputs the system receives how to generate outputs, including content, decisions, predictions, decisions or recommendations, that can influence physical or virtual environments they interact with.

II. Scope

This Policy applies to officers, directors, and employees in the Company that are involved in and oversee the use of AI Systems as part of our business operations ("AI Members").

III. AI Governance

The Company is committed to the safe, secure, and trustworthy use of AI Systems within our organization. For this reason, the Company requires AI Members to follow the AI governance procedures described below before using AI Systems as part of our business operations. The AI governance procedures include: (A) involving the AI Oversight Committee; (B) implementing proper data governance; (C) conducting a legal compliance analysis; (D) conducting a risk assessment; (E) initiating measures to mitigate risks; and (F) demonstrating accountability.

III.A. Involving the AI Oversight Committee

The Company has formed an AI Oversight Committee to oversee the use and development of AI Systems in our organization. The AI Oversight Committee is subject to the Company's AI Leadership Policy. Before using an AI System, AI Members shall inform and consult the AI Oversight Committee and follow any instructions and directions they provide.

III.B. Data Governance

AI Members should conduct diligence on the AI System providers to ensure that they developed the AI Systems using appropriate data governance techniques and that the AI Systems are developed with data that is sufficiently representative and relevant to the Company's use of the AI Systems. Before using data as the input prompt for the AI Systems, AI Members should ensure that there are no confidentiality, data privacy, commercial, or legal restrictions precluding them from using the data for the AI processing activity. This involves consulting with legal and other stakeholders in the Company to ensure that the Company has the legal right to use the data,

which may require obtaining licensing rights, entering into commercial agreements, providing a privacy notice, documenting a lawful basis for processing personal data under data privacy laws, or obtaining consent from individuals.

AI Members also should understand the data lineage by tracking where the data came from; how it was collected, curated, and moved within the Company; and how the data's accuracy is maintained over time. AI Members should maintain a data provenance record that documents the data quality (from origin to transformation), traces sources of error, updates the data, and attributes data to their sources. AI Members may need to coordinate with the AI System providers to obtain documents relevant to data governance.

III.C. Legal Compliance

Before using AI Systems, AI Members should work with legal counsel to identify which laws and regulations apply, assess whether additional steps should be taken to ensure compliance, and implement compliance steps as necessary. AI laws may require the Company to take additional procedural steps as part of using AI Systems, such as providing notice to individuals regarding the use of AI Systems, honoring individual rights under AI and data privacy laws, registering the AI System use in a database, and cooperating with regulatory authorities.

III.D. Risk Management

AI Members should follow the Company's risk management system, which is used to identify, mitigate, and manage risk to ensure that the AI System use is safe, secure, and trustworthy. As part of the risk management program, AI Members should rank the AI risks, identify the likelihood and severity of harm, and document an AI impact assessment.

III.D.1. Risk Ranking

III.D.1.a. Prohibited AI Systems

AI Members should evaluate the AI Systems and determine whether the AI use is prohibited under applicable laws. Examples of prohibited AI practices may include the following:

- AI Systems using subliminal techniques to distort a person's behavior in a harmful manner;
- AI Systems used to exploit vulnerabilities of disadvantaged groups (e.g., due to age, disability, social or economic situation, and other protected classifications);
- AI Systems used for social scoring based on social behavior or personal characteristics;
- AI Systems used to create or expand facial recognition databases through the untargeted scrapping of facial images from the internet or CCTV footage;
- AI Systems used for emotion recognition in the workplace;
- AI Systems used for biometric categorization to infer sensitive data;
- AI Systems used for predictive policing or discipline;
- AI Systems that discriminate against an applicant or employee due to protected classifications;
- AI-based credit decisions that prevent creditors from accurately identifying the specific reasons for denying credit or taking other adverse actions;
- Unfair and deceptive practices; and

- AI Systems that cause algorithmic discrimination.

If the AI processing activity is prohibited, AI Members must cease such practices and reconsider using the AI Systems.

III.D.1.b. High-Risk AI Systems

If the AI Systems are not prohibited, AI Members should assess whether the AI Systems are high risk, which may vary depending on applicable laws and jurisdictions. Examples of potential high-risk AI Systems are provided below:

- Critical infrastructure;
- Product safety component or certain regulated products;
- Biometric identification and surveillance;
- Education and vocational training;
- Employment and recruitment;
- Essential goods, services, and benefits;
- Law enforcement and administration of justice;
- Immigration and border control;
- Financial or lending services;
- Essential government services;
- Health-care services;
- Housing;
- Insurance; and
- Legal services.

If the AI Systems are identified as high risk, AI Members should take additional mitigation measures to reduce the risk.

III.D.1.c. Medium- or Low-Risk AI

Certain AI Systems that are not high risk may fall within the medium- or low-risk categories, depending on how they are used. Examples include GPS navigation, chatbots, or AI in video games. AI Members may still need to implement some mitigation measures in connection with low-to-medium-risk AI Systems (e.g., transparency and explainability).

III.D.2. Likelihood and Severity of Harm

AI Members should conduct a risk analysis to determine the likelihood that the AI risks will materialize and severity of harm. Depending on the likelihood and severity of harm, AI Members may need to implement additional mitigation measures to reduce the risk.

III.D.3. AI Impact Assessment

AI Members should document the above risk analysis in an AI impact assessment. The AI impact assessment should address requirements under applicable data privacy and AI laws, frameworks, and guidelines. The Company maintains a template AI impact assessment that AI Members should utilize following consultation with the Company's AI Oversight Committee.

III.E. Mitigation Measures

Depending on the severity and likelihood of harm and applicable laws and best practices, AI Members should consider the following mitigation measures in connection with using AI Systems. AI Members should discuss with individuals with appropriate technical and legal training regarding the mitigation measures necessary based on the risk score.

III.E.1. Transparency and Explainability

The Company may need to prepare a transparency and explainability notice before using AI Systems, which informs individuals that they are interacting with AI Systems or the AI Systems are making consequential decisions about them. If required, AI Members shall ensure that the Company's transparency and explainability notice is provided to individuals before using AI Systems. The transparency and explainability notice may need to be included in the Company's public-facing trust center that contains the required information. If the AI Members use AI Systems to make certain adverse decisions about individuals, they may also need to provide additional notices and instructions on how to appeal the decision.

III.E.2. Fairness, Avoidance of Bias, Algorithmic Discrimination, and Accessibility

AI Members should implement appropriate measures (including during the data governance stage) to ensure that the AI Systems are fair, unbiased, and avoid algorithmic discrimination. The Company should engage internal or external auditors to evaluate fairness, bias, and algorithmic discrimination as needed depending on the intended AI use case. In addition, AI Members should take steps to make the AI Systems accessible for those with disabilities under applicable standards.

III.E.3. Human-Centered and Beneficial for the Environment and Society

AI Members should communicate to the public the benefits of the AI Systems to individuals, the environment, and society. AI Members should also incorporate the benefits of the AI Systems to humans, society, and the environment as part of the Company's Environmental, Social, and Governance messaging.

III.E.4. Accuracy

AI Members should test and document the accuracy of the AI Systems by benchmarking how close initial observations, computations, or estimates are to true values. If the AI Systems are providing inaccurate results or drifting, AI Members may need to coordinate with the AI System developers to take corrective action.

III.E.5. Robustness

AI Members should test the AI Systems to ensure that they are robust so that they can cope with erroneous inputs or errors during execution and function correctly in non-ideal circumstances. This also includes ensuring that the AI Systems perform in a manner that will not harm people or operate in unexpected settings. AI Members should assess the AI Systems' robustness by conducting ongoing testing or monitoring to confirm that the AI Systems perform as intended, including through adversarial "red team" testing on the AI Systems to ensure that they are able to handle a broader range of unexpected input variables.

III.E.6. Safe and Secure

AI Members should test the AI Systems for safety and security before and after deployment. AI Systems should be safe so that they do not endanger human life, health, property, or the environment. For security, AI Members should implement appropriate cybersecurity (i.e., confidentiality, integrity, and availability) and ensure that AI security incident use cases are implemented within the Company's incident response plan to address potential misuse of the AI Systems and respond to third-party bad actors who may, for example, try to exploit vulnerabilities and manipulate the training dataset (data poisoning) or pre-trained components used in training (model poisoning), which may lead to harmful decision-making. AI Members should regularly test and conduct diligence on the AI Systems throughout their lifecycle and update technical standards addressing safety and security. This also includes, for example, conducting internal and external red-teaming on the AI Systems.

III.E.7. Privacy-Enhanced

AI Members should test the AI Systems to ensure that they are compliant with applicable data privacy laws (e.g., providing privacy notices, honoring privacy rights, and implementing internal business obligations), comport with the Company's data privacy policies and procedures, and adopt privacy-enhancing technologies ("PETs"), as necessary. PETs include data minimization methods, such as anonymization, de-identification, or aggregation so that, where possible, personal data is not used in the AI Systems.

III.E.8. Human Oversight

AI Members should determine the level of human oversight necessary for the AI Systems to prevent or minimize risks. To decide on the level of human oversight, AI Members should consider the severity and probability of harm based on the above-described risk assessment. The levels of human oversight may include: (a) human-out-of-the-loop, which has no human oversight over AI decisions; (b) human-over-the-loop, which has a human involved in monitoring or supervising AI decisions with the ability to take over control when the AI Systems encounter unexpected or undesirable events; and (c) human-in-the-loop, which has active and involved human oversight, with a human retaining full control and the AI Systems only providing recommendations or input. If the severity and probability of harm are high, human-in-the-loop is the appropriate level of oversight. However, if the severity and probability of harm are low, human-out-of-the-loop is sufficient. Further, if there is moderate severity and likelihood of harm, AI Members may consider human-over-the-loop as an option.

AI Members should also consider the following factors as part of the human oversight: (a) confirming with the AI developers whether there is a kill switch if the AI Systems pose a danger; (b) avoiding automation bias by understanding that AI Systems are not always right; (c) understanding the capacities and limitations of the AI Systems; (d) learning how to correctly interpret the AI Systems' output; and (e) knowing when to disregard, override, or reverse AI decisions.

III.E.9. Instructions for Use, Technical Documentation, Logs, and AI Inventory

AI Members should maintain any technical documentation provided by the AI developer and ensure that they use the AI Systems pursuant to the instructions for use. AI Members should also keep the logs automatically generated by the AI Systems to the extent such logs are under their

control. Further, AI Members should ensure that the AI Systems they use are documented in the Company's IT asset inventory.

III.E.10. Post-Market Monitoring System and Communication Channels

AI Members should implement a post-market monitoring system, including pursuant to the developers' instructions for use, to ensure that the AI Systems operate as intended throughout their lifecycle. This involves collecting, documenting, and analyzing data about how the AI Systems perform and interact with other systems or environments, and identifying and addressing any risks, defects, or non-conformities that may arise from the AI Systems. This also includes establishing communication channels for members of the public to provide feedback and report issues related to the AI Systems.

III.E.11. Adopt Appropriate AI Contractual Provisions

Before using an AI System, AI Members should ensure that the Company has an appropriate contract in place with the AI provider, containing provisions that describe the roles, responsibilities and allocation of liability and risks between the parties. The Company maintains a template AI contract that should be utilized following consultation with legal counsel.

III.E.12. Decommissioning the AI Systems

If AI Members decide to decommission the AI Systems because they will no longer be used by the Company, they should consider the risks posed to linked systems, legal, or regulatory concerns, and impact to customers and the public in doing so.

III.F. Accountability

AI Members should ensure that measures are in place to oversee the AI Systems, with accountability across the AI life cycle. AI Members should confirm that the above steps are properly documented through auditable policies, procedures, and practices. This may also require third-party audits to objectively test the AI Systems to validate that the Company has implemented appropriate governance.

IV. Contact Information

AI Members should contact the AI Oversight Committee if they have any questions regarding this Policy or need to request an exception to the Policy requirements.

V. Revision History

Version	Date	Author	Description	Sections Affected