City of Dallas

Update on Artificial Intelligence

Government Performance and Financial Management Committee

March 24, 2025

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City of Dallas

Presentation Overview

- Background/History
- Purpose
- What is AI?
- AI Plan
- AI Governance
- AI Projects
  - Enterprise Wide Efforts
  - High Impact Projects
- Next Steps

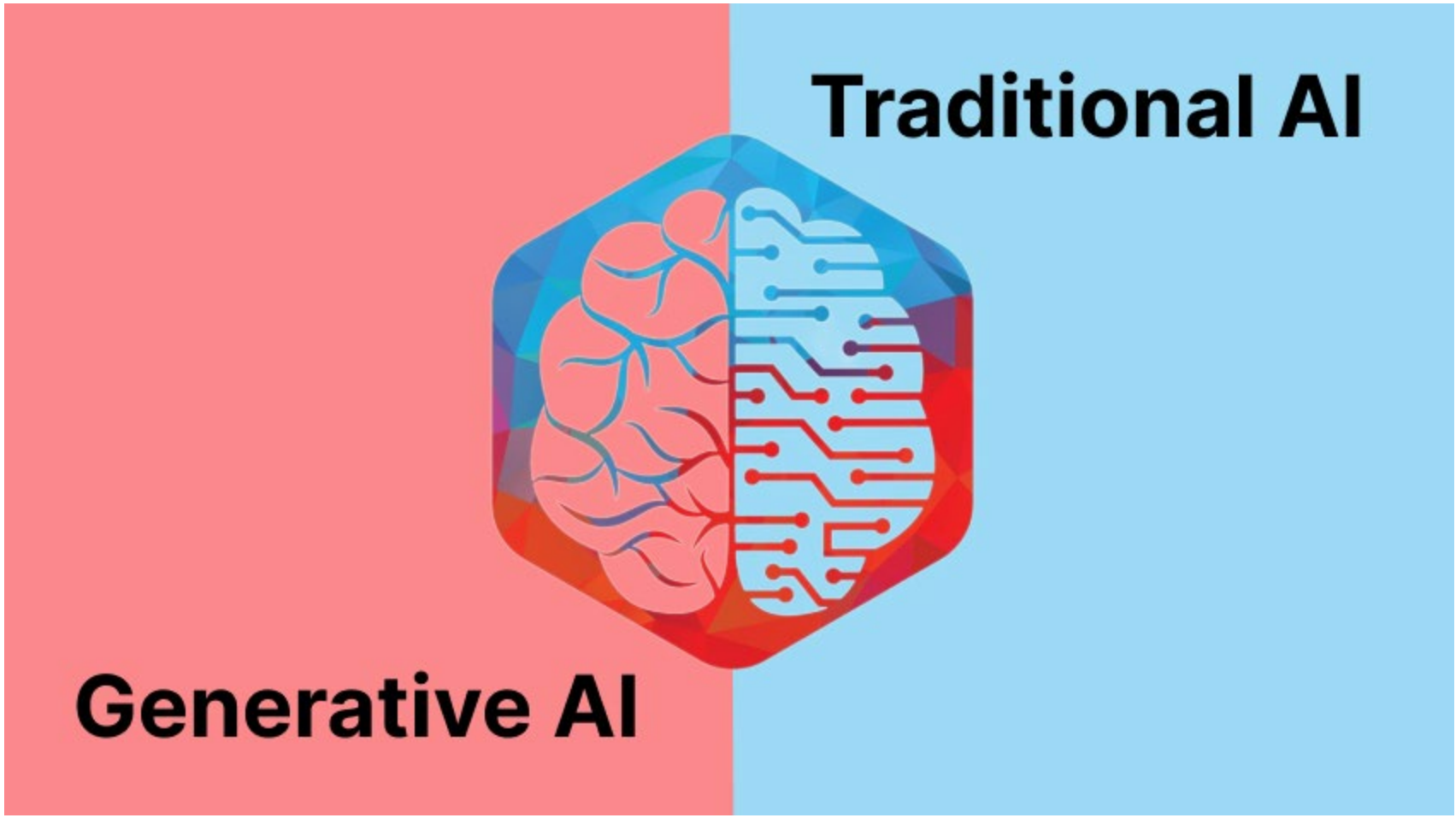
What is AI?

Think of AI as **teaching a computer to learn**, almost like how you would teach a pet a new trick.

For example, if you show a puppy how to sit over and over, eventually it learns to sit on command.

Similarly, by showing a computer many examples, it learns to recognize patterns or make decisions on its own.

What is AI?



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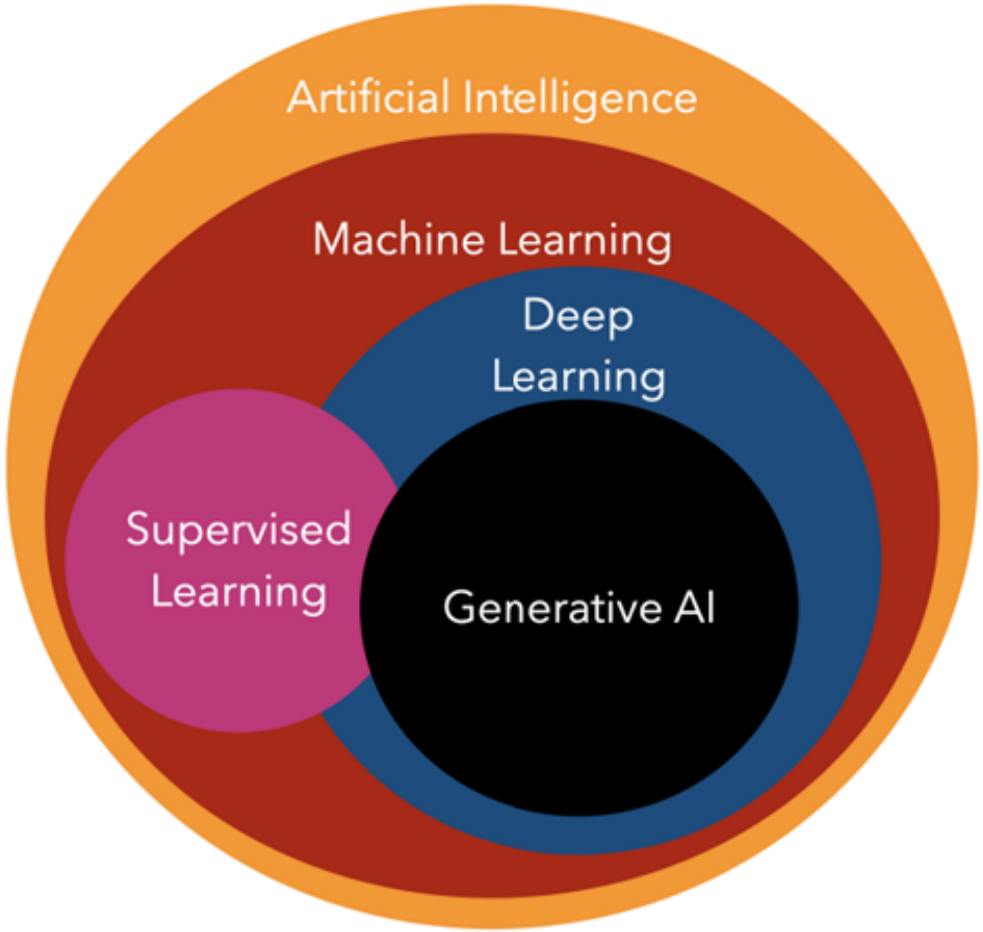

Figure 1: A taxonomy of GenAI-related disciplines.

Source: Singh, Karan. Carnegie Mellon University https://www.cmu.edu/intelligentbusiness/expertise/genai-principles.pdf

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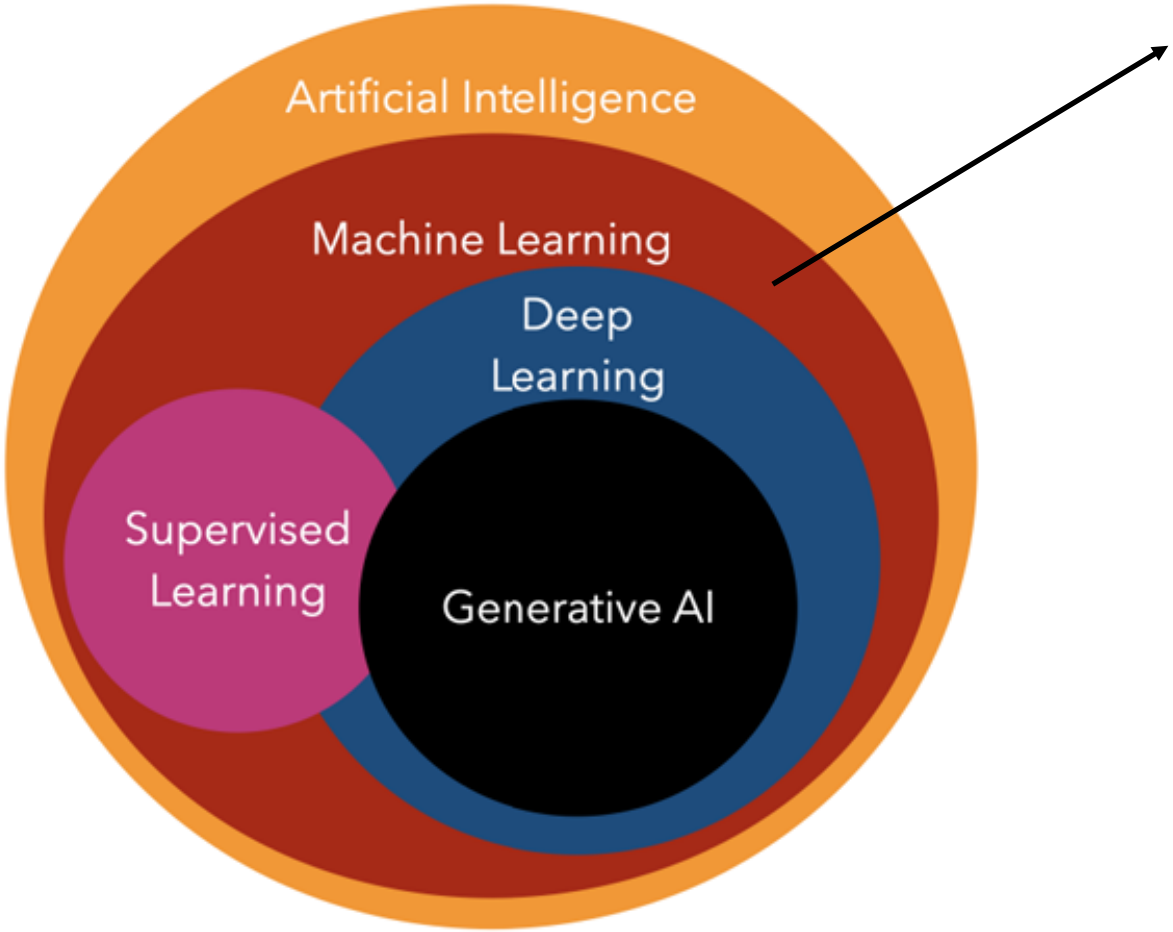

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Machine Learning (ML)
Teaching a computer to recognize patterns by showing it lots of examples.

Example: A computer learns to recognize Cats by looking at many pictures of cats.
The computer learns patterns and learns to identify cats in new images.

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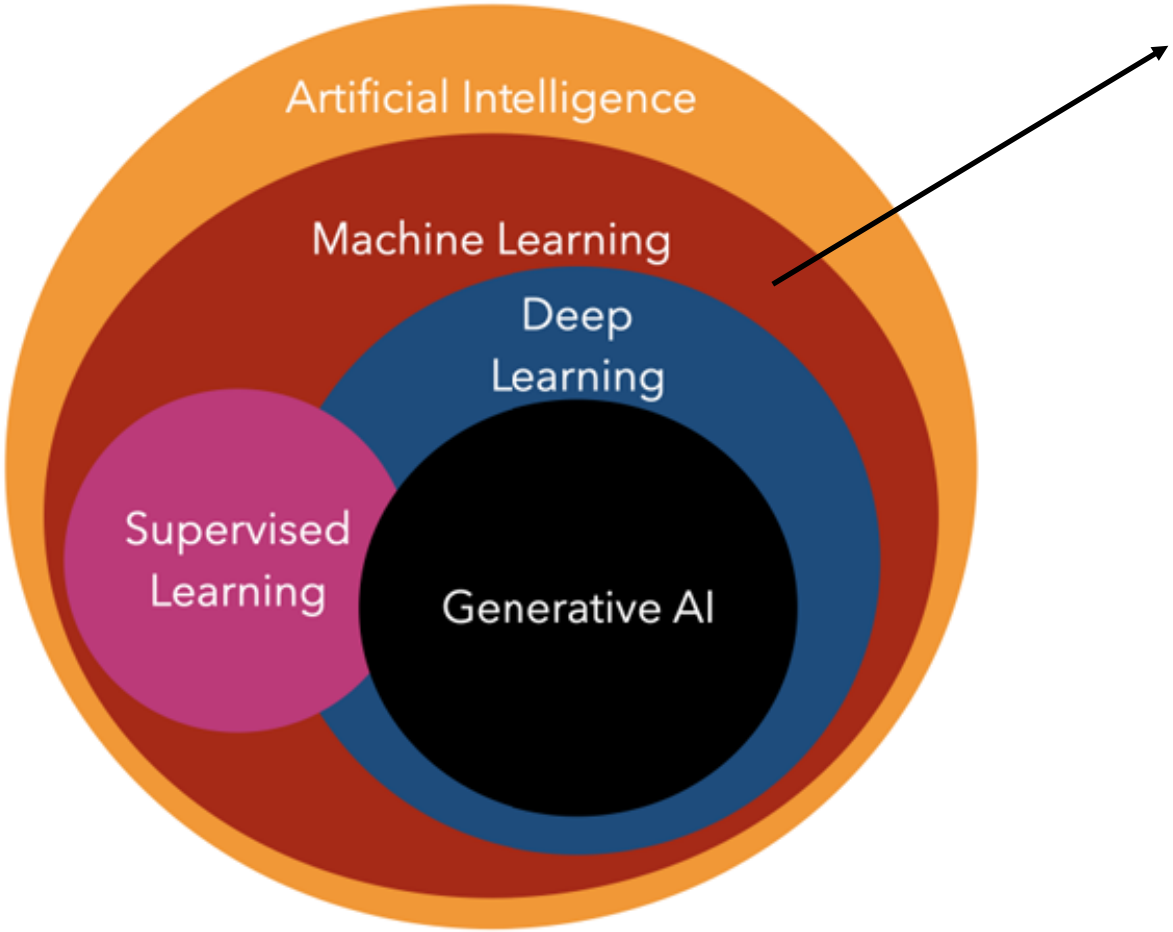

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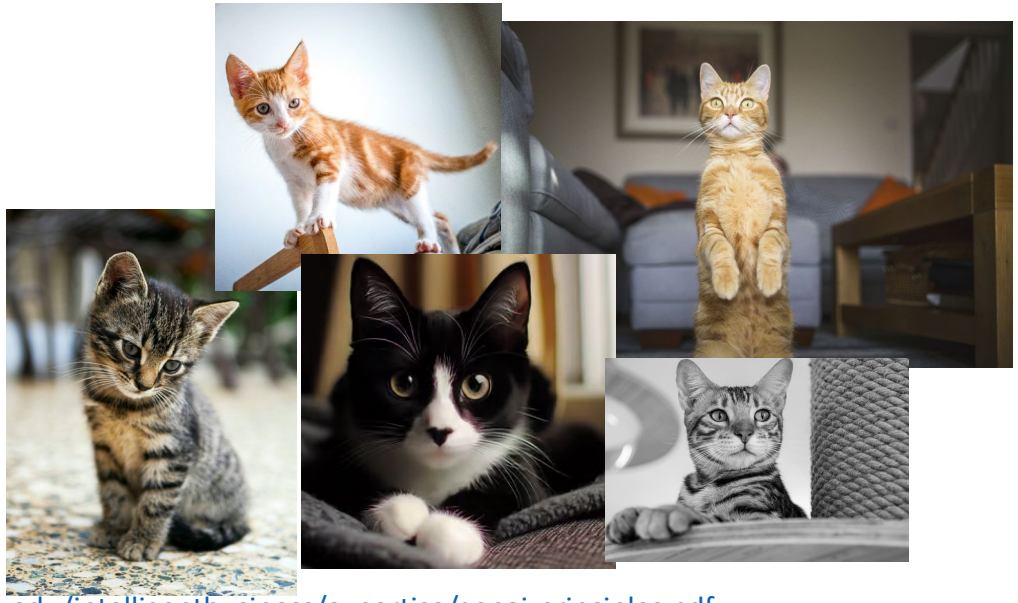

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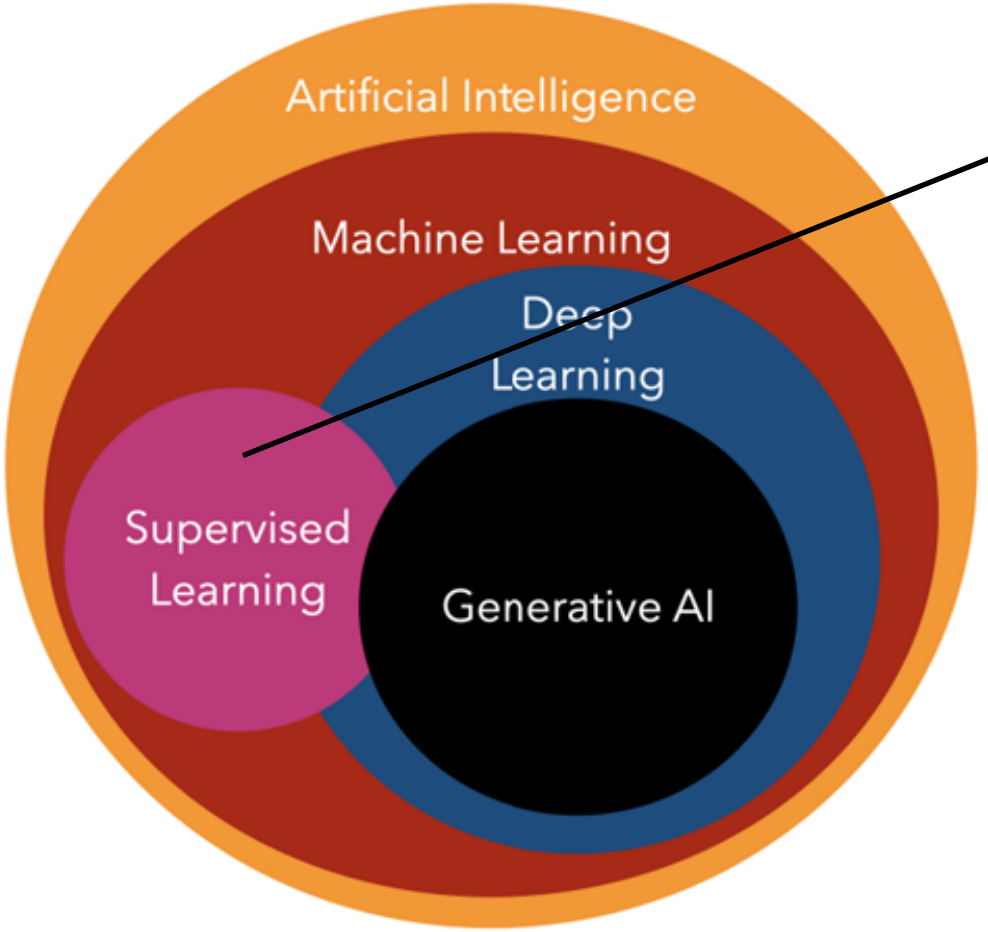

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Supervised Learning (SL)
A type of Machine Learning where the computer learns from labeled examples.

Example: We show a computer pictures labeled “cat” or “not a cat” so it can learn to identify cats.

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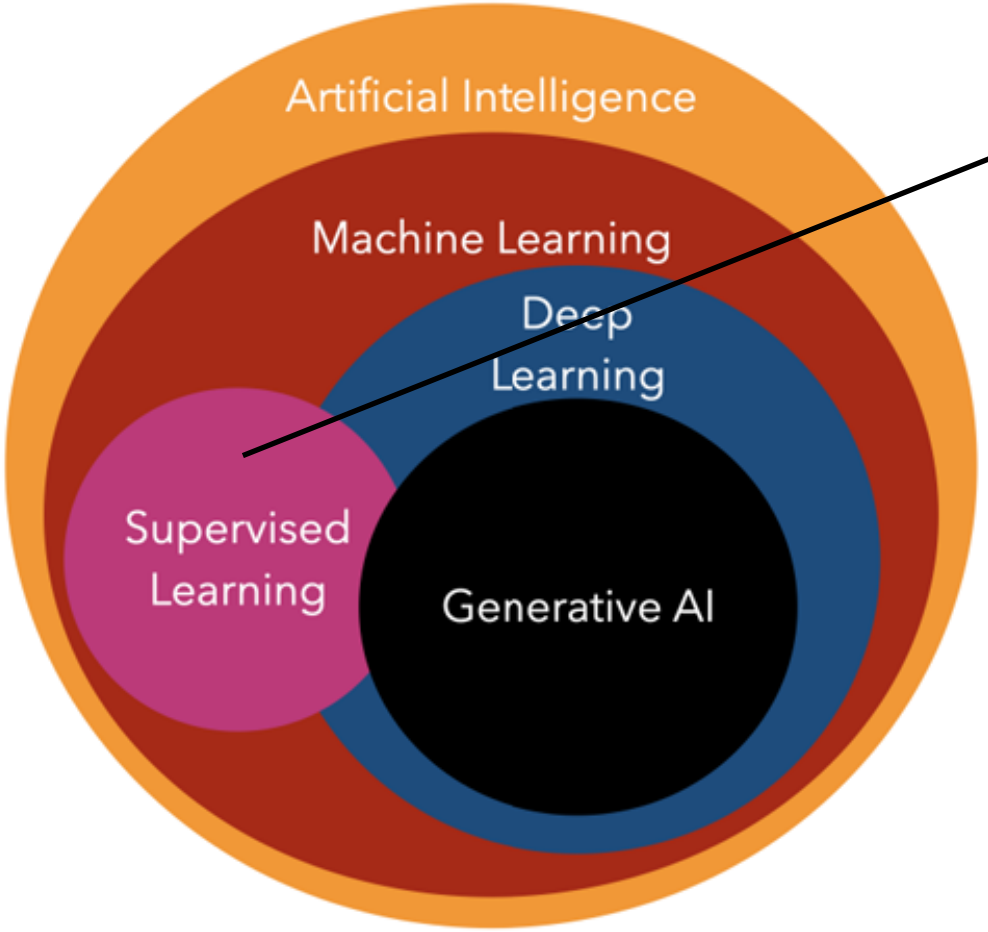

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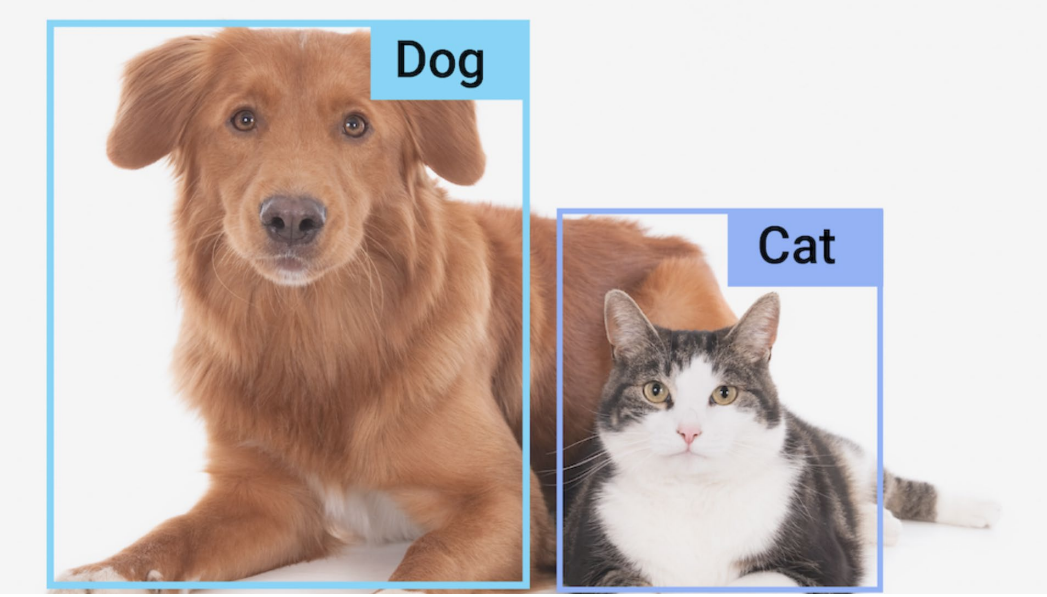

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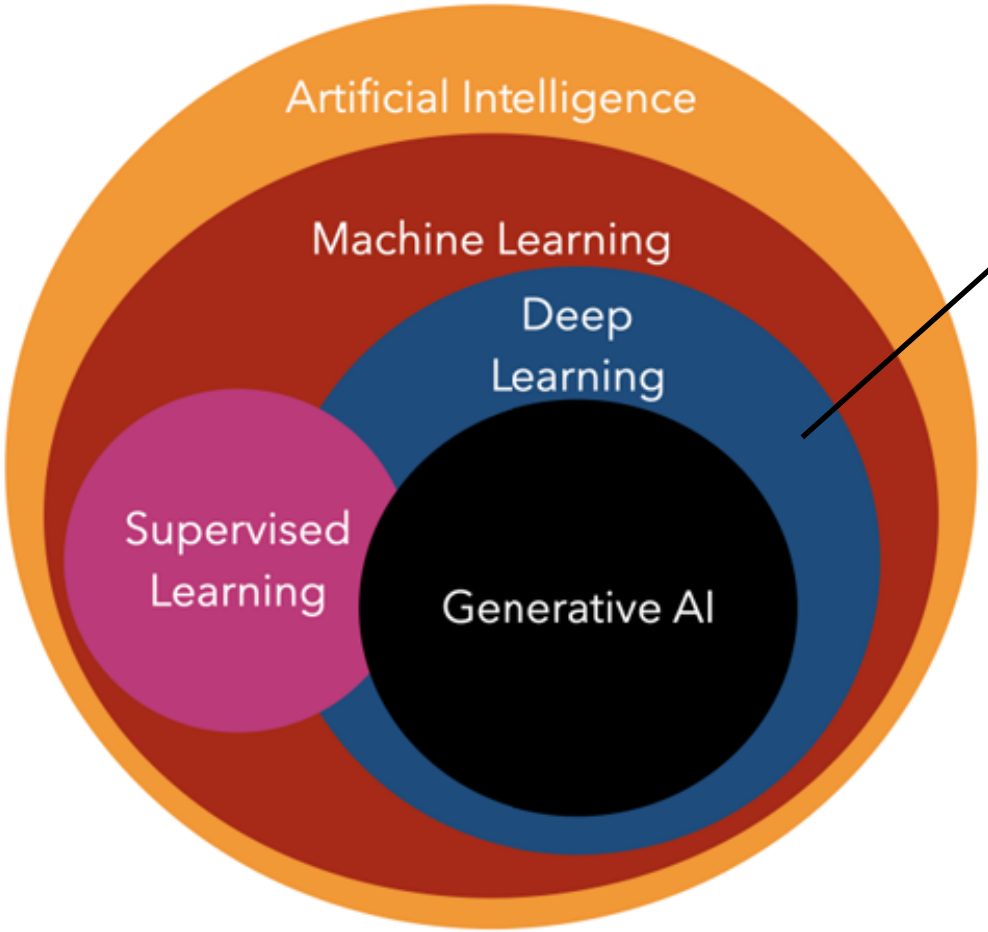

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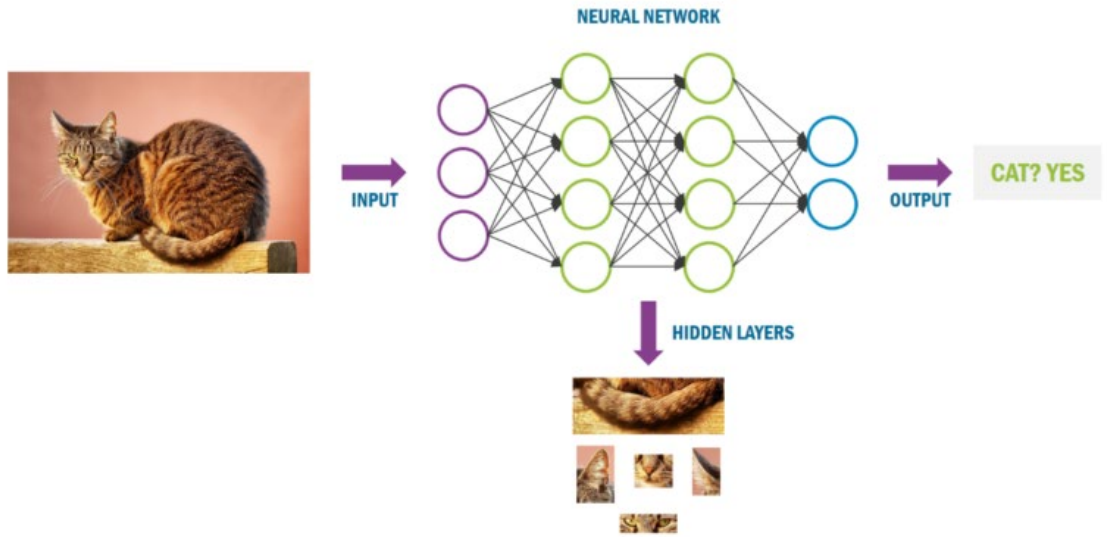
Deep Learning (DL)
A smarter type of Machine Learning that recognizes patterns and learns on its own.

Example: Instead of manually telling a computer what a cat looks like, it learns to recognize Cats on its own, by recognizing patterns and features.



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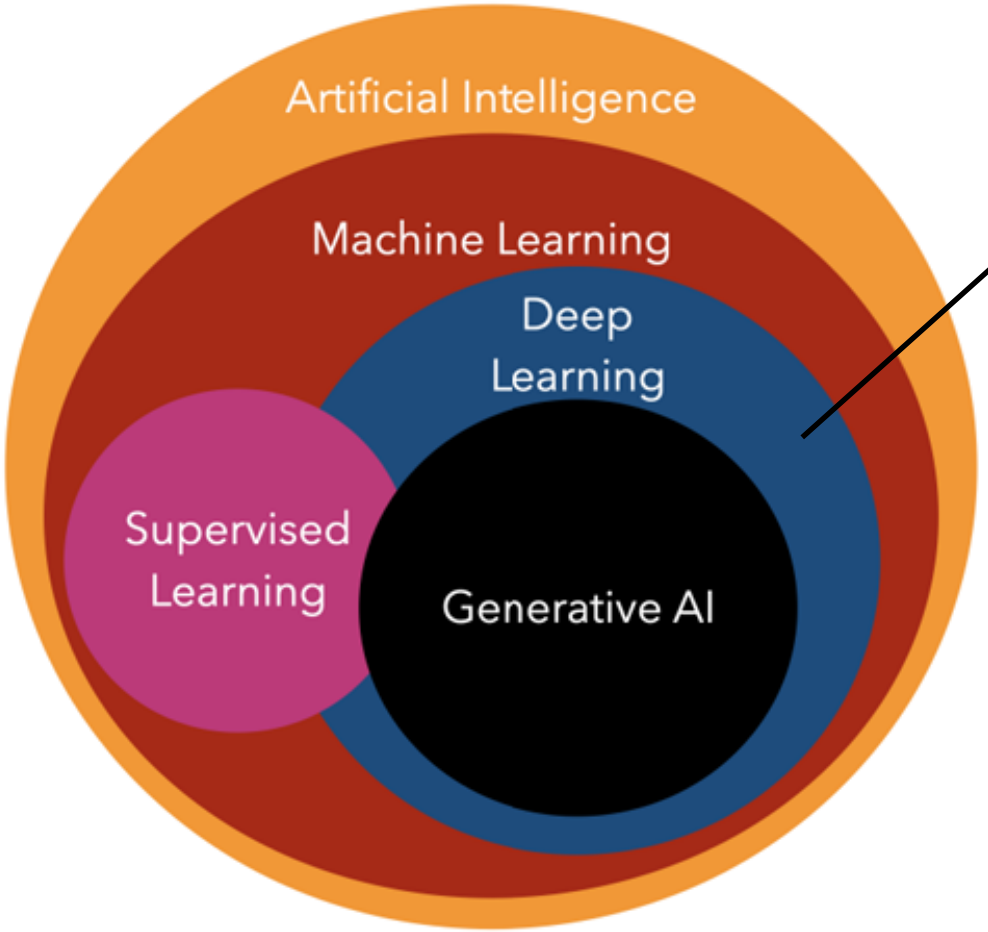

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Generative AI
A type of Deep Learning focused on creating new things.

Example: Instead of just recognizing cats, it can create realistic pictures of cats that do not exist.

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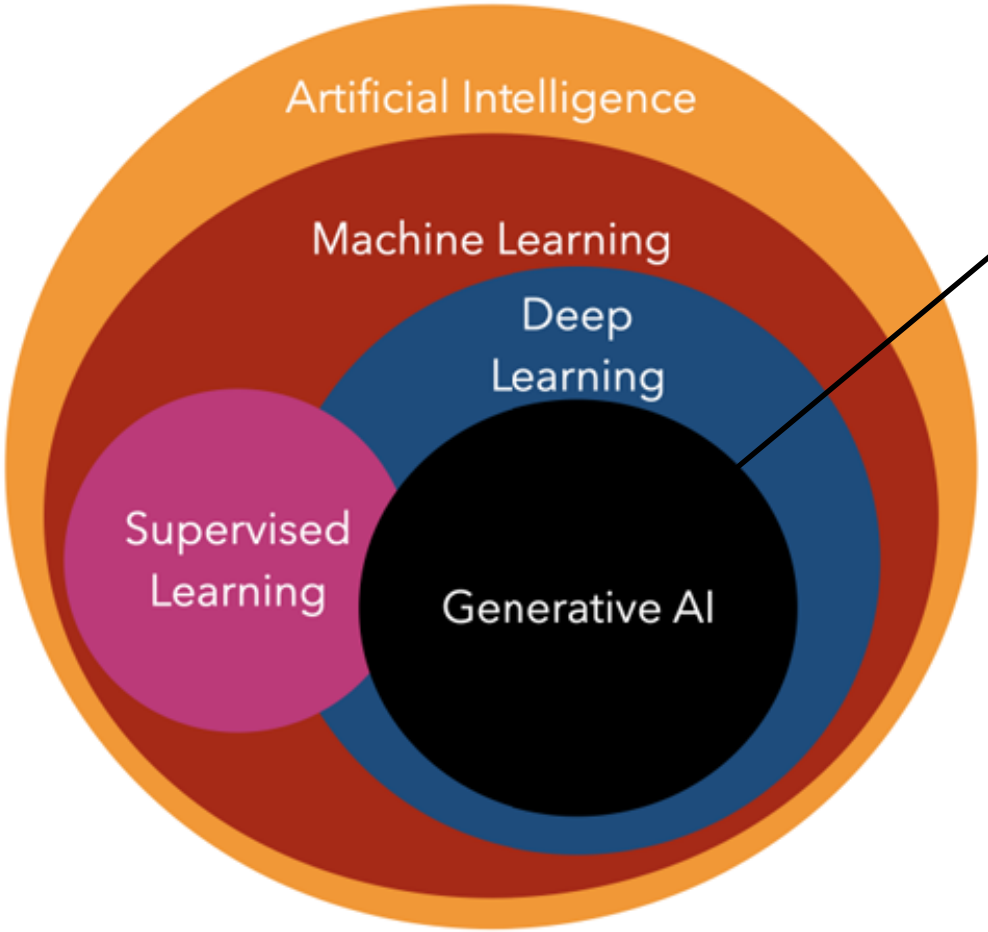

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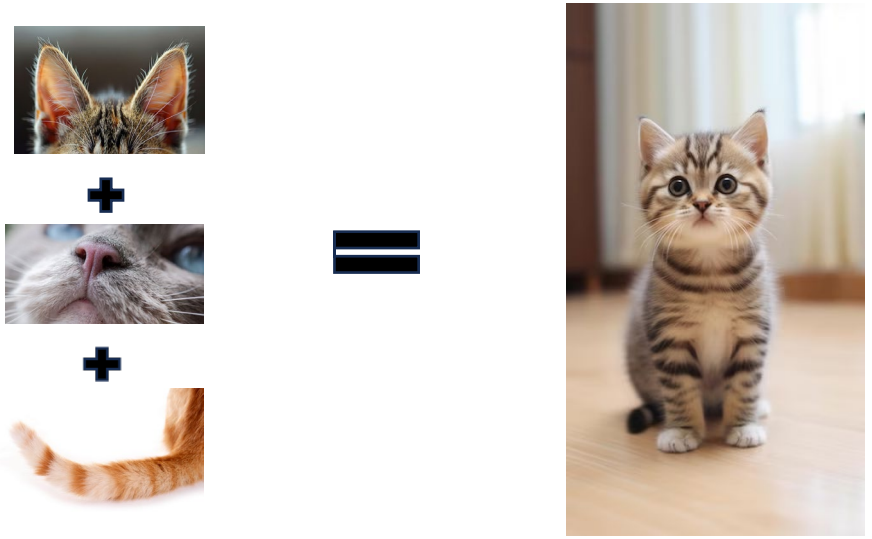

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What is AI?

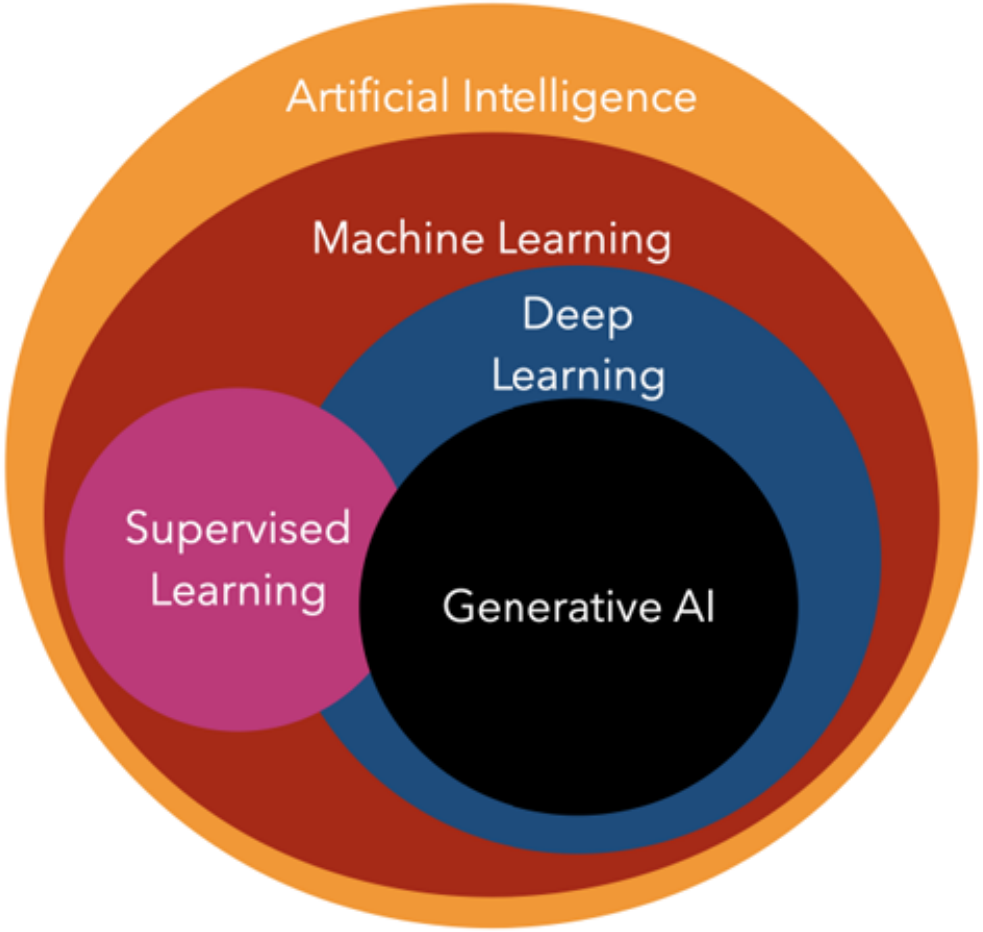
How They Are Related:

Machine Learning (ML) is the big category.

Deep Learning (DL) is a more advanced form of ML.

Supervised Learning (SL) is one way ML models (including DL models) learn.

Generative AI is a type of deep learning that creates new data.



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AI Plan

In 2024, GPFM was briefed on the AI Plan, which included creating guardrails, selecting key products and preparing staff.

1. Governance and Best Practices
2. Applications and Projects
3. Education and Preparation

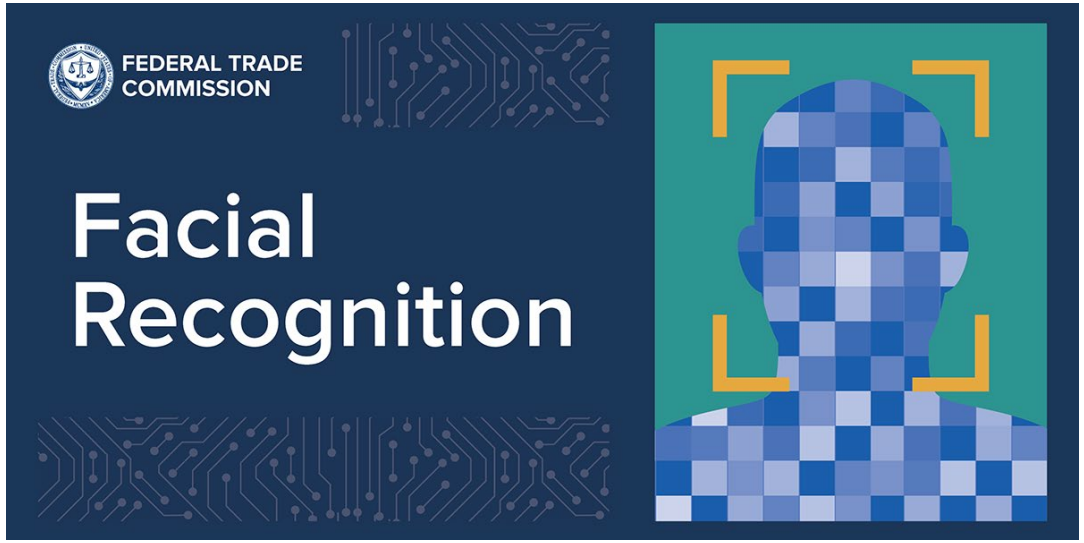
Governance and Best Practices

Risks and Liabilities

Potential risks

- Bad data and flaws in AI Models producing bad outputs
- Malicious human actors
- Bias
  - Lawsuits Rite Aid facial recognition

City maintains responsibility for the output of the model. Accountability is of special concern if resources or benefits are being determined or distributed by an AI model.



Best Practices

Recommendations to Counter Risks

- Keep a Human in the loop
- More Traditional than Generative AI models
- Transparency of methods and models
- Enterprise approach to AI
- Appropriate use cases

AI Plan

Governance and Best Practices

1. Artificial Intelligence Administrative Directive underway
    - Compliance with state and federal law
2. Enterprise approach

AI Governance

As a reminder, these are regulations and toolkits that all City Officials, employees, and contractors agree to follow:

Guiding Document	How it applies
AD 2-24, Computer Security	The employee is responsible for reducing risk or unauthorized access which ensures a secure system.
AD 2-26, Use of City Computer Equip & Software	No software, whether it is licensed or not, shall be installed without permission from ITS.
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AD 2-32, Desktop & Server Hardware Standards	ITS is responsible for the dissemination and approval of hardware for the City of Dallas work.
Enterprise Security Standard	Employee responsibility is to preserve confidentiality, integrity and availability of COD devices.
Security Access Request (SAR) – Computer Security Agreement	Employee agrees to AD's mentioned above and will protect against uses and disclosures not permitted by the Privacy Rule.
City of Dallas Personnel Rules	Sec 34-36. Employees who do not follow ADs could result in formal disciplinary action.
Vendor Fact Finding Sheet	Departments will provide potential prospectors with a Fact-Finding sheet to understand vendor capabilities and responsibilities for Artificial Intelligence. The vendor must complete the form.
Announcement Email	Alerting staff not to download AI on COD devices. Sent on 2/8/2024 & 2/16/2024

AI Governance

Applications and Projects

AI Plan

Applications and Projects

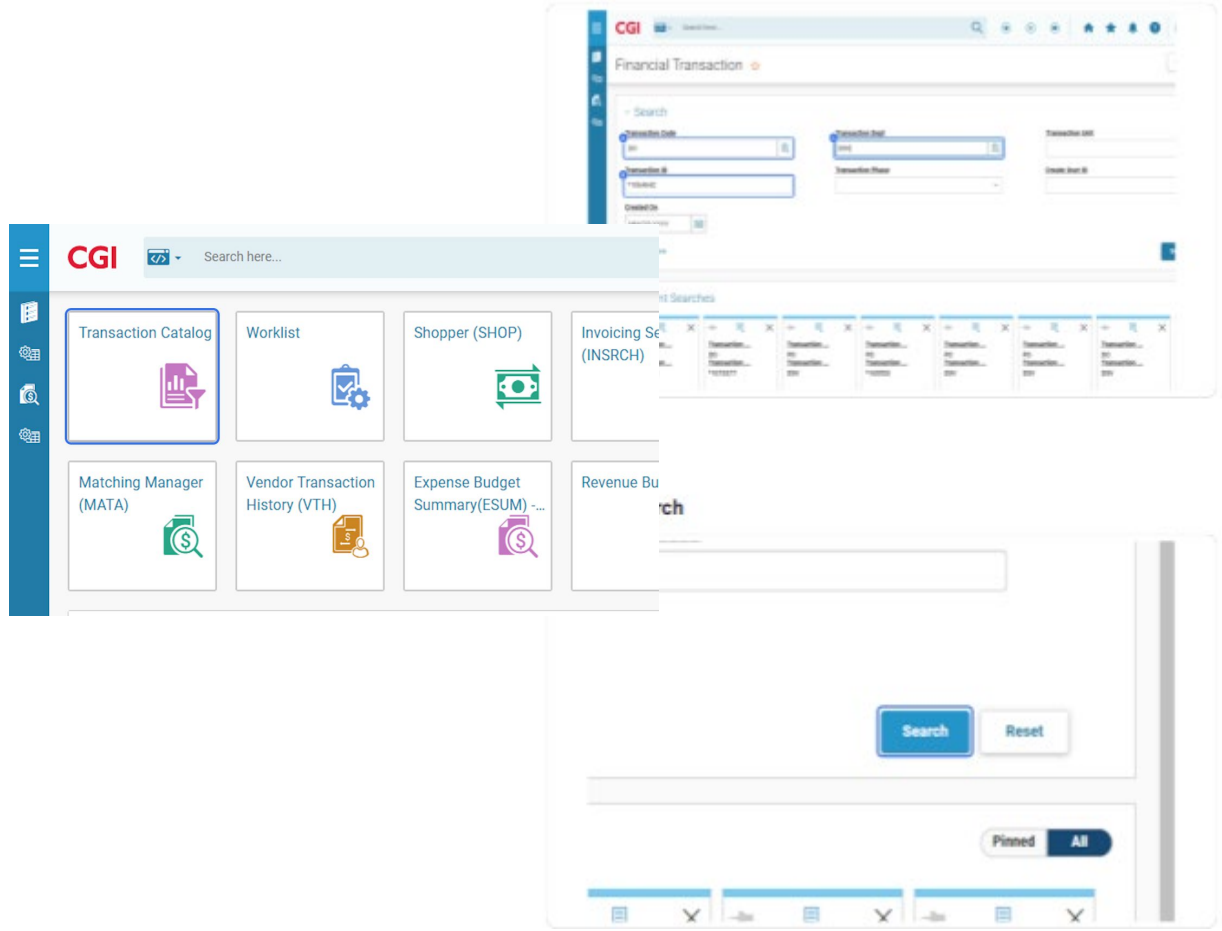
1. ITS infrastructure dedicated to Artificial Intelligence
   - System of testing and verifications
2. Use limited AI in appropriate places
3. Keep the Human in the loop

Enterprise Wide

AI Projects

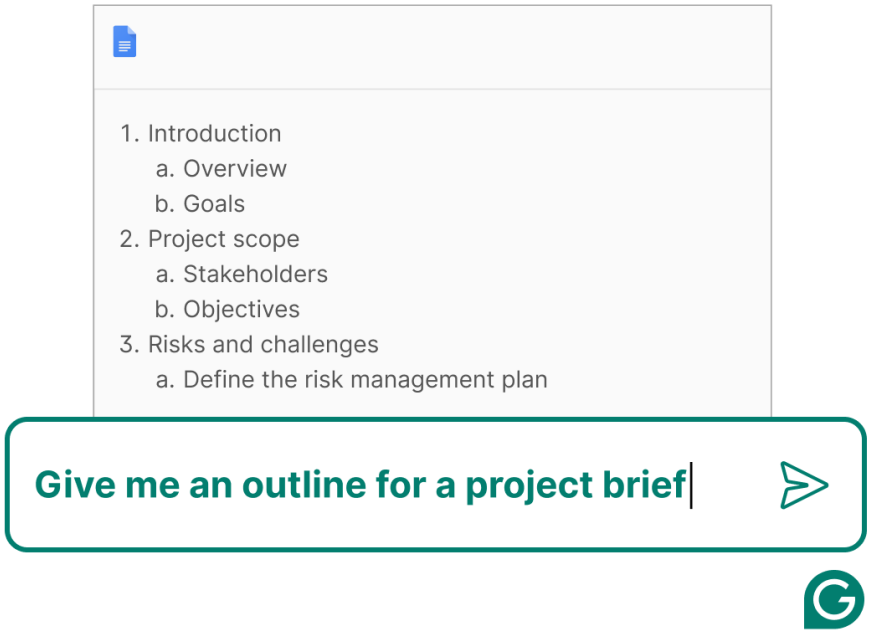
Tango GenAI User Guide Assistant

- Tango reads screen and mouse movements to assist in the creation of user guides, testing and training documentation.
- Currently in use by several departments including Information Technology Services, Planning & Development, City Controller's Office, and the City Auditors Office



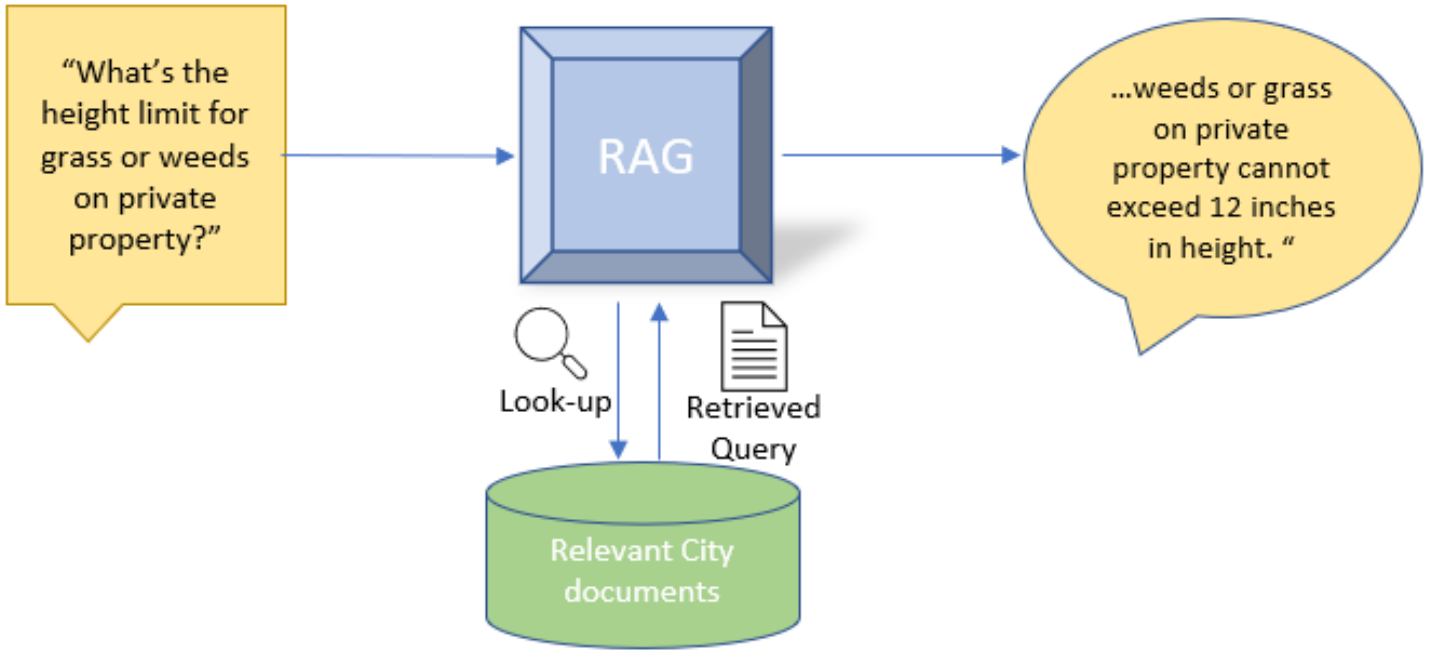
Potential AI Projects

- Citywide use of Grammarly AI Writing Assistant
  - Improve speed and quality of writing with real-time suggestions and edits to boost productivity
  - Helps tailor tone and style



Potential AI Projects

- **Use of AI to source content from city codes and ordinances.**
  - Code Compliance and other departments can use Retrieval-Augmented Generation (RAG) AI to search city codes, reducing need to manually search through large documents.



High Impact Projects

Narrow scope, high impact solutions

AI Projects

Human Trafficking

- Natural Language Processing
- High Risk Human Trafficking Victim Identification Algorithm
- Manual identification of the entire dataset would take about **7.6 years**. The algorithm takes less than one hour.

AI Projects

Fire Risk Models

- Commercial and Single-Family Fire Risk Model
  - Uses traditional AI to determine structure fire-risk scores.
  - Considers historical incidents, building construction details and city demographic data.
  - Helps prioritize inspections and community engagement initiatives.
  - Potential to save property and lives.

Upcoming AI Projects

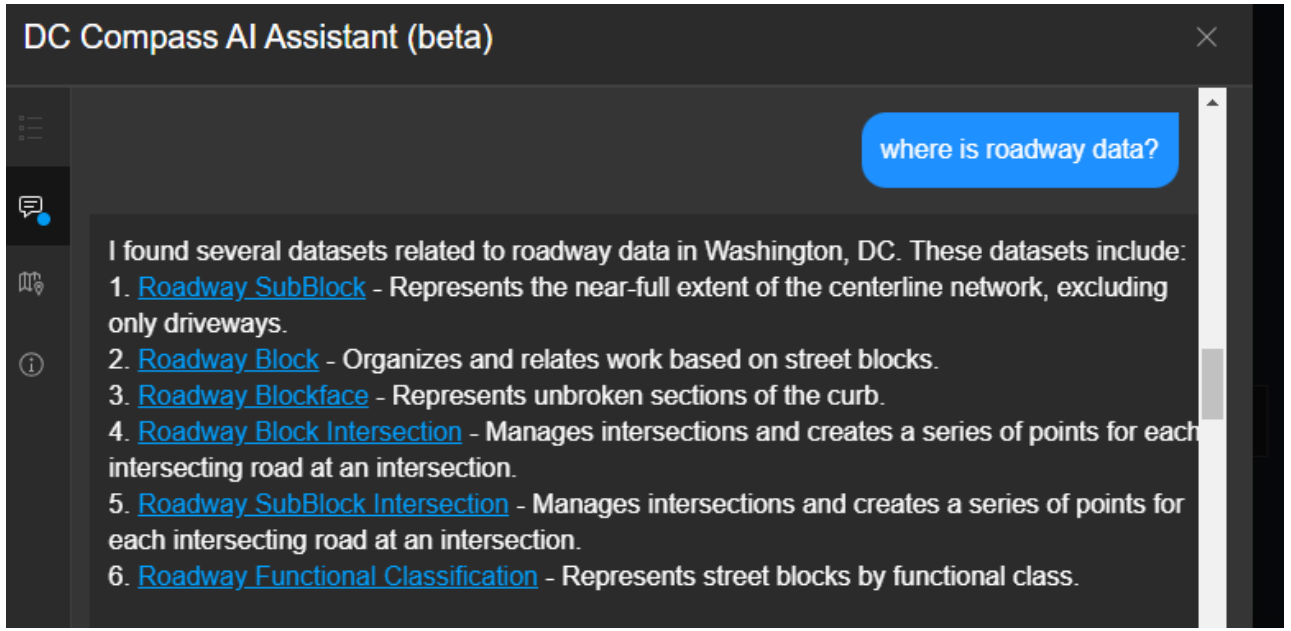
Opioid Spatial Modeling

- This project uses geospatial regression and machine learning, to analyze factors contributing to opioid overdoses.
- By identifying high-risk areas with similar characteristics, the project enables proactive allocation of city resources to combat the opioid epidemic more effectively and potentially save lives.

Upcoming AI Projects

Geospatial AI Chatbot

- Allows for common language search on Dallas' existing public GIS data and content by city staff and residents.



Upcoming AI Projects

Code Compliance

- Using cameras and AI to proactively identify code complaints.
- Improving operational efficiencies and our neighborhoods.

Education and Preparation

AI Plan

Education and Preparation

1. Redouble our commitment to data literacy & data governance
2. Continue to make prioritize process documentation
3. Build AI literacy and skills through a combination of targeted hiring and consulting/professional services
4. Education and Training for City Team Members

Education and Preparation

- **Advanced Data Academy**
  - Clustering Methods and Unsupervised Machine Learning in Python
  - Introduction to Neural Networks
- **Getting Ready for AI**
  - Generative AI
  - Prompt Engineering
- **Dallas Data Day**
  - Presentations and Product Showcases
- **Data Ethics and Data Bias**
  - Identifying Types of Bias in Datasets
  - Mitigate the Risk of Bias
  - Best Practices for Ethical Data Governance and Project Design

Next Steps

- Strengthen and promote AI Governance for responsible implementation.
- Enhance AI literacy to drive smarter, more efficient work.
- Advance key projects and explore new opportunities.
- Optimize efficiency by balancing vendor solutions with internal expertise.
- Establish Dallas as a Model City for AI Innovation.

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