TxDOT's AI Overview

February 5, 2025

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AI Strategic Plan

AI Strategic Plan

- **Establishes** a vision, principles, and roadmap.

- **Integrates** advanced analytics and intelligent systems into TxDOT's operations and transportation system.

- **Strategy.** The plan includes strategic priorities, use cases, best practices, and recommendations to guide TxDOT's adoption of AI over the next 3 years.

- **Focus** is on high-impact applications that enhance human decision-making, streamline processes, and provide new insights from data.

ARTIFICIAL INTELLIGENCE
STRATEGIC PLAN

Fiscal Years 2025-2027
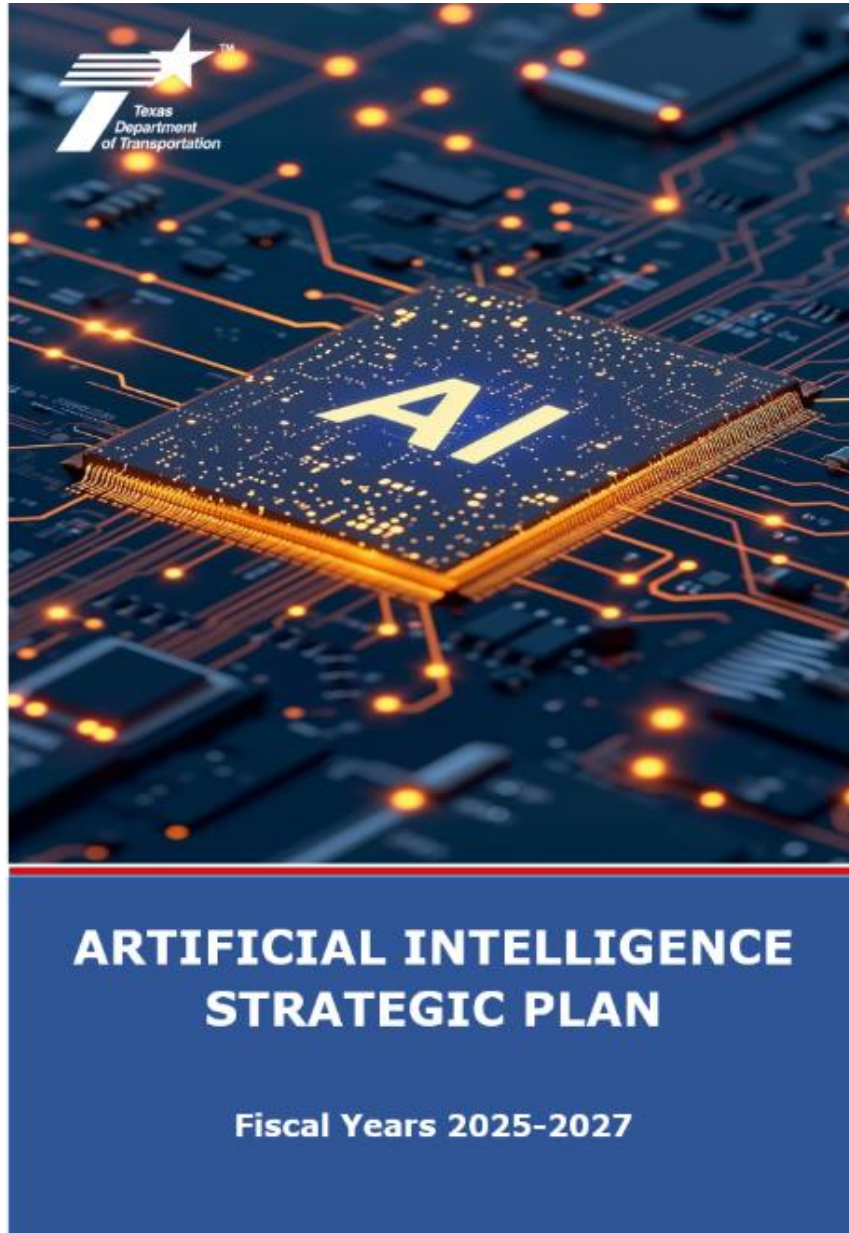
TxDOT's AI Strategic Plan can be found at TxDOT.gov

About > Leadership > Learn about our strategic plans

Leverage AI to achieve agency's mission and goals, while addressing the ethical, legal, social, and technical implications of AI

Connecting you with Texas

Promote Safety
Champion a culture of safety across all operations.

Deliver the Right Projects
Implement effective planning and forecasting to deliver projects on time and within budget.

Value our Employees
Prioritize the well-being and development of our employees.

Focus on the Customer
Place people at the center of everything we do.
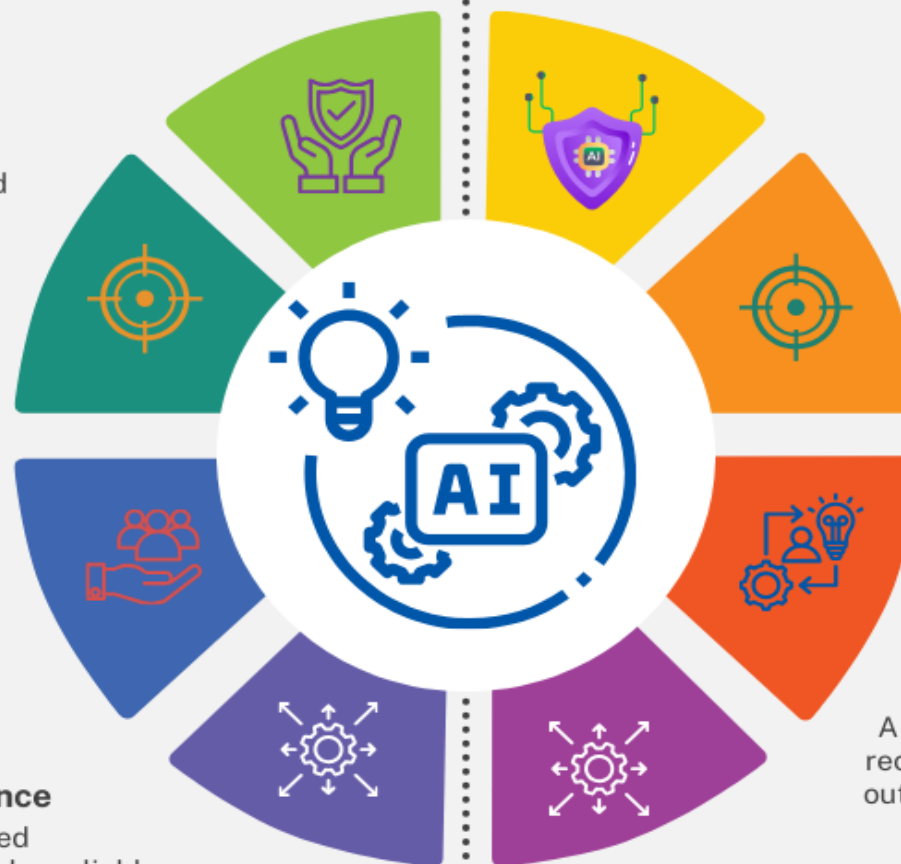
Foster Stewardship
Ensure the efficient use of state resources.

Optimize System Performance
Develop and operate an integrated transportation system that provides reliable and accessible mobility, fueling economic growth.

Preserve our Assets
Conduct preventive maintenance to protect TxDOT's infrastructure and capital investments.

AI Strategic Plan

Overview
Overview of AI, major AI types, definitions and uses.

Guiding Principles
AI adoption and usage guiding priniples.

AI Readiness
The current state of AI readiness and adoption within the agency, including the technology, foundation, governance, organizational capabilities, and in flight and completed AI projects.

Reccomendations
Recommended foundational capabilities to enable the effective and responsible use of AI.

A 3-year roadmap for implementing recommendations, achieving desired outcomes and serving as a guide and reference, while harnessing the potential of AI.

Use Cases
Identified business use cases for AI adoption, aligned with the agency's goals and objectives.

Guiding Principles

Security
AI systems should be designed, tested, & deployed to ensure security as part of the function and performance of the application.

Transparency
AI applications must be transparent about how data is used & must provide users & key stakeholders insights into how decisions & outcomes are produced.

Accuracy
AI applications must produce verifiable results, & users must provide clear communication regarding uncertainties & take appropriate measures to rectify inaccurate data.

Accountability
Governance, oversight, & monitoring of AI systems to ensure that they are operating as intended & not causing unintended harm.

Trustworthy
AI applications must include methods to ensure results are unbiased & that there is fair and equitable representation across TxDOT D/Ds.

Privacy
AI applications must respect user privacy. Data must not be used outside of agreed upon terms, must be compliant with TxDOT's privacy policies & applicable requirements.

Safety
TxDOT Prioritizes the well-being of the public, partners, & employees through dependable, trustworthy AI technologies that enhance infrastructure integrity & service quality.

AI Governance

Technology initiatives will follow existing information technology governance processes.

TxDOT's *Acceptable Use of Artificial Intelligence Policy* provides clear guidance on responsible and appropriate use of AI technologies within the agency.

- **Risk Management Workgroup**: The governing body includes representatives from the Information Technology Division (ITD), Strategic Initiatives and Innovation Division (STR), General Counsel Division (GCD), Human Resources (HRD), and the business owner.
  - Implement the **pillars of the risk management framework: map, measure, and manage** will guide AI systems and project risk assessments.
  - **AI Risk Management Framework** aims to **mitigate risks and maximize opportunities** associated with AI systems.
- TxDOT adopts the **National Institute of Standards and Technology** (NIST).
- Risk management efforts will be applied throughout the lifecycle of each AI system or project.

Risk

Risk Assessment

Map
Identify and describe key risks associated with the AI system or project.

Measure
Analyze each risk by the impact it would have on the agency and the likelihood of the risk occurring.

Manage
Mitigate negative or maximize opportunities based on the product of impact and likelihood scores.

Collaborative Governance
STR, ITD, GCD, HRD, AUD created an AI Risk Management Workgroup. The Workgroup coordinates with the business owner throughout the map, measure, and manage process. The Workgroup will pull in additional subject matter experts and escalate risks, as necessary.

Executive Summary
The risk framework adopts NIST and RPM methodologies and is designed to be continuous and timely. The framework will reflect the diverse perspectives of TxDOT stakeholders to deploy trustworthy automated decision systems.

AI: Artificial Intelligence
STR: Strategic Initiatives and Innovation Division
ITD: Information Technology Division
GCD: General Counsel Division
NIST: National Institute of Standards and Technology
RPM: Enterprise Risk Prevention and Management Program

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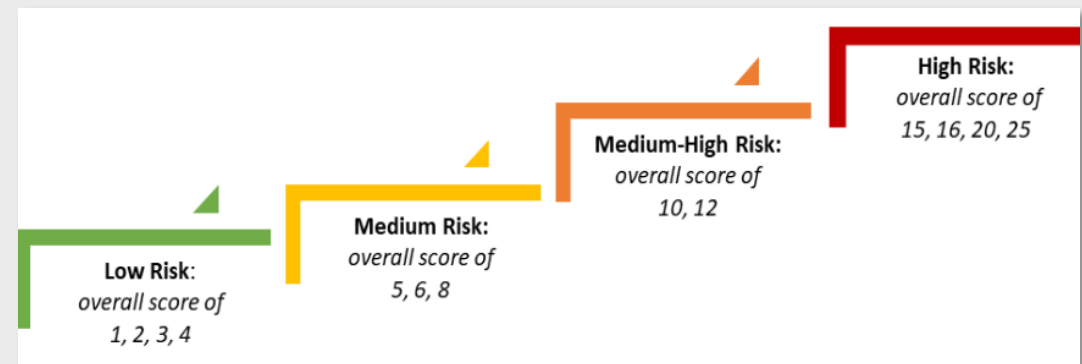
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Risk Assessment in Action

- The AI Risk Management Workgroup meets monthly, or as needed, to review systems or projects flagged as having an AI component on Requests for Solutions in TxDOTNow.

- The work group will

  1. Document and identify each risk,

  2. Assess the impact and likelihood of the risk occurring,

  3. Develop plans to manage risks.

Risk Assessment in Action

Project/System	Visual Suite Z		
Description	This is an online graphic design tool that can be used to create social media posts, presentations, posters, videos, logos and more. This tool integrates AI components to create or modify visuals or generate text.		
Risk	Third-party vendor (OpenAI) used to generate text.		
Category	Information Integrity		
Risk Measurement	Impact	Likelihood	Score
	4	2	8
Mitigation/ Recommendation	Generated content responses should include source material references. TxDOT will require disclaimer on generated text and plans to train staff on the importance of looking for bias and fact checking.		

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AI Governance

AI Program

- Establishes and maintains enterprise AI policy
- Tracks AI initiatives (HB 2060 (88R, 2023) Compliance)
- Receives, solutions & prioritizes AI & automation projects

AI Risk Workgroup

- Cross-divisional, chartered to assess risks in potential AI initiatives
- Defines risks unique to implementation and TxDOT environment, categorizes and scores using NIST framework

AI Community of Practice

- Foster collaboration, learning, innovation
- Crowd source ideas and organizational opportunities
- Grow resource expertise, promote change champions

AI Policy Principles

| Transparency |
| Accuracy |
| Accountability |
| Trustworthy |
| Security |
| Privacy |
| Safety |

AI Program Objectives

Employee Engagement

- Customer-centric communication
- Multi-channel: SharePoint, emails, newsletters, marketing through CoP, Resource Recess, BSC etc.
- Share training, tips, new products
- Support for AI inquiries, issues, concerns

Security

- Same rigorous security standards for all apps
- Systems are categorized, security controls documented
- Security review performed on all systems
- 24/7 monitoring to detect attacks & unauthorized application usage

Data Privacy, Data Integrity

- Close ties to Data program, AI targets aligned with EDP roadmap
- Privacy assessments completed for systems that collect, store, transmit data
- Risks associated with PI and information integrity are carefully evaluated

Responsible Innovation

- Develop & maintain policy and governance
- Track production AI in systems of record
- Flag proposed AI use, log AI risks, issues and mitigation
- Ensure procurements adhere to standards
- Develop & implement value-add AI & RPA solutions

Technology Intake Updates for AI

Request

To aid with identification and tracking, fields have been added to intake tickets and business application table in TxDOTNow

Solution

AI Technical Lead and AI team will serve in SME role during Solution for AI technologies – will still leverage other technical resources & architects as use case dictates

Review

- AI Risk Workgroup review – assess risk and attach any recommendations or mitigation needs to decision boards.
- Architecture Review
- ITD Solution Review for resourcing & prioritization.

Decision

Executive Review Boards will have AI risk assessment along with standard information covering budget and resource requirements

Key Initiatives

Data Foundation

Technology Foundation

AI Governance

Implementation Support

AI Training and Upskilling

AI Projects Underway

- **PSCAMS Contract and Invoice Comparison**
  - Invoice verification process for TxDOT's engineering-related services
- **Engineer's Estimate Bid Item Unit Price Estimation**
  - A pilot project has been defined to use AI to estimate prices for bid items on construction and maintenance projects
- **Austin District Automatic Detection of Incidents on Roadways**
  - Traffic management platform pilot led by the Austin District leverages data from agency road sources such as ITS cameras and sensors, as well as external data sources from navigation solutions and telematics to create a rapid and holistic view of traffic patterns on the roadway.
- **Robotic Process Automation (RPA) for On Boarding and Off Boarding Employees**
  - Implementation of RPA, using UiPath, has significantly improved the efficiency of TxDOT's user access management process. The solution leverages Intelligent Robotics, which includes artificial intelligence and machine learning algorithms in the robotic system, enabling the automatic performance of onboarding and offboarding tasks with a high degree of decision-supporting outputs.

Texas Department of Transportation

M365 Copilot Pilot

TxDOT conducted a pilot for Microsoft 365 Copilot as part of its overall AI strategy. The 6-week pilot aimed to investigate ways in which Copilot may enhance productivity by integrating AI within daily operations.

TxDOT identified a value framework aligning business objectives to four value levers to help understand the impact of Copilot and the business case for expanding its adoption: AI Adoption, Task Management, Employee Behaviors, Employee Experience.

Leveraging both quantitative and qualitative research, our analysis includes the following key findings:

- High Copilot Adoption
- Significant Productivity Gains
- Numerous Use Cases
- Improved Employee Experience

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Texas Department of Transportation

Conclusion

TxDOT is taking steps now to enhance its processes, policies, and responsible management of Texas' transportation investments by embracing AI.