



“@Grok is this true?”

A Policy Primer on Artificial Intelligence (AI)

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Executive Summary

This policy primer outlines the current policy landscape for AI in Texas at the State and Local level. During our research, we uncovered these key findings:

1. AI is not conscious, not 100% accurate, and contains user/developer bias
2. One Hyperscale Data Center, the largest type of data center, could use 0.002% of Texas’ water
3. One Hyperscale Data Center could use 0.2% of GWh demand on Texas’ grid
4. 1 ChatGPT Query is estimated to use 7.59mL of water and 0.3 watt-hours of energy in Texas
5. Autonomous Vehicles are at least 57.65% less likely to get involved in a crash compared to a human driver.
6. Most AI policy at the Local level is preempted by the State
7. Over 51% of Federal, State, and Local governments staff are using AI already

You will also learn about current AI policy efforts in Texas and where improvements and considerations for policy can be applied. While Texas is leading the country in responsible and smart AI policy, it must continue to lead.

FOREWORD

Before beginning this policy primer, it is important to note what this primer will do and what it will not do. This paper is not meant to cover every nuance of Artificial Intelligence policy but rather creates a starting point that policymakers and their staff can use when evaluating new regulations. This paper is not meant to favor or disapprove of any company that utilizes artificial intelligence. All examples are purely meant for demonstrative purposes and not an endorsement or criticism of their product or model.

At the TexCap Policy Institute, we believe Texas must take a pragmatic, nonpartisan approach to artificial intelligence. Policy and regulations should encourage innovation while ensuring accountability, transparency, and consumer protection. We seek to ground the debate around AI in facts, not hype or snappy quips.

This primer demonstrates how Texas can harness AI's strengths while mitigating its risks. Texans deserve policies that are both forward-looking and firmly rooted in responsible governance that are free of outside influence seeking to misrepresent the good and the bad.

Our sources will pull data from leading academics and researchers in the Artificial Intelligence space. This includes publications that may not be from the typical "academic" background but still have a wealth of knowledge to offer in this space. To determine certain variables, we had to make certain assumptions that may not be publicly available. These assumptions are stated before they are made to inform the reader of what they are: Guesses based on the best publicly available information.

We will be using examples of AI in pop culture, academics, and current deployments of AI. This will include both good use cases and bad use cases that policy makers must confront.

AI is not new. It has been around in its most rudimentary forms since the 1950s. We have lived with AI for decades and cannot let false moral panic cloud our judgement of reality. We hope this policy primer answers those questions and provides a sense of how we can continue to work with this technology and not against it.

AI DISCLOSURE

Portions of this white paper were drafted with the assistance of Artificial Intelligence tools to support research, drafting, and editing. **We clearly articulate which content is created with AI.** All content was reviewed, fact-checked, and finalized by the TexCap Policy Institute staff to ensure accuracy, neutrality, and adherence to our mission of responsible policy development. All conclusions, recommendations, and policy positions reflect the judgment of the TexCap Policy Institute alone and not AI models.

WHAT IS AI AND WHAT IS NOT?

In the simplest terms, Artificial Intelligence (AI) is the ability of a computer, robot, or machine to perform tasks typically associated with human intelligence. Most computer scientists define Artificial Intelligence by utilizing four approaches: Acting Humanly, Thinking Humanely, Thinking Rationally, and Acting Rationally.¹ While it is impossible to summarize each of these in just one sentence, these definitions can serve as a summary:

Acting Humanly: AI is intelligent if it can convincingly imitate human behavior in conversation and interaction, fooling a human into thinking it is also human. The “Turing Test” was invented as a philosophical answer to this question.

Thinking Humanly: AI is intelligent if it mimics the actual processes of human thought, based on insights from psychology, neuroscience, and cognitive science.

Thinking Rationally: AI is intelligent if it reasons logically and draws “correct” conclusions from given premises, using rules of logic and probability.

Acting Rationally: AI is intelligent if it acts to achieve the best possible outcome (or best expected outcome under uncertainty), adapting its behavior to goals and environments. This is the prevailing approach to AI.

Throughout the rest of the white paper, the term “agent” will be used when describing certain types of AI entity. An agent is an AI entity that has been designed to autonomously reason and execute tasks with minimal human intervention. We will reference the terms “model” and “system” and use them interchangeably. These mean the system that an AI is trained on and refers to the entity itself.

We will also be referencing the term Machine Learning (ML) which is a field of study in AI concerned with the development and study of how algorithms learn from data. Other fields of study

include Computer Vision, Natural Language Processing, Robotics, Neural Networks, and Deep Learning.

To ensure there are no assumptions about how an AI model works, we have provided a step-by-step approach about how AI works below.

1. Data is collected and processed depending on the objective and goal of the AI. This could be utilizing text, images, videos, audio, documents or any formats that the AI will need to utilize to perform its task.
2. The developers will determine the machine learning algorithm. An example of some of the more popular algorithms are:
 - a. Linear regression
 - b. Logistic regression
 - c. Naive Bayes algorithm
 - d. Decision tree
 - e. Random forest algorithm
 - f. KNN algorithm
 - g. K-means
 - h. Support vector machine (SVM) algorithm
 - i. Apriori
 - j. Gradient boosting
3. The developers will then train the model utilizing the selected algorithm and data from steps 1 & 2. The developers will set internal parameters to measure expected output and actual output, also known as a loss function. Simply put, this step measures how good or bad a model's predictions are.
4. Once the developers are pleased with the model's results, they will then test the model using data outside of the training data and measure various metrics. The metrics might be accuracy, speed, or error rate. These are totally subjective to the developers' goals and purposes.

This step is commonly referred to as the validation step and is one of the most crucial steps. Once the model is assessed and metrics are recorded, the developers

will check their model for any bias and attempt to remove them.

- a. Bias in this context means algorithms that include unintentional errors that can lead to excluding, recalling, sampling, or associating data.
 - b. It's important to note that currently, we cannot remove bias in AI or Machine Learning models.
5. Once the development team is satisfied with how the model interacts, they "deploy" the model. This means that the model is now fully in use and will set forth on attempting to achieve its objectives and goals.
 6. Development teams will then monitor the deployment for bias that may be missed, accuracy dropping due to the introduction of new data sets, or periodic retraining to stay up to date with new information.
 7. Until the model is shut off, it will learn into perpetuity. There are growing concerns that models eventually hit a plateau.

To summarize: Artificial Intelligence operates by using an algorithm trained on large data sets and makes predictions on new data based on previously learned outcomes through set criteria.

Examples

Virtual Assistants – Siri and Alexa are programmed to respond to a human's inquiries based on voice or text input.

Generative AI (GenAI) – Models that create new text, images, videos, audio or forms of data that don't currently exist. ChatGPT, Copilot, Grok, Midjourney, and Sora are all examples of GenAI.

Gaming – In certain video games, "Non-Playable Characters" (NPC) utilize AI to interact with the player in game. These characters utilize complex decision trees. They can also feature AI that play traditional games like Chess, Go, Checkers, and even Poker.

Finance – AI is increasingly being used in finance to make predictions in markets, create macro and even micro analysis of companies.ⁱⁱ There is serious concern that when AI becomes advanced enough, it will replace entry level jobs in banking and finance.

Energy – Despite the large usage of energy, AI can identify discrepancies and inefficiencies in grid systems. AI is also being used to help with permittingⁱⁱⁱ at the federal, state, and local level.

Healthcare^{iv} – Things like precision imaging, research, and model creation are being used in healthcare. Famously, an AI was able to create a 3D structure of protein in hours that took humans months. We are also seeing AI used in research to find pathways that researchers may not have previously been aware of in areas like curative therapies and pharmacology.

Transportation – Civil and Traffic Engineers are using AI to assist with traffic flow prediction and forecasting, traffic signal optimization, trip planning and logistics,^v and the deployment of autonomous driving vehicles. Waymo, Tesla Robotaxi, Zoox, are some common examples of Autonomous vehicles.

AI does not "think" for itself or critically analyze prompts in the same way a Human critically analyzes language. AI does not have the same "intelligence" as Humans. When AI can perform and understand tasks that would match Human capabilities, that is known as Artificial General Intelligence (AGI).

There is some debate that certain state of the art, Large Language Models (LLM) have reached beginning stages of AGI and could be viewed as early, yet incomplete AGI models.^{vi}

Examples

AI – Siri, Alexa, and Google assistants and Waymo, Zoox, or Tesla Robotaxis. These machines cannot think by themselves and rely on Human interaction to operate

AGI – Sonny from the movie iRobot or Data from Star Trek. Some researchers reserve this term for

computer programs that gain sentience or consciousness.

DEBUNKING COMMON MYTHS SURROUNDING AI

Artificial Intelligence Uses an Unsustainable Amount of Energy and Water

There is a misconception about the electricity and water usage of AI. Some people believe that AI uses more energy and water than reasonable and that AI is solely responsible for the increased usage when that is only part of the equation.

The drive behind is electricity and water is linked to the construction of data centers. Data centers host servers that allow people to access the internet. Facebook, Instagram, X, Netflix, Gmail, Outlook, Amazon, and anything on the internet requires a server and typically a data center to operate.

Texas has an estimated 384 data centers with most being in the Dallas-Fort Worth region as of August 2025.^{vii} The Comptroller reports 83 data centers of which there are 49 Qualified Data Centers and 34 Qualified Large Data Centers.^{viii} The inconsistency is that the comptroller tracks data centers that have requested a sales tax exemption. Those requirements are stringent and subject to Chapter 151 and Chapter 313 of the Tax Code.^{ix}

These Data Centers also host a variety of different types of data. The five most common types^x of data centers are

1. Enterprise Data Centers
2. Multi-Tenant/Colocation Data Centers
3. Hyperscale Data Center
4. Edge/Micro Data Centers
5. Container/Modular Data Centers

Each Data Center has different electricity and water needs. To lump them all together as one monolith would be the same as lumping all transportation (Cars, Planes, Trains, and Boats) together and comparing their fuel usage. It is disingenuous if you say “Cars use less fuel than Planes” on the face value because Planes transport more people and have higher demands

than a singular combustible engine. The same methodology must be applied to data centers.

For this policy primer, we'll be focusing on Hyperscale data centers as they use the most resources. They typically need the most energy, constant cooling, and have high-load profile. There are only 700 hyperscale data centers in existence.^{xi} This is not the case for the other four types of data centers.^{xii, xiii}

The typical Hyperscale Data Center

- 1.09 million sq/ft
- Uses 0.88 TWh of power
- Has a power use efficiency of 1.10
- Consumes 378 acre-feet of water a year
- Costs \$700 million to \$1.1 billion

In a study completed by West Water Research, they found that water demand created by AI will only account for 19% of Data Center needs by 2030.^{xi} That means that the other 71% will come from the demands of cloud computing, video streaming, database hosting, and a variety of tasks we are already completing in our day-to-day lives.

To put this in layman's terms

- 1 acre-foot of water = 325,851 gallons of water
- The typical Hyperscale Data Center uses 123,171,678 gallons of water a year
- Texas is estimated to use 18.4 million acre-feet (6,004,385,015,631 gallons) by 2030^{xiv}
- Irrigation is estimated to be 9,382,611 acre-feet (3,057,333,176,961 gallons) per year in 2030 (50.9% of all water usage)^{xiv}

One Hyperscale Data Center will use 0.002% of projected water in Texas, an astronomically small and not significant number. Even if you assume all 384 data centers in Texas are Hyperscale (they aren't), that is 0.79% of all water usage, 74.3 billion gallons or 145,152 acre-feet.

Further, many assume that freshwater specifically is used to cool data centers^{xv} and that once this “freshwater” is used, it is no longer recycled. However, this is not the case and would be

extremely expensive. Typically, Hyperscale Data Centers, due to internal sustainability requirements, will recycle the water they have used in closed loop systems like Lenovo's Neptune.^{xvi}

Data Centers can be cooled in a variety of ways as well. Some of the most common ways include^{xvii}

- Air & Liquid cooling
- Chilled water systems
- Evaporative Cooling
- Direct Liquid cooling
- Heat Rejection (cooling towers)
- Water-side economizers

It is important to note that most people associate data center water usage with Evaporative Cooling, which is rarely used.^{xviii} The standard in use by the industry is air or liquid cooling, which moves water around servers in a closed loop system. This means that it should not be assumed that just because water is used that it disappears completely.

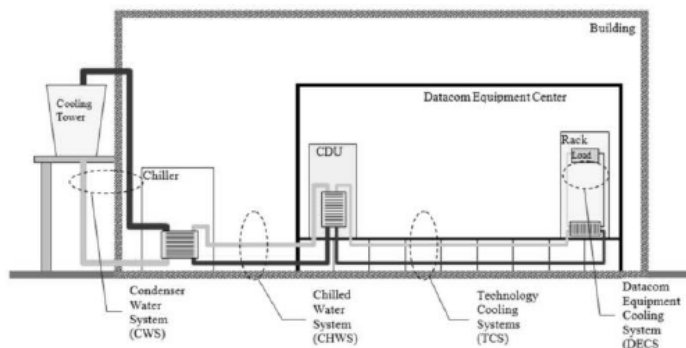


Figure 1^{xix}

What is a growing concern is the amount of energy that data centers are using relative to what they are producing themselves. Using our previous example of a Hyperscale Data Center, they use 0.88 TWh of power or 880 GWh of power per year or 73 GWh per month.

According to the Electric Reliability Council of Texas (ERCOT), Texas has produced 280,627 GWh of power so far or 40,090 GWh on average per month.^{xx} That means that one Hyperscale Data Center could theoretically be 0.2% of GWh demand. If all 384 data centers were Hyperscale, that would be 76.8% of all demand per month: a statistic that would crash and strain our grid.

Using another metric, a typical Hyperscale Data center uses 100 MW^{xxi} or 0.1 GW. ERCOT is forecasting 138 GW of large loads on its grid by 2030.^{xxii} While Data Centers are a contributing factor due to their large energy consumption, energy use is going up due to the increasing amount of technology involved in our day-to-day lives.^{xxiii}

Landmark bills like Senate Bill 6 (89R) gave generation companies the ability to disconnect Data Centers during large grid loads. This is encouraging Data Centers to build their own combustible power sources in case they must be disconnected.

Additionally, Senate Bill 6 requires large energy users to fund infrastructure projects and register backup generators to bolster grid reliability.

While the grid is in a much better position in August 2025 than it was during Winter Storm Uri in 2021, demand load from data centers could put that stability in danger if there are not requirements placed on Data Centers, including the requirement they partially produce their own energy.

Data Centers must be mindful about the locations they are building in as well. The location cannot and should not be an afterthought. Cheap land should not be the only driving factor associated with Data Center construction.

Even though water usage is less than anticipated, it cannot, and should not, be an afterthought. Data centers should not be built in areas that have low acre-feet of water or are in drought-like conditions. These facilities could drain necessary water from communities.

To answer the initial question about energy and water usage, we will use Open AI's ChatGPT model, specifically for GPT-3. One request utilizes 7.59mL of water.^{xxiv} It would take 65.9 requests to use the 500mL of water, the size of a standard water bottle. It would take 498.7 requests to use a gallon of water. It would take 12,467.5 requests to use the same amount of water an average Texan uses during their shower: 25 gallons.

Sticking with Chat GPT, we can assume 0.3 watt-hours (Wh) per query^{xxv} which includes the GPU, Cooling, and infrastructure for the facility. For comparison, charging your iPhone 16 will use 13.7 Wh a day.^{xxvi} This means sending 45.6 queries would be the equivalent of fully charging your phone.

To summarize: 1 ChatGPT Query in Texas is estimated to use 7.59mL of water and 0.3 watt-hours.

498 ChatGPT queries would use 1 gallon of water and 149 Wh of energy

12,467 ChatGPT queries would use 25 gallons of water (a typical shower) or 3,740 Wh of energy (an intense clothes dryer cycle)

AI is going to replace jobs

To define replacement, we will be using it as a term meaning the complete removal of a job in the job market. There is a real concern that AI will replace entry-level jobs typically used by recent graduates or individuals looking to make a career switch. Management and Owners are likely to be unimpacted by AI in the short term.

There will be some positions automated by AI, which is undeniable, but others will adapt with AI. Research conducted by Microsoft^{xxvii} has given us insights into what some of these jobs might be. Microsoft created a scoring system that is based on "...whether Copilot users are performing its associated work activities (frequency > .05%) successfully (completion rate) and covering a broad share of the work activity (scope ≥ moderate)." The top 10 highest scored titles are listed below:

1. Interpreters and Translators
2. Historians
3. Passenger Attendants
4. Sales Representatives of Services
5. Writers and Authors
6. Customer Service Representatives
7. CNC Tool Programmers
8. Telephone Operators
9. Ticket Agents and Travel Clerks
10. Broadcast Announcers and Radio DJs

The top 10 major industries impacted by AI are provided below

1. Sales and Related
2. Computer and Mathematical
3. Office and Administrative Support
4. Community and Social Service
5. Arts, Design, Entertainment, Sports, Media
6. Business and Financial Operations
7. Educational Instruction and Library
8. Architecture and Engineering
9. Personal Care and Service
10. Life, Physical, and Social Science

It should be noted that some of these jobs will not, and cannot, be replaced 100% by AI even though they might be impacted.

There has been significant public backlash of companies that utilize GenAI for creative purposes rather than hiring humans. This is reflected in polling where 57% of adults are worried about AI leading to less connection between people.^{xxviii}

While Microsoft's research may say jobs like Interpreters & Translators, Historians, Writers & Authors, and Broadcast Announcers & Radio DJs will be most impacted, it must be taken in the context of adoption.

There are a growing number of companies who are incorporating costs for entry level positions and phasing them out in favor of AI which can typically do basic tasks, reports, and analysis that a junior white-collar worker can do. The World Economic Forum is estimating that as many as 40% of employers are planning on phasing out jobs that can be replaced by AI.^{xxix}

However, this does not mean these jobs will be gone. The World Economic Forum also estimated that AI and IT will create 11 million jobs, while simultaneously displacing 9 million others, a net gain of 2 million jobs.^{xxx}

While it may be true that some jobs will be replaced, there are more jobs that will be created. The question will not be if we can create jobs, but if we are upskilling our workers quickly enough, where an estimated 39% of their core skills will be out of date by 2030.^{xxxi}

AI is Accurate 100% of the time because its constantly learning new data

As mentioned earlier, AI models are based on a set of criteria & rules that output predictions based on a goal and objective. It is possible, and happens, that an AI model misconstrues data as accurate, especially LLMs.

An LLM, simply put, attempts to predict the next word in a given query. They do this through billions of text vectors and offer a probability of what you want. An example is provided below through real ChatGPT inquiries.^{xxxii}

Example 1

User Prompt: What is the best kind of dog? Give me one sentence.

ChatGPT-5: The best kind of dog is the one that matches your lifestyle, but many say a loyal mutt is hard to beat.

Example 2

User Prompt: What is the best kind of dog? Give me one sentence.

ChatGPT-5: The best kind of dog is the one that loves you unconditionally and fits seamlessly into your life.

Even though the prompts were the exact same, ChatGPT-5 produced two different responses.

An example where it won't provide accurate information is the following^{xxxiii}

Example 1

User Prompt: Give me a list of Mayors of Austin from 1990 to 2005. Only list the names and dates they served.

ChatGPT-5: Here's the list of Austin Mayors from 1990–2005, with their terms of service:

- **Lee Cooke** – 1988 to 1991
- **Bruce Todd** – 1991 to 1997
- **Kirk Watson** – 1997 to 2001
- **Gus Garcia** – 2001 to 2003
- **Will Wynn** – 2003 to 2009

Would you like me to also extend this timeline back to 1980 or forward beyond 2005 for more context?

While the list and dates are technically correct, Mayor Cooke's full name is "C. Lee Cooke."^{xxxiv} As mentioned, ChatGPT-5 is utilizing a model that has made an assumption to exclude the letter "C." from Mayor Cooke's name.

Another example of inaccuracies can be found through a snippet below^{xxxv}

Example 1

User Prompt: Give me an overview of the Texas Legislature and how it works

ChatGPT-5: Legislative Process

1. **Bill Introduction:** Bills can be filed by any member of the House or Senate.
2. **Committee Referral:** The presiding officer assigns bills to committees.
 - Committees hold hearings, amend bills, and decide whether to advance them.
3. **Floor Debate and Vote:**
 - Bills must pass a vote in their originating chamber.
 - Then they move to the other chamber for consideration.
4. **Conference Committees:** If the House and Senate pass different versions, a joint committee reconciles them.
5. **Governor's Action:** The Governor may sign, veto, or allow a bill to become law without signature.
 - A **veto** can be overridden by a **two-thirds majority** in both chambers, though this is rare

While this is mostly accurate, it is missing key details that explain how the legislative process works and fails to mention that there are two different processes compared to the House and Senate.

For the House, there is no mention of the Calendar Committee. For the Senate, there is no mention of its Intent calendar. There is no mention that the parliamentarian is often consulted by the Speaker

and Lieutenant Governor to assist with the referral of bills.

When asked if ChatGPT was sure the information was 100% accurate, it responded with “My earlier explanation is largely accurate, but here are refinements supported by sources...” and a summary of refinements made. This is again to say that the information itself was not necessarily inaccurate, it was not 100% accurate and still needed a level of due diligence to verify its completeness.

While this might seem nitpicky, a real example will be shown why the small number of inaccuracies may affect bias.

AI Is Always Unbiased Because Humans Aren't Creating The Output

There is a field of study in AI on how to reduce bias. Stages where bias in AI can include data collection, data labeling, model training, and even during deployment.

Bias can be found in selection, confirmation, measurement, stereotyping, and out-group homogeneity.^{xxxvi}

An example of bias in AI can be shown while looking at HR recruitment tools. Imagine if you are a large company and you train an AI model to pick candidates based on previous resume data. You're assuming that by continuing the culture you have already cultivated, AI will find algorithms, patterns, and traits that you may have missed. You deploy the tool expecting it to remove bias completely. After all, since a human won't be reading the resumes, it can't make societal assumptions like humans do. It will simply say “these people are qualified, and you should hire them.”

However, a real example of this showed that not only did this not prevent bias, but it actually exacerbated it. Amazon's machine-learning system that was used to hire talent was found to favor men over women. Amazon's system taught itself that “male candidates were preferable” and penalized resumes that contained the word

“women's” or from candidates that were from all-women's colleges.^{xxxvii}

Another example would be if a citizen was looking to engage their lawmaker about an issue. Imagine a typical ChatGPT conversation.

A citizen would like to lobby their elected officials about THC. They ask ChatGPT the above prompt. ChatGPT then provides them with an overview of how the legislature works.

The citizen then states that they want to visit their State Representative to express their opinion. ChatGPT tells them that they should visit their State Representative and that the legislative process is designed to hear from them.

The citizen then asks if there is a legislative session going on and ChatGPT tells them that there is a special session currently and that one of the special session's key issues is THC legislation. ChatGPT even offers to generate an email, call script, and in-person script. The citizen asks ChatGPT to generate the scripts so they can use them.

ChatGPT generates scripts favoring one side of the debate because it might be in the news more. The citizen then asks ChatGPT if the scripts it generated were in favor of the legislation the citizen was in favor of. ChatGPT replies no and regenerates the scripts based on this new information.

If the citizen did not specify their position, ChatGPT would have generated them a script based on an opinion that they did not have.

This conversation happened and you can view it [here](#).

The bottom line: It will likely be impossible for an AI model to completely free of all bias. While there are strides and attempts made, it can never truly be removed.

Autonomous Vehicles (AV) are more dangerous than a Human Driver

To define autonomous vehicles (AVs), we will be using it as a term meaning a car, truck, or other motor vehicle that can operate with little to no human input, relying instead on a system of sensors, cameras, GPS, and artificial intelligence.

The belief behind the AV industry is that autonomous vehicles can drastically improve road safety. Unlike human drivers, AVs do not get tired, distracted, or impaired.

To understand AV's, one must understand the industry standard developed by the Society of Automobile Engineers (SAE) taxonomy^{xxxviii}. These 6 level systems are as follows:

Level 0: No Driving Automation

You are driving. The driver controls steering, acceleration, and braking. They may offer automatic emergency braking or blind spot warnings.

Level 1: Driver Assistance

You are driving. Lane assistance **OR** adaptive cruise control is being used. Either steering **OR** braking is being used, but not both.

Level 2: Partial Driving Automation

You are driving. Lane centering **AND** adaptive cruise control are being used. Steering **AND** braking are being used, but not both.

Level 3: Conditional Driving Automation

You are not driving. You only need to drive (steer and break) when the vehicle prompts. After which, you must drive. ADS can be used in limited conditions and will not operate unless they are met.

Level 4: High Driving Automation

You are not driving. You will not need to take over driving. Pedals and a steering wheel may or may not be installed. ADS can be used in limited conditions and will not operate unless they are met.

Level 5: Full Driving Automation

You are not driving. You will not need to take over driving. ADS can be used in all conditions that a human would use them.

As of August 2025, there are no level 5 autonomous vehicles. Companies such as Waymo, Tesla, and Zoox typically operate at the level 3 and 4 range. This is due to the fact that they cannot operate on Highways or drive-in all-weather conditions, like a human can. Once they can do those things, they will have reached level 5.

Autonomous Vehicle utilize a variety of different systems of driving. We will keep our examples focused on Waymo, Tesla's Robotaxi, and Zoox.

Waymo^{xxxix} – A 5th generation Waymo vehicle has 29 cameras, 5 lidar sensors, and 6 radars.

Tesla Robotaxi^{xl} – Tesla's autonomously technology relies on a smaller set of only cameras. A Tesla Model 3 has 8 cameras.

Zoox^{xli} – A Zoox robotaxi uses 4 lidar sensors and a combination of cameras and radars.

These cameras, sensors and radar systems are important because they allow AVs to map their surroundings. There is debate in the AV industry about whether lidar systems should be the standard. Tesla argues that they are too expensive and cost-prohibitive, unneeded and unnecessary, and that cameras work well enough.

AI is often used in these systems to detect changes in traffic, pedestrians, other vehicles, and obstacles that might typically encountered during a regular drive.

It should be noted that while some people may mention AV crashes as proof the technology is unsafe, those cases must be compared against the baseline risk of human driving.

The following data is provided by the Texas Department of Transportation^{xliii}

Road Type	Traffic Crashes per 100 million vehicle miles	
	Rural	Urban
2 lanes, 2 way	100.46	224.19
4 or more lanes, divided	57.92	162.90
4 or more lanes, undivided	105.15	319.64

By comparison, Waymo has driven 71 million miles rider only miles across its deployed cities and has a reported crash rate of 0.9 crashes per million miles.^{xliii} To be comparable, we must multiply that number by 100 as TxDOT’s data is measured in “100 million miles”. With that, we get 90 crashes per 100 million miles. That is a 57.65% difference at the lowest urban statistic and 198.88% difference at the highest urban statistic.

The bottom line: Using the data we have publicly available through TxDOT, Waymo, and academic research, AV’s can be interpreted as at least 57.65% less likely to get involved in a crash compared to a human driver.

CURRENT POLICY LANDSCAPE IN TEXAS (STATE)

Texas is leading the country in responsible AI usage and deployment. HB 149 (89R) by Representative Giovanni Caprilione created a modern framework for AI policy in Texas. HB 149 only applies to a person who

1. promotes, advertises, or conducts business in Texas
2. produces a product or services used by Texans
3. develops or deploys an AI system in Texas

HB149, and most AI policy in Texas, preempts any local ordinance. This means that no municipality can create an ordinance that explicitly goes against the contents of this bill or state statutes.

Healthcare – If an artificial intelligence system is used in relation to health care service or treatment or any, the provider of the service or treatment must provide a disclosure that is clear and

conspicuous, in plain language, and may not use a dark pattern. Only in the case of an emergency is a disclosure not needed before treatment or service begins.

Social behaviors – No person can develop or deploy an AI model that intentionally aims to have a person commit self-harm, harm another person, or engage in illegal activity

Additionally, the bill bans the use of a government entity from using or deploying an AI system that creates a “social score” based on behavior or personal characteristics.

Biometric ban – A governmental entity may not develop or deploy an AI system that is created for the specific purpose of identifying individuals based on biometric data.

Financial protections – A person may not develop or deploy an AI model that intentionally discriminates against protected groups or classes of people as protected by the Federal Government. This applies to any financial institute or insurance entity in the State.

Sexually Explicit Content – A person may not develop or deploy an AI model that creates visual material of a child or engages in text-based simulation or descriptions of sexual conduct involving a child.

Additionally, a person may not make an AI video of someone against their consent.

Regulatory Sandbox – The bill created a regulatory sandbox program that enables a person to obtain legal protection and limited access to the market in this state to test innovative artificial intelligence systems without obtaining a license, registration, or other regulatory authorization.

The attorney general may not file or pursue charges against a program participant for violation of a law or regulation waived under this chapter that occurs during the testing period.

Creation of Texas AI Council – A regulatory body that was created to do the following:

1. Ensure artificial intelligence systems in this state are ethical and developed in the public 's best interest.
2. Ensure artificial intelligence systems in this state do not harm public safety or undermine individual freedoms by finding issues and making recommendations to the legislature regarding the Penal Code and Chapter 82, Civil Practice and Remedies Code;
3. Identify existing laws and regulations that impede innovation in the development of artificial intelligence systems and recommend appropriate reforms;
4. Analyze opportunities to improve the efficiency and effectiveness of state government operations through the use of artificial intelligence systems;
5. Make recommendations to applicable state agencies regarding the use of artificial intelligence systems to improve the agencies' efficiency and effectiveness;
6. Evaluate potential instances of regulatory capture, including undue influence by technology companies or disproportionate burdens on smaller innovators caused by the use of artificial intelligence systems;
7. Evaluate the influence of technology companies on other companies and determine the existence or use of tools or processes designed to censor competitors or users through the use of artificial intelligence systems;
8. Offer guidance and recommendations to the legislature on the ethical and legal use of artificial intelligence systems;
9. Conduct and publish the results of a study on the current regulatory environment for artificial intelligence systems;
10. Receive reports from the Department of Information Resources regarding the

regulatory sandbox program under Chapter 553; and

11. Make recommendations for improvements to the regulatory sandbox program under Chapter 553.

The Council will have 7 members

- 3 members appointed by the governor
- 2 members appointed by the lieutenant governor
- 2 members appointed by the speaker of the house

This is a different council than the artificial intelligence advisory council passed in the 88R session through HB 2060 by Capriglione.

Some cities have already passed AI ordinances that seek to protect their citizens such as Austin.

In 2024, the City of Austin passed resolution no. 20240215-024 which created their own AI Advisory Council and created ethical AI technology policies, guidelines, strategies, and workforce considerations.

In April of 2025, the City Council passed resolution no. 20250424-055 which directed City Manager to do the following:

The City Manager is directed to work with Austin Energy, Austin Water, the Office of Budget and Organizational Excellence and the Office of Climate Action and Resilience, and other departments as he deems necessary, to study and provide a report on the current and projected environmental impact and resource usage of local data centers over the next ten years.

The City Manager is directed to establish a policy that requires all uses of AI to be coupled with a process for human review and oversight and to establish guidelines for the acceptable uses of AI and emerging technology that will not:

- Intrude on individual's privacy and constitutional rights;
- Exploit vulnerable populations;
- Manipulate or deceive individuals;
- Rank or score individuals;

- Unlawfully appropriate intellectual property;
- Employ solely AI-based police reports, fire reports, or employment or policing decisions;
- Collect biometric data; or
- Misuse sensitive data.

The City Manager is directed to establish procedures that explore:

- Providing direct notice to employees before any AI system is introduced that affects their work conditions, schedules, evaluations, or wages;
- Developing notices that include clear, plain-language explanations of what the AI system does, what data it collects, how it affects work assignments or evaluations, and how employees can raise concerns or contest decisions; and
- Developing and incorporating opportunities into the grievance process for employees to contest decisions made by or influenced by AI tools, with guaranteed access to human review and the right to appeal.

Other cities in Texas should follow the model laid by Austin. It is almost certain that City Staff are using AI in their day-to-day work as it's estimated that 51% of federal, state, and local employees use AI in their day-to-day work.^{xliv} It is imperative that City Leaders train City Staff on the ethical boundaries of AI use to avoid situations that commonly occur in the such as

- Feeding confidential information into public AI models
- Utilizing GenAI in presentations without proper disclosure
- Represent AI work as if it was done completely by an individual

POLICY/ORDINANCE CONSIDERATIONS

AV – Texas leads the country in AV innovation and should remain that way. California is overly restrictive in terms of its autonomous vehicle policy and goes as far as requiring a Human

“driver” even though that Human driver cannot control the vehicle.

State and Local officials should be careful to not create unnecessary and unproductive regulations, or conversations like ones occurring in the City of Boston.

In other cities around the country, some local Officials are placing unnecessary, and unfair, regulatory hurdles on AV companies that they do not place on other companies, even though they may have similar features. This can look like questioning over mapping features, demands that they answer to an impact in the local gig-economy or using straw-man fallacies.^{xlv}

Autonomous vehicles are already under strict standards from the National Highway Transportation Safety Administration. Local municipalities should focus on:

- Consumer privacy and ensuring vehicle cameras do not record or store data
- Ensure there is a “fault” model for AVs for Civil and Criminal liability
 - o i.e. what happens when the vehicle crashes
- Protection for riders’ safety from outside actors
- Verification of Safety standards and review into decision making from real, yet difficult traffic standards
 - o i.e. If an AV is going to crash, will it minimize casualties or minimize damage? Will it protect the driver inside or protect the people outside?
- Noise standards for parking and storage of vehicles
 - o i.e. San Francisco’s infamous AV’s that honk at all hours of the night^{xlvi}

Texas is leading in AV innovation with some of the countries’ safest and innovative models. Texas currently has AV Trucks on its highways through companies like Tesla^{xlvii} and Aurora^{xlviii}.

AI with personal info – State and local governments should continue to safeguard consumer privacy. Any AI system that is planning

on training based on an individual's biometric data should not be allowed to do so without that individual's explicit consent.

Governments should adopt agency and staff policies that ensure proper disciplinary action is taken for anyone that feeds personal information into public AI systems without an individual's consent. It's also critical to ensure that government AI models are not being trained using individual data.

AI in permitting/licensing decisions – AI models can streamline the permitting process, cutting down on delays. An ideal model could take a backlog of applications, read through them, and flag for any errors for human approval with the assumption that there will be a cure opportunity.

AI in wildfire and flood mitigation – State and Local Governments should consider utilizing AI models that forecast extreme weather scenarios. This has been successful in the private sector to examine^{xlix}

- Wildfire damage and energy outages
- Flood damage and impact
- Restoration timelines
- Grid hardening and identification of high-risk zones

RECOMMENDATIONS MOVING FORWARD

To summarize, AI can be a powerful tool that the Government should work with, and not against. It is important to approach this policy area with the understanding that there is potential to change our society drastically. Policymakers should not be scared of the challenges but embrace them.

Policymakers should continue to create a responsible regulatory environment that prioritizes innovation whilst protecting consumer data/rights, preventing anti-social behaviors, and encourage grants and funding for research and startups.

State and Local officials must adopt best practices for their agencies. In the absence of a policy, staff will create their own which can create legal and ethical consequences for the citizens of Texas.

Policy makers must ensure that management decisions are made by people and not machines. To cede all decision making to a computer does a disservice to the people of Texas.

Policy makers should be weary of over-dramatic claims that AI will be the leading cause of drought, energy crisis, job loss, or overly intense claims. Data and nuanced conversation must prevail through technological innovation.

Government staff must be mindful to not cede memos, briefs, and other critical work to AI models that summarize information. This can lead to inaccurate and incomplete data that can mislead elected officials and the heads of departments or agencies.

Regulators should consider a database system that allows the public or government officials to track data center energy and water usage in an easier format. This will be crucial to determine water and electricity use moving forward.

Corporations and companies must ensure that they develop AI responsibly and treat the light regulatory environment with care. There are anti-technology activists that are waiting, and ready, to use any reason to unnecessarily crack down on all innovations.

CONCLUSION

Artificial Intelligence is not a distant concept; it is already shaping how Texans live, work, and govern. From traffic management to healthcare, from autonomous vehicles to data center policy, AI offers both tremendous opportunities and serious risks.

Texas is uniquely positioned to lead the country with pragmatic, nonpartisan, and forward-looking policies that balance innovation with accountability. As this primer has shown, the question is not whether AI will impact Texas, but whether Texas will shape that impact responsibly.

AI will not decide Texas' future but rather Texans will, through the choices and policies we set today.

References and Endnotes

- ⁱ Russell, S., & Norvig, P. (2022). *Artificial Intelligence: a Modern approach* (4th US Edition).
- ⁱⁱ Vuković, D. B., Dekpo-Adza, S., & Matović, S. (2025). AI integration in financial services: a systematic review of trends and regulatory challenges. *Humanities and Social Sciences Communications*, 12(1). <https://doi.org/10.1057/s41599-025-04850-8>
- ⁱⁱⁱ *Artificial intelligence for energy*. (2024, April 29). Energy.gov. <https://www.energy.gov/topics/artificial-intelligence-energy>
- ^{iv} Bajwa J, Munir U, Nori A, Williams B. Artificial intelligence in healthcare: transforming the practice of medicine. *Future Healthc J*. 2021 Jul;8(2):e188-e194. doi: 10.7861/fhj.2021-0095. PMID: 34286183; PMCID: PMC8285156.
- ^v Karim, M., Shit, Y., Zhang, S., Bingzhang, B., Mehrdad, M., Wang, Y., & Department of Civil and Environmental Engineering, University of Washington, Seattle, WA. (2025). Large language Models and their Applications in Roadway Safety and Mobility Enhancement: A Comprehensive review. *ScienceDirect*, 1.
- ^{vi} Bubeck, S., Chandrasekaran, V., Eldan, R., Gehrke, J., Horvitz, E., Kamar, E., Lee, P., Lee, Y. T., Li, Y., Lundberg, S., Nori, H., Palangi, H., Ribeiro, M. T., & Zhang, Y. (2023, March 22). *Sparks of Artificial General Intelligence: Early experiments with GPT-4*. arXiv.org. <https://arxiv.org/abs/2303.12712>
- ^{vii} Texas Data Centers – Data Center Maps. (n.d.). Texas Data Centers. <https://www.datacentermap.com/usa/texas/>
- ^{viii} Texas Comptroller of Public Accounts. (n.d.). *Data centers in Texas*. <https://comptroller.texas.gov/taxes/data-centers/data-center-lists.php>
- ^{ix} Texas Comptroller of Public Accounts. (n.d.-c). *State sales tax exemption for qualified data centers*. <https://comptroller.texas.gov/taxes/data-centers/>
- ^x Voices of the Industry. (n.d.). *Understanding the differences between 5 common types of data centers*. <https://www.datacenterfrontier.com/sponsored/article/11427373/belden-understanding-the-differences-between-5-common-types-of-data-centers>
- ^{xi} Voices of the Industry. (n.d.). *Understanding the differences between 5 common types of data centers*. <https://www.datacenterfrontier.com/sponsored/article/11427373/belden-understanding-the-differences-between-5-common-types-of-data-centers>
- ^{xii} Spenrath, M., Datta, A., Houston Advanced Research Center, & University of Houston. (n.d.). *Powering Texas' Digital Economy: Data Centers and the Future of the Grid*. <https://harcresearch.org/wp-content/uploads/2025/05/Powering-Texas-Digital-Economy-Part-One-Final-1.pdf>
- ^{xiii} Iftekhhar, R. & Oliver Browne. (2025). *ESTIMATING DATA CENTER WATER DEMAND*. <https://waterexchange.com/wp-content/uploads/2025/03/2025-Q2-Water-Market-Insider-Data-Centers.pdf>. <https://waterexchange.com/wp-content/uploads/2025/03/2025-Q2-Water-Market-Insider-Data-Centers.pdf>

-
- xiv Texas Water Development Board. (2019). *2021 Regional Water Plan - Water Demand Projections for 2020-2070 Texas State Summary in Acre-Feet*.
- xv Environmental and Energy Study Institute (EESI). (n.d.). *Data centers and water consumption | article | EESI*. <https://www.eesi.org/articles/view/data-centers-and-water-consumption>
- xvi *Neptune® | Data Center & GPU Liquid Cooling Technologies | Lenovo US*. (n.d.). <https://www.lenovo.com/us/en/servers-Storage/neptune/?orgRef=https%253A%252F%252Fnews.lenovo.com%252F>
- xvii Black & Veatch. (2020). *Water management for data centers*.
- xviii Hopwood, M., & Lindsay Schulz. (2024, June 18). *Top 3 liquid cooling myths debunked*.
- xix Nemati, Kouros & Murray, Bruce & Sammakia, B. (2014). Experimental characterization and modeling of a water-cooled server cabinet. *Thermomechanical Phenomena in Electronic Systems -Proceedings of the Intersociety Conference*. 723-728. 10.1109/ITHERM.2014.6892352.
- xx *Generation*. (n.d.). <https://www.ercot.com/gridinfo/generation>
- xxi Spencer, T., & Singh, S. (2024, October 18). *What the data centre and AI boom could mean for the energy sector*. <https://www.iea.org/commentaries/what-the-data-centre-and-ai-boom-could-mean-for-the-energy-sector>
- xxii Wilson, J. D., Zimmerman, Z., Gramlich, R., & Grid Strategies. (2024). *Strategic Industries surging: Driving US power demand*. <https://gridstrategiesllc.com/wp-content/uploads/National-Load-Growth-Report-2024.pdf>
- xxiii IEA (2024), *Global Energy and Climate Model*, IEA, Paris <https://www.iea.org/reports/global-energy-and-climate-model>, Licence: CC BY 4.0
- xxiv Li, P., Yang, J., Islam, M. A., & Ren, S. (n.d.). *Making AI Less “Thirsty”: Uncovering and addressing the secret water footprint of AI models*. Cornell University. <https://arxiv.org/abs/2304.03271>
- xxv Patel, P., Choukse, E., Zhang, C., Goiri, Í., Warriar, B., Mahalingam, N., Bianchini, R., & Microsoft Azure. (2024). Characterizing power management opportunities for LLMs in the cloud. In *29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems: Vol. Volume 3* (p. 16 pages). https://www.microsoft.com/en-us/research/uploads/prodnew/2024/03/GPU_Power_ASPLoS_24.pdf
- xxvi Jary, S. (2025, May 14). *iPhone battery capacity comparison: Battery life, size, mah, watt hours*. Macworld. <https://www.macworld.com/article/678413/iphone-battery-capacities-compared-all-iphones-battery-life-in-mah-and-wh.html>
- xxvii Tomlinson, K., Jaffe, S., Wang, W., Counts, S., & Suri, S. (2025, July 10). *Working with AI: Measuring the Occupational Implications of Generative AI*. arXiv.org. <https://arxiv.org/abs/2507.07935>
- xxviii Beshay, & Beshay. (2025, April 3). *How the U.S. Public and AI Experts View Artificial Intelligence*. Pew Research Center. <https://www.pewresearch.org/internet/2025/04/03/how-the-us-public-and-ai-experts-view-artificial-intelligence/>

-
- xxix Leopold, T. (2025, April 30). *How AI is reshaping the career ladder, and other trends in jobs and skills on Labour Day*. <https://www.weforum.org/stories/2025/04/ai-jobs-international-workers-day/>
- xxx World Economic Forum. (2025). *The Future of Jobs Report 2025*. <https://www.weforum.org/publications/the-future-of-jobs-report-2025/in-full/2-jobs-outlook/#2-1-total-job-growth-and-loss>
- xxxi World Economic Forum. (2025). *The Future of Jobs Report 2025*. <https://www.weforum.org/publications/the-future-of-jobs-report-2025/in-full/3-skills-outlook/#3-skills-outlook>
- xxxii *ChatGPT - Best kind of dog*. (2025). ChatGPT. <https://chatgpt.com/share/68a8da3f-bbf0-8012-9fc4-d61e275d97dc>
- xxxiii *ChatGPT - Austin mayors list*. (2025). ChatGPT. <https://chatgpt.com/share/68a8dbe7-f1a4-8012-8ad4-2836ec1865c6>
- xxxiv *History of mayors*. (2025). AustinTexas.gov. <https://www.austintexas.gov/department/history-mayors>
- xxxv *ChatGPT - Texas Legislature overview*. (2025). ChatGPT. <https://chatgpt.com/share/68a8ddf6-37e0-8012-a80a-7295a55650cf>
- xxxvi *Bias in AI*. (n.d.). Chapman University. <https://www.chapman.edu/ai/bias-in-ai.aspx>
- xxxvii Dastin, J. (2018, October 10). *Insight - Amazon scraps secret AI recruiting tool that showed bias against women*. <https://www.reuters.com/article/world/insight-amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MKOAG/>
- xxxviii *J3016_202104: Taxonomy and definitions for terms related to driving Automation Systems for On-Road Motor Vehicles - SAE International*. (n.d.). https://www.sae.org/standards/content/j3016_202104/
- xxxix *Self-Driving car technology for a reliable ride - Waymo Driver*. (n.d.). Waymo. <https://waymo.com/waymo-driver/>
- xl Rubinfeld, C., Burch, C., Jiang, R., & Harrison, K. (2025, July 8). *Tesla, Waymo, and the Great Sensor debate*. <https://research.contrary.com/deep-dive/tesla-waymo-and-the-great-sensor-debate>
- xli Koon, J. (2023, June 1). *How many sensors for autonomous driving?* Semiconductor Engineering. <https://semiengineering.com/how-many-sensors-for-autonomous-driving/#:~:text=In%20total%2C%2030%20sensors%20were%20installed%20to,the%20necessary%20data%20for%20safe%20autonomous%20driving.>
- xlii *STATEWIDE TRAFFIC CRASH RATES by highway system 2024*. (2025). <https://www.txdot.gov/content/dam/docs/division/trf/crash-records/2024/02.pdf>
- xliii *Safety impact*. (n.d.). Waymo. <https://waymo.com/safety/impact/#methodology>
- xliv Amy Jones. (n.d.). *Insights into the integration of AI in government*. https://www.ey.com/en_us/industries/government-public-sector/insights-into-the-integration-of-ai-in-government

-
- ^{xlv} Tréa Lavery, TLavery@masslive.com & Tréa Lavery, tlavery@masslive.com. (2025, July 24). Waymo self-driving cars spark safety, job concerns in Boston. *Masslive*. <https://www.masslive.com/boston/2025/07/waymo-self-driving-cars-spark-safety-job-concerns-in-boston.html>
- ^{xlvi} *Waymo driverless cars wake residents with nighttime honking*. (2024, August 14). [Video]. <https://www.bbc.com/news/videos/c17gqverg99o>
- ^{xlvii} Texas Department of Transportation. (2025). *Automated Vehicle Deployments ArcGIS Dashboards*. <https://txdot.maps.arcgis.com/apps/dashboards/f4dd9ee9f87447d3ac3cdef192b3910f>
- ^{xlviii} Texas Department of Transportation. (2025). *Automated Vehicle Deployments ArcGIS Dashboards*. <https://txdot.maps.arcgis.com/apps/dashboards/f4dd9ee9f87447d3ac3cdef192b3910f>
- ^{xlix} Gutierrez, C. (2025, June 2). *From Wildfires to Floods: How AI is Reshaping Utility Risk Strategy*. Technosylva. <https://technosylva.com/from-wildfires-to-floods-how-ai-is-reshaping-utility-risk-strategy/>