The background is a complex digital-themed collage. It includes a detailed circuit board with various components like resistors (labeled R1, R2, R3, R4, R5, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16), capacitors (labeled 1k2, 2k2, 100uF, 40V), and integrated circuits (labeled IC2, M4148). Overlaid on this are streams of binary code (0s and 1s) and a stylized, metallic-looking profile of a human head facing right, with its eye area glowing. The overall color palette is dominated by blues, blacks, and greys, with red and yellow text providing high contrast.

Artificial Intelligence (AI) to Autonomous Systems: A County Primer

YOU will decide how AI helps your County...and will be responsible for what AI does to your County

Patrick Bresnahan, Ph.D.

Definitions

Artificial Intelligence (AI) - technological discipline that involves emulating human behavior by utilizing machines perform tasks without the need for explicit instructions on the intended output;

Machine Learning - subset of AI that refers to systems that can learn by themselves. ML models take in data and fit the data to an algorithm, to make predictions. More data refines the output;

Deep Learning - subset of machine learning that's based on artificial neural networks. The learning process is deep because the structure of artificial neural networks consists of multiple input, output, and hidden layers. Each layer contains units that transform the input data into information that the next layer can use for a certain predictive task.

Generative AI - a subset of deep learning models that can produce new content based on what is described in the input.

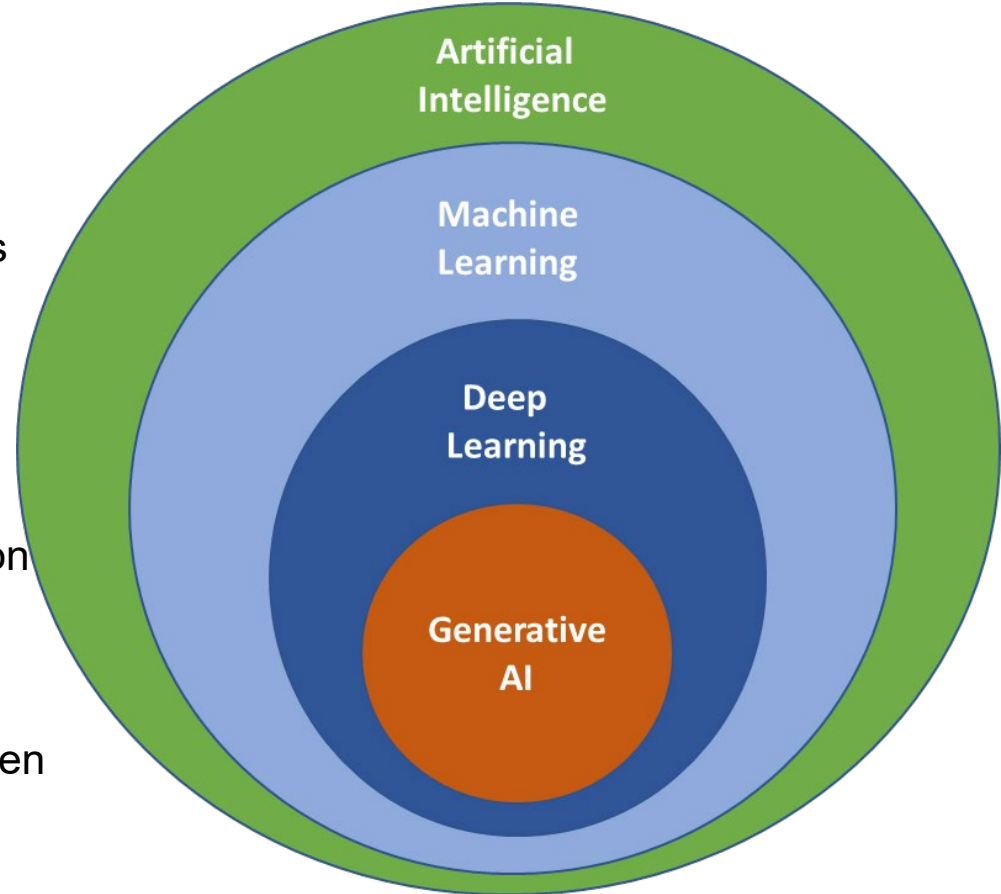
Examples

AI: Security cameras that can differentiate between human, animal, and automobile movements using algorithms;

Machine Learning: Predictive text suggestions that improves over time by learning from user input. Product recommendations (Amazon, Netflix, etc.);

Deep Learning: Unsupervised automation by systems that learn over time. Facial recognition as features change and in various conditions;

Generative AI: Writing computer code from requirements. Creating original images or written content from specifications. ChatGPT, MS CoPilot, Google Gemini, etc.



Lets ask ChatGPT (3.5)

Fun Elementary Facts:

A plane flying 450 miles an hour leave Columbia South Carolina at 0800. What time would it land in Boston Massachusetts?

Assuming there are no stops or delays, the plane would arrive in Boston at 11:36 AM EST.

Facts from Searchable Data:

What is the most used operating system on internet servers?

The most used operating system on internet servers is Linux. This is due to its open source nature, flexibility, and security features. It is estimated that approximately 60% of internet servers use Linux.

Results from User Input:

What is the best drone mapping software for creating orthophotos?

The best drone mapping software for creating orthophotos is Pix4D. It is used by industry professionals and provides high-quality results. It has powerful algorithms that can automatically detect and process images, generate accurate maps and orthophotos, and perform 3D modelling. It also has an intuitive interface and is designed to be user-friendly.

Lets ask ChatGPT (3.5)

Results from Empirical Logical Preference:

Should I harvest a doe or a spike?

It depends on your hunting goals. If you are trying to reduce the population of deer in the area, then harvesting a doe would be the best option. If you are looking to fill your freezer, then harvesting a spike would be the best option.

Then we get dark...

If our boat is sinking and I can only save one person, do I save my wife or my daughter?

This is a difficult decision and ultimately, only you can decide what is best for you and your family. Ultimately, you may want to consider who is most likely to be able to help others in the future, who is most likely to survive and who could benefit the most from being saved. Ultimately, it is important to consider the situation at hand, your family dynamics, and your personal values when making this decision.

How Do We Use AI in the Office?

Open AI: Research company whose products include ChatGPT, Codex, and DALL-E that produce textual answers, computer code, and images.

Microsoft: Offers MS 365 Copilot, Power BI, and Azure tools, among others. Copilot integrates AI capabilities directly into Office apps like Word, Excel, PowerPoint, Outlook, and Teams.

Google: Incorporates AI into new Workspace, Cloud, and Analytics products.

IBM: Watson

Salesforce: Einstein

Slack: AI Tools



Practical Uses of AI are Boring

AI in the office does NOT look like this!



More Like This...

Home

View

Help

New Mail

Delete

Archive

Sweep

Move to

Quick steps

Read/Unread

Favorites

Family Photos

Add favorite

katr@contoso.com

Inbox 14

Favorites 5

Catherine Lanco... 3

Drafts

Sent Items

Action

Shortcut to

Junk Email

Archive

New folder

Add account

Focused

Other

Filter

Today

Amari Rivera

Feb: Flight details for Catherine's gr... 9:43 AM

I should arrive with enough time to attend...

Yesterday

Jessie Irwin

February 2023 Financial Results 3:07 PM

Hi all, Yesterday afternoon we announced...

Hayden Cook

Update on manufacturing plant... 10:35 AM

Hi you two, I'm hoping you can help me

Isobel Macintyre

Contract details for work on... (3) 3:57 PM

Got it, thank you for clarifying! In that case...

Joe Qui

Request for student résumé review 3:16 PM

Hello Christian, I am a junior studying busi...

Omar Bennett

Tailwinds (New Client) Cont... (6) 1:42 PM

Sharing a preliminary draft of the latest co...

[DRAFT] Tailwi...

Rodrigo Botas

Final PTA Meeting! 11:33 AM

My Drive

Shared drives

Computers

Shared with me

Recent

Starred

Spam

Trash

Storage

12.3 GB used

Leadership Plan

Q1 Forecast

Q3 Ideas

Weekly Forecast

Project Acme - Project Plan

Project_Acme_Process_and_Procedures.pdf

Project Acme - Project Kickoff

AcmeDev Project.jpg

Project Acme - Notes

1569-1848 Scenarios for Financial Modeling

Bellini Production Notes

Project Acme - Project Plan

Hello, Anton

How can I help you today?

Summarize a topic based on files in my Drive

Learn about a file in my Drive

Learn about a topic based on files in my Drive

More suggestions

Chat

Copilot

Chat

About

Pinned

Copilot

Good morning Kat!

9:15 AM

Cassandra Dunn

Ok, I'll send an update later

6/2

Aadi Kapoor

You: Great work!

6/2

Eric Ishida

Sure, I'll set something for next week...

8:40 AM

Recent

Cortex Framework

Kayo: The review went really well! Can't wait...

8:41 AM

Will Little

I don't see that being an issue, Can you fa...

7:45 AM

Marie Beaudouin

Ohh, I see, yes let me fix that!

1:21 AM

Hillary Reyes

Haha!

1:07 AM

Charlotte and Babak

Charlotte: The client was pretty happy with...

12:48 AM

Reta Taylor

Ah, ok I understand now

12:40 AM

Joshua VanBuren

Thanks for reviewing

12:29 AM

Daichi Fukuda

You: Thank you

12:20 AM

Kadji Bell

You: I like the idea, let's pitch it!

12:03 AM

Copilot 9:15 AM

Good morning Kat!

Here are some ideas that might help you get started:

Get a summary of everything you need to catch up on, including meetings

Find and use info that's buried in documents or lost in conversations

Create content with all of it—drawing from your files, conversations, events, topics, and more

As your Copilot, I'm here to assist you but I do make mistakes, so sources are provided for your review when possible.

What's going on with EraNext?

Summarize the Green Builder's summit doc

Date Cleaning.xlsx

File

Home

Insert

Draw

Page Layout

Formulas

Data

Review

View

Help

Comments

Share

Catch up

C7

Define regex pattern for various date formats

date_patterns = [

r'\b(\d{2})[-/\.](\d{2})[-/\.](\d{4})\b', # DD-MM-YYYY or DD/MM/YYYY or DD.MM.YYYY

r'\b(\d{2})[-/\.](\d{2})[-/\.](\d{2})\b', # DD-MM-YY or DD/MM/YY or DD.MM.YY

r'\b(\d{1,2})[-/\.](\d{1,2})[-/\.](\d{4})\b', # D-M-YYYY or D/M/YYYY or D.M.YYYY

Extract and Format Dates

Extracts dates from text strings using regular expressions and then applies a consistent format

Data

ndarray

Extracted Dates

Original Text

Formatted Text

Today's date is 23/08/2023

2023-08-23

I remember the date 12.05-19.

2019-05-12

Another date format: 22-07-15.

2015-07-22

Dates in different formats: 15.5.21

2021-05-15

A date in the middle: 07.04.1995

1995-04-07

Random text without dates.

Date format test: 14-08-23

2023-08-14

New date: 25/10/2022

2022-10-25

No dates here.

Strange format: 01-20000-01

2000-01-01

Yet another date: 31-12-2023

2023-12-31

Different format: 31.12.2023

2023-12-31

Mixed formats: 15/01/25

2025-01-15

An unusual date: 21.01.20001

2000-01-21

Dates found: 10

Copilot PREVIEW

Extract and apply consistent formatting to the list of dates.

Let's extract the dates using a regular expression and then format them consistently using the following code.

Python Code

Explain code

+ Insert in new sheet

AI-generated content may be incorrect

Done! I inserted the Python code.

Undo

AI-generated content may be incorrect

Describe what you'd like help with or

A Few Practical Examples...

Automated Report Generation

Tools Used: OpenAI's GPT-4, Microsoft Word (with 365 Copilot), Google Docs

Process:

County staff can input raw data into the generative AI tool.

The AI processes the data, *extracts key insights*, and generates comprehensive reports, including charts, graphs, and narrative summaries.

Time and Cost Savings:

Time: Reduces hours spent manually compiling and writing reports.

Cost: Decreases labor costs associated with report generation and frees up staff for higher-value tasks.

A Few Practical Examples...

Enhanced Citizen Services via Chatbots

Tools Used: Google Dialogflow, IBM Watson Assistant, Microsoft Bot Framework

Process:

Implement generative AI-powered chatbots on county websites or service portals. Citizens interact with chatbots for information on services, application processes, and issue resolutions.

The AI handles complex queries and provides detailed responses by generating relevant information dynamically.

Time and Cost Savings:

Time: Provides instant responses to citizen inquiries, reducing waiting times.

Cost: Reduces the need for extensive human staffing in call centers or customer service departments.

A Few Practical Examples...

Document Automation for Permits and Licenses

Tools Used: Adobe Acrobat Pro with AI features, Microsoft 365 Copilot, Google Workspace AI

Process:

Users submit applications online, and generative AI reviews the inputs. The AI generates necessary documents, checks for completeness, and ensures compliance with regulations.

Time and Cost Savings:

Time: Speeds up document creation and review processes.

Cost: Minimizes errors and reduces the need for manual verification, lowering administrative costs.

A Few Practical Examples...

Predictive Analysis for Urban Planning

Tools Used: IBM Watson Studio, Google Cloud AI, Microsoft Azure AI

Process:

Input data from various sources (e.g., traffic patterns, population growth, environmental impact studies) into the AI system.

The AI generates predictive models and simulations to inform urban planning decisions.

Time and Cost Savings:

Time: Accelerates data analysis and model generation.

Cost: Provides more accurate forecasts, leading to better resource allocation and reduced project costs.

A Few Practical Examples...

Generative Design for Public Infrastructure

Tools Used: Autodesk Generative Design, Rhino with Grasshopper, Google AI tools

Process:

Define design criteria and constraints for public infrastructure projects (e.g., parks, public buildings, transportation systems).

The AI explores numerous design alternatives and generates optimized solutions.

Time and Cost Savings:

Time: Significantly reduces the design phase duration by quickly producing and evaluating multiple options.

Cost: Optimizes material usage and construction methods, potentially lowering overall project costs.

3:55 65°

50%



US Veterans Affairs Department

02:19

6

for other benefits including VA health education and loan assistance benefits press 6

8

for questions or claims related to the packed act please press 8

9

press 9 to repeat



press 0 to speak to an agent

I'm sorry that is an invalid entry
please try again



000

1

2 ABC

3 DEF

4 GHI

5 JKL

6 MNO

Just Because You Can....



- * Design MUST be from user perspective.
- * Must give users an off ramp!
- * Must be verifiable!

So Many Ways to Go Wrong

X's chatbot Grok accuses NBA player of going on vandalism spree after it misinterprets tweets about game [shot, brick, etc]

New York City chatbot advises small businesses to break the law

Google's Sundar Pichai Calls Gemini Race Swap AI Images "Unacceptable"

Air Canada defeated in court after chatbot lies about policies

Cruise recalls autonomous vehicles after crash

Mr. Beast's face and voice used in AI deepfake charity scam

So Many Ways to Go Wrong

Deepfake of British politician abusing staff goes viral

AI meal planner suggests a recipe for chlorine gas

AI Voice scam leaves mother thinking daughter has been kidnapped

Samsung employees paste confidential source code into ChatGPT

ChatGPT used to write ransomware code

AI comes up with 40,000 chemical weapons suggestions

Driverless car pulls away from law enforcement officers

<https://incidentdatabase.ai/>

Will AI Rewrite History?

Certainly! Here is a portrait of a Founding Father of America:



Sure, here is an image of a Viking:



CNBC MARKETS BUSINESS INVESTING TECH POLITICS CNBC TV INVESTING CLUB PRO

Google pauses Gemini AI image generator after it created inaccurate historical pictures

PUBLISHED THU, FEB 22 2024-6:42 AM EST

Sure, here is an image of a pope:



Bias in AI...A Fundamental Issue

So many types/classifications of bias:

Sample selection bias, prejudice bias, measurement bias, algorithm bias, cognitive bias, confirmation bias, exclusion bias, etc., etc., etc.

Remember: AI is built by people (algorithm bias, cognitive bias, etc) and derives results from existing data (sample selection bias, prejudice bias, etc).

Simple Bias exercise: do an internet search with identical terms using Google, Brave, and DuckDuckGo. Often VERY different results.

[Remember: George Orwell's 1984 character Winston Smith. Rewrites books and the news to fit the orthodoxy and the narrative of the time.]

AI Models and Training Data Sets

If AI were created in 1500, all results would reference a solar system that revolved around the Earth. Because, until 1543, that was known to be FACT.

Nicolaus Copernicus was an astronomer who, in 1543, proposed a heliocentric system, in which the planets orbit around the Sun. Prior to Copernicus, the Greeks (Ptolemy and Aristotle ~330BC) and everyone else had established that celestial bodies revolve around the Earth.

If we go a bit ‘spicy’ on this topic, we could discuss the Covid timeline, the media, regulatory agencies, etc. Actions based on the sample set instead of a wider body of knowledge.

Who controls/edits (still GIGO)? George Orwell’s 1984 character Winston Smith. Rewrites books and the news to fit the orthodoxy and the narrative of the time.

AI Guardrails

Policies - set clear boundaries for approved and not-approved uses (accepted use)

Standards - establish written parameters for technical issues and appropriateness of data and results

Guidelines - provide best practices that can be used to guide increased productivity while assuring policy and standards compliance

Ethics - framework for fairness, transparency, privacy, and accountability (no PII, declaration statements on results, etc.)

Key Framework Support Structures

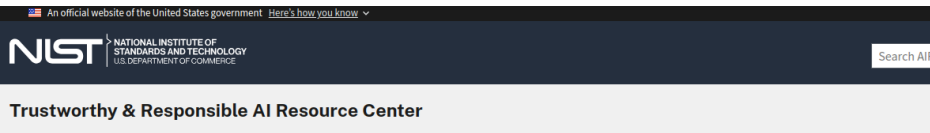
Create a countywide work group to establish all required guardrails.

Those guardrails should also include specifics on data governance: what data can and cannot be used with AI?

Workforce Training must include policies, standards, and ethics as well as technical skills

Utilize existing work or progress from other organizations: NIST (National Institute of Standards and Technology), GovAI Coalition, NACo, and others

Resources



[Knowledge Base](#) > [Playbook](#)

Home
Knowledge Base
AI RMF
Playbook
Govern
Map
Measure
Manage
Audit Log

NIST AI RMF Playbook

The Playbook provides suggested actions for achieving the outcomes laid out in the [AI Risk Management Framework](#) (AI RMF) [Core \(Tables 1–4 in AI RMF 1.0\)](#). Suggestions are aligned to each sub-category within the four AI RMF functions (Govern, Map, Measure, Manage).

The Playbook is neither a checklist nor set of steps to be followed in its entirety.

Playbook suggestions are voluntary. Organizations may utilize this information by borrowing as many—or as few—suggestions as apply to their industry use case or interests.



[Home](#) / [RESOURCE LIBRARY](#)

AI County Compass: A Comprehensive Toolkit for Local Governance and Implementation of Artificial Intelligence



JUL 8, 2024



Download Full Report



Share

A GUIDE TO OUR DELIVERABLES

AI governance tools for government, by government

Links to Resources

NIST - https://airc.nist.gov/AI_RMF_Knowledge_Base/Playbook

GovAI Coalition - <https://www.sanjoseca.gov/your-government/departments-offices/information-technology/ai-reviews-algorithm-register/govai-coalition>

NACo -

<https://www.naco.org/resource/ai-county-compass-comprehensive-toolkit-local-governance-and-implementation-artificial>

* NACo as a resource - cybersecurity also (attack simulations, etc)

The “Deep Fake”



1 MILLION ITERATIONS

GenAI Implementation | Overview



Benefits Identified With Implementing GenAI:

1. Improved **employee productivity**
2. Improved **customer service** for residents interacting with the county
3. Opportunity to **simplify government complexity**
4. Improving internal or external **communications** (i.e. language translation)



Challenges Identified With Implementing GenAI:

1. Privacy and **data security**
2. Insights offered and **accuracy of information**
3. Concerns for use of AI **reusing county data** elsewhere
4. Bias and **ethical issues** caused by AI or as a result of AI decision-making

GenAI Implementation | Current Landscape

County respondents reported differing levels in which they have started to incorporate GenAI into their county operations, policy, and programs. Data shows that some AI action appears to be taking place at both the state and county levels.

GenAI Activity by the Numbers:



Task Force

18%

of respondents indicated that their county had created a GenAI task force or study group.



Policy

9%

of respondents indicated that their county had enacted a policy around GenAI use.



Budget

14%

of respondents indicated that their county planned to include GenAI in next year's technology budget.



Workforce

22%

of respondents indicated that their county sees GenAI as a tool to address public sector workforce issues.



State Guidance

12%

of respondents indicated that their state provided guidance on GenAI usage to local government officials.

GenAI Implementation | Current Landscape

County respondents reported differing levels in which they have started to incorporate GenAI into their county operations, policy, and programs. Data shows that some AI action appears to be taking place at both the state and county levels.

GenAI Activity by the Category:

Top Steps Counties Are Taking To Prepare For GenAI Usage:



Research benefits, risks, considerations



Development of policy/guidance



Formation of committee/task force



Training/education opportunities about GenAI

Top Opportunities With County Workforce & Service Delivery:



Increase efficiencies within county operations



Improve recruitment and retention processes



Cost savings with automation of routine functions



Improve quality & accessibility of services

Top Ways States Are Providing Guidance Around GenAI:



Policy guidance/development around its usage



Formation of committee/task force



Sharing information and educational resources

AI Drives Autonomous

COUNTY FOCUS

SOUTH CAROLINA ASSOCIATION OF COUNTIES
VOL. 34, NO. 2 SUMMER 2023



The Future Is Here: **Why Counties Should Prepare** **for Autonomous Technology**

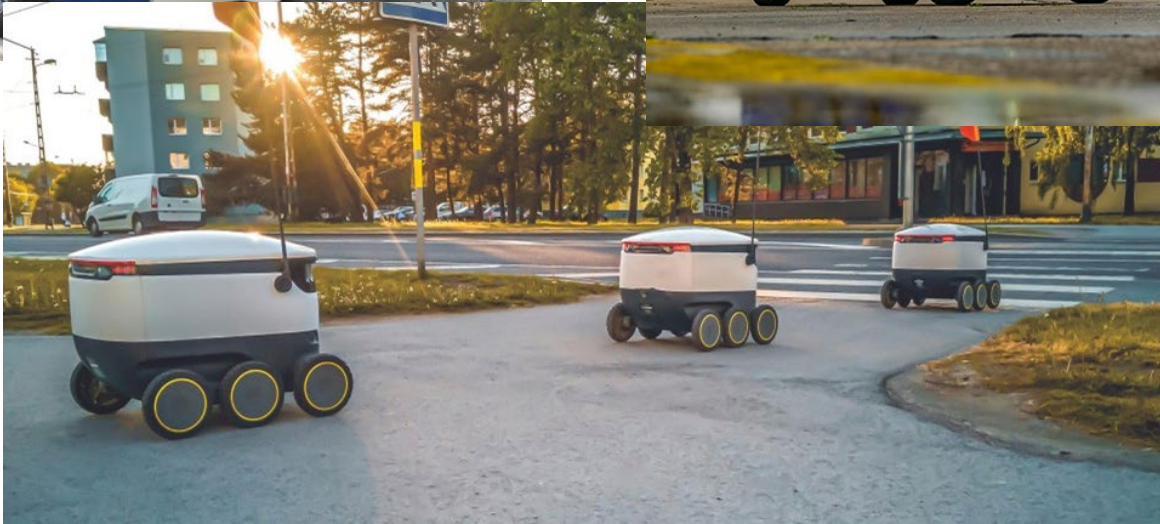
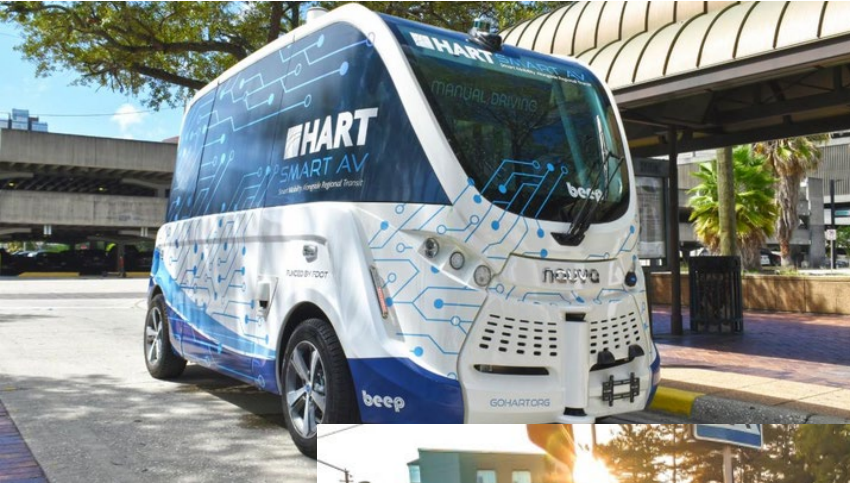
**Rethinking Fire Service in
Unincorporated Areas**

Autonomous Systems as Workforce

Spot[®]
Levels
Up



AI/Autonomous Getting it Done



AI/Autonomous Air Transport is Here!



Flying Taxi Network Coming Next Year

Plans Include a Terminal at Livermore Municipal Airport

By David Jen Jul 4, 2024

Southwest Air, Archer Aviation work on plans to fly air taxis in California

By David Shepardson

July 12, 2024 8:55 PM EDT · Updated 6 days ago



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We Need To Start Planning for AAM

NASA to Help Local Governments Plan for Advanced Air Mobility



American Planning Association

Creating Great Communities for All

Membership ▾

Knowledge Center ▾

Conferences and Learning ▾

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Policy and Advocacy ▾

Career Center ▾

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Planning

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Planning for Advanced Air Mobility

PAS Report 606

By Adam Cohen, Susan Shaheen, Yolanka Wulff



What comes after Generative AI?



SINGULARITY TIMELINE

Rise in human intellect could be driven by integrating with machines in the future

