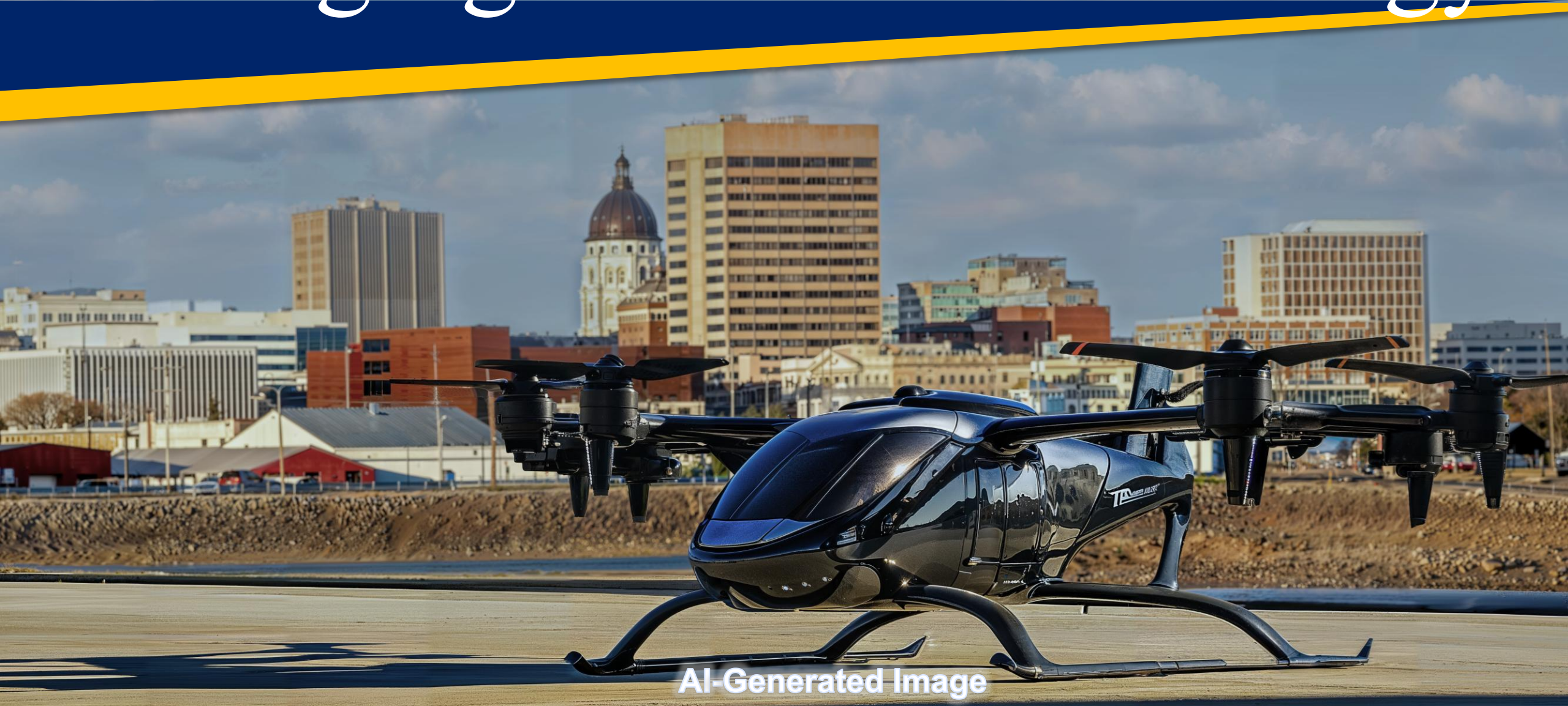


# Emerging Aviation Technology



AI-Generated Image

# Kansas Opportunities

- Agriculture development
- Essential Air Service and Air Ambulance Opportunities
- Medical and high value cargo delivery opportunities
- R&D Opportunities
- Public Safety Support
- Battlefield leveraging emerging aviation technology and automation
- NDAA/FCC/FHWA/FAA ban on drones from countries of concern creating opportunities
- TAG Point Defense Battle Lab efforts to test and develop cUAS
- Recent Presidential EOs on drones and eVTOLS

# Drones Small and Large

## Unmanned Aircraft Systems Categorization Chart

| Category | Maximum Gross Takeoff Weight (Lbs.) | Normal Operating Altitude (ft) | Speed (KIAS) |
|----------|-------------------------------------|--------------------------------|--------------|
|----------|-------------------------------------|--------------------------------|--------------|

|         |       |             |         |
|---------|-------|-------------|---------|
| Group 1 | 0-20  | <1200 AGL   | 100 KTS |
| Group 2 | 21-55 | <3500 AGL   | <250    |
| Group 3 | <1320 | <18,000 MSL | <250    |
| Group 4 | >1320 |             | Any     |
| Group 5 | >1320 | >18,000 MSL | Any     |

### Legend

|      |                          |
|------|--------------------------|
| Ft   | Feet                     |
| AGL  | Above ground level       |
| MSL  | Mean Sea Level           |
| Lbs. | Pounds                   |
| KTS  | Knots                    |
| KIAS | Knots indicated airspeed |



# Advanced Air Mobility

Advanced Air Mobility (AAM), Regional Air Mobility (RAM), Urban Air Mobility (UAM)

- ➔ New aircraft capable of enhancing multimodal connectivity
- ➔ Typically, electric or hybrid
- ➔ Reduced noise
- ➔ Incorporate automation
- ➔ May be conventional take off and landing (CTOL), short take off and landing (STOL), or vertical takeoff and landing (eVTOL)



Beta



Joby



Textron Nuuva

# AAM, A New Form of Mobility

## SURFACE

### MICROMOBILITY



Walking,  
Scooters, eBikes

Eco-friendly  
Convenient  
Alleviates congestion

### GROUND VEHICLES



Cars,  
Buses, Taxis

Range versatility  
Destination versatility  
Weatherproof

### RAIL



Trains,  
Metro

High capacity  
Energy efficient  
Avoids traffic

## MARITIME

### MARITIME



Ferry,  
Cargo Ship,  
Cruise Ship

High capacity  
Economical  
Avoids traffic

## AIR

### AAM



Drones,  
Electric/Hybrid  
Aviation

Fast and quiet  
Low emissions  
New markets

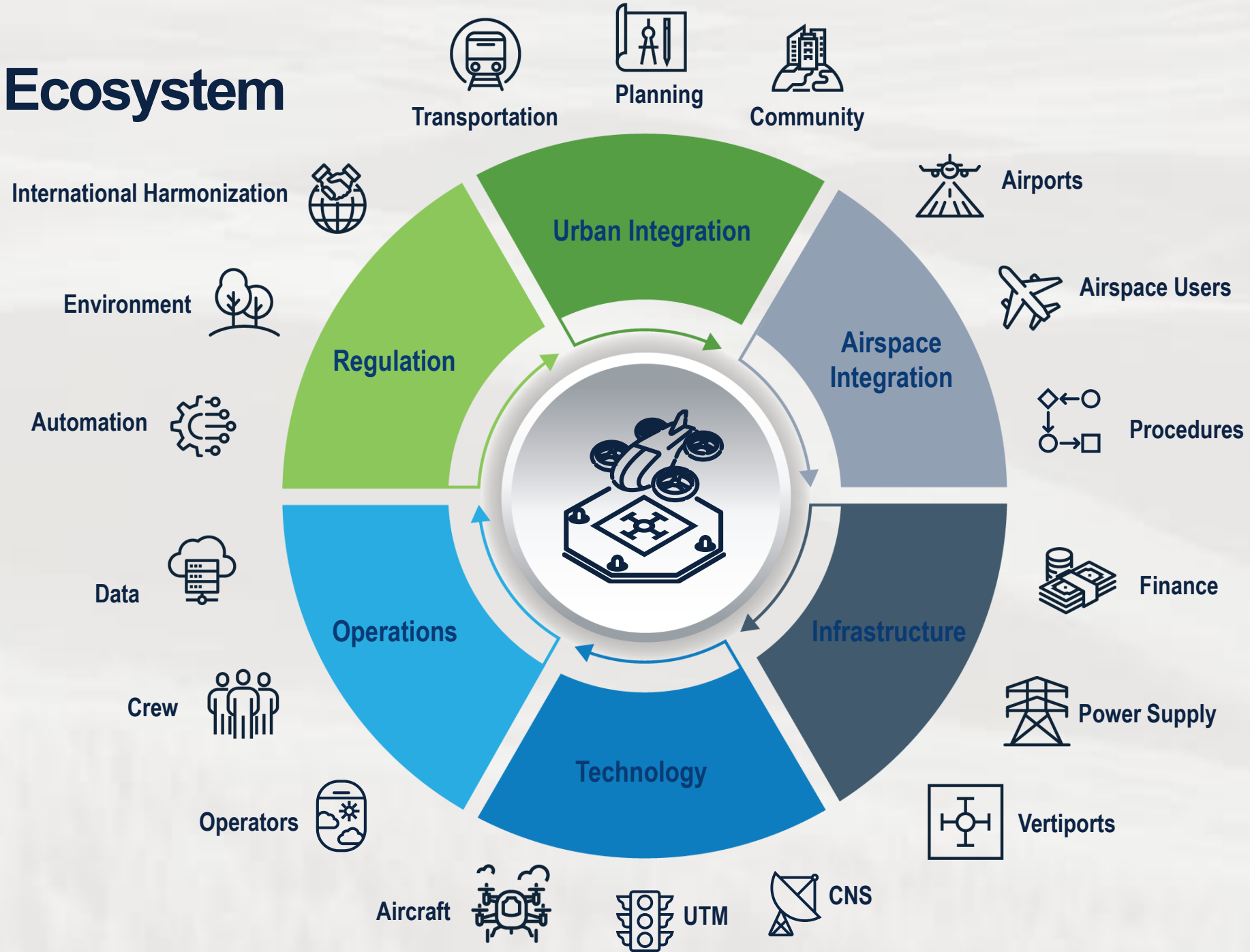
### CONVENTIONAL AVIATION



Conventional  
Aircraft

Long distance  
Fast  
High capacity

# AAM Ecosystem



# Enabling Infrastructure

➔ Salina Test Site  
(Airport Authority/KSU with AK Agreement)

➔ Kelly Hills Test Range (Agreement with AK)  
➔ 49,000 sq miles over 4 states

➔ NIAR WERX flight test capabilities

➔ Airports and Vertiports



## eVTOL Restrained Flight Test Facility

eVTOL  
RESTRAINED  
FLIGHT TEST  
FACILITY

NIAR  
WICHITA STATE UNIVERSITY



NIAR adds test capability for electric aircraft | Wichita State News

The facility features a 28-by-14-foot elevated test rig and a 20-by-20-foot ground level test rig with six-axis load cells, data acquisition systems and real-time data monitoring capabilities via a mission control room, allowing eVTOL manufacturers to evaluate vehicle system and aerodynamic performance.

Hover Ramp  
Progress

NIAR  
WICHITA STATE UNIVERSITY



## Flight Test Capabilities

### Operations

- Base of Operations adjacent McConnell AFB
  - Mission Control & Telemetry
  - Instrumentation Lab
  - MRO and Hangars
  - Parallel Runways 12,000 x 150
- Offsite Operations
  - Salina Regional Airport 12,300 x 150
  - Mobile Telemetry Trailer

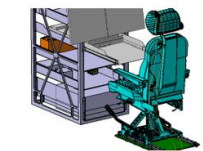
### Technical Capabilities

- Test Requirements Identification
- Test Planning & Vehicle Outfitting
  - Risk Assessment and Safety Reviews
  - Test Readiness and Execution
- Test & Evaluation  
Test Reporting



### Mission Control & Telemetry System

- 18 Seat Mission Control Room
- IADS Real Time Data Monitoring System
- TM System



# Enabling Technology

- Detect And Avoid Systems (DAA)
  - Ground based radar and systems to enable BVLOS Operations
- Unmanned Traffic Management (UTM) system
- Communications
- Airport/Vertiport Electrification
- cUAS – Counter UAS- Detect, Track, Identify, and in the future, Neutralize



Oklahoma Vigilant Flight Horizon System

# Emerging Aviation Technology Considerations

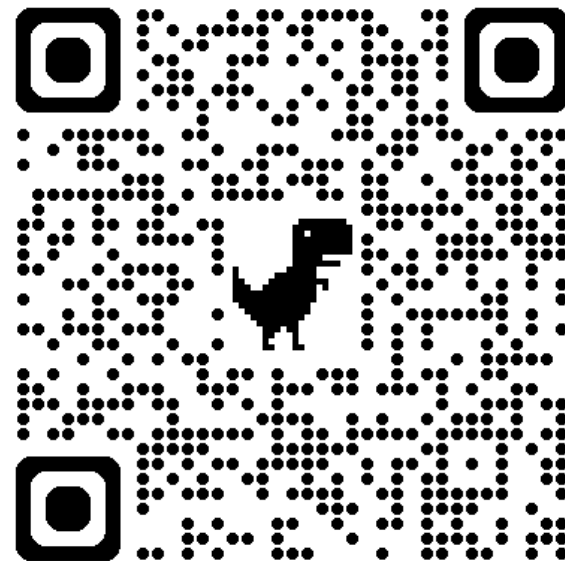
AAM planning for the future (state level ecosystem with stakeholder collaboration)

- Electrification and infrastructure improvements to enable R&D, testing, operations
  - Physical and digital infrastructure, on and off airport development
  - Filling communications, surveillance, and traffic management gaps
- Community engagement
- Manufacturing and support services collaboration, facilitation, and development
- Workforce development
- Education and Outreach
- Aviation Advisory Committee
- Statewide Emerging Aviation Technology working group

# Navigating the Roadmap

- Part 1- Kansas Aviation History and AAM Foundation
- Part 2- AAM Strategic Alignment, Stakeholder Efforts, Use Case Overview
- Part 3- Market Analysis and Economic Impact Study, Use Case Analysis,  
Enabling KS Potential
- Part 4- AAM Roadmap

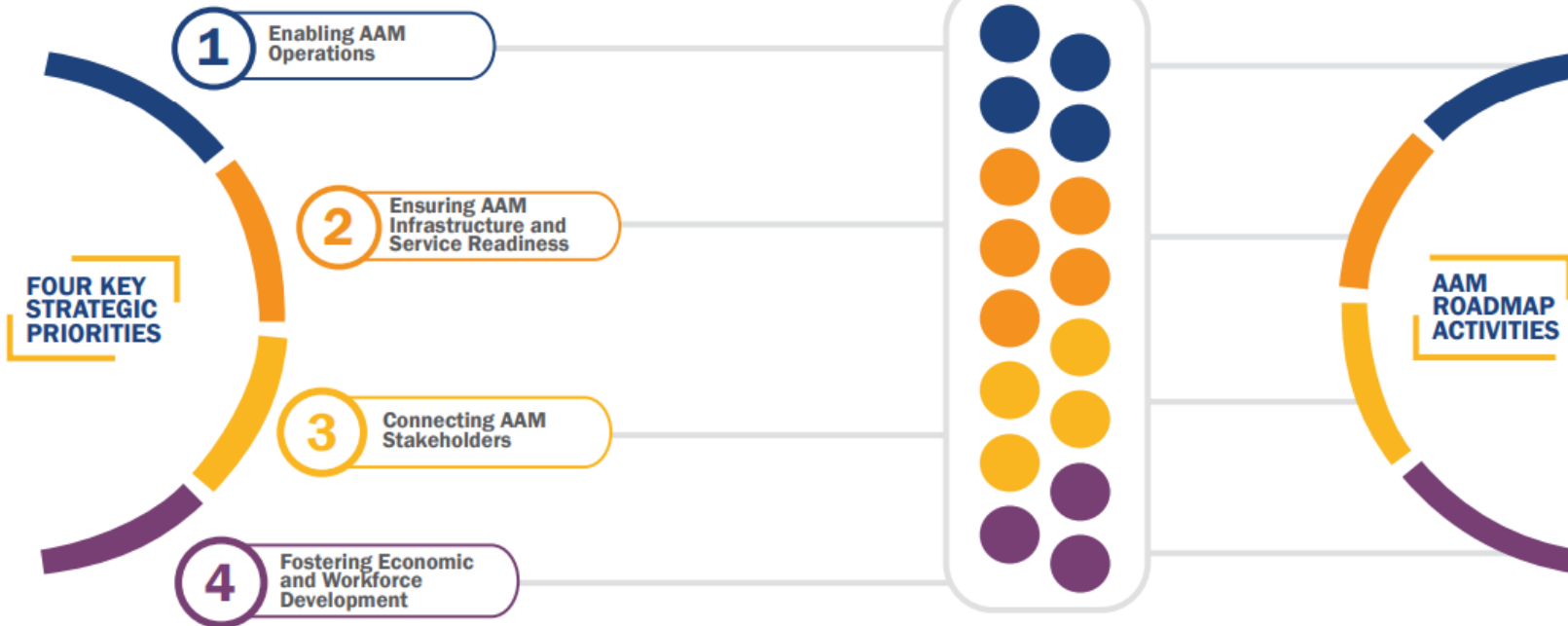
<https://aviation.ks.gov/AAM.html>



# Navigating the Roadmap- Strategic Evolution

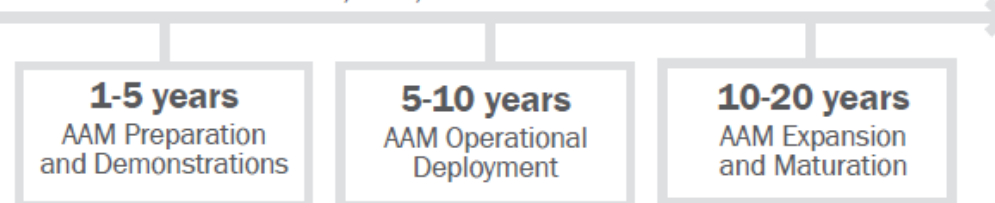
PART TWO: KANSAS AAM STRATEGY

There are four key strategic priorities for Kansas:



Strategic Priorities are to be implemented along three stages phased across NEAR, MID, and LONG-TERM outlooks.

STRATEGIC EVOLUTION



# Part 4- Enabling Activities by Role

## OBJECTIVE 1: ESTABLISH OPERATIONAL EVALUATIONS AND TESTING SYSTEM

Kansas can advance AAM technologies by leveraging FAA-approved test sites and securing access to flight test ranges statewide. A unified approach should prioritize authority for crewed and unmanned eVTOL aircraft and large unmanned systems. With expertise in controlled flight testing, safety assessments, and operational procedures, Kansas is well-positioned to address key integration challenges, including certification, BVLOS operations, autonomy, and digital infrastructure. High-profile flight demonstrations can showcase AAM's potential, attracting public interest, industry investment, and solidifying Kansas's leadership in AAM innovation.

### Activity 1: Create a Kansas AAM Innovation Portal

Create a centralized resource that catalogs testing sites, their information, and capabilities.

Kansas offers a wide range of advanced facilities for AAM aircraft testing and certification. This effort focuses on cataloging all available capabilities, connecting providers, and simplifying access for aircraft developers and digital service providers to plan their testing and certification processes within the state. To support this, test site information, accessibility, and contacts should be centralized and made available through a public-facing portal or website.

Kansas hosts several FAA-approved UAS test sites with varying authorizations for BVLOS operations. Sites like K-State Salina Applied Aviation Research Center focus on small UAS, while others, such as the Kelly Hills UAS Test Site, support larger UAS for applications like precision agriculture. As UAS technology advances, Kansas will need to expand test site capabilities or establish new ones with additional resources, assets, and infrastructure.

Currently, test sites operate under a fragmented system of waivers and authorizations, each with unique restrictions and provisions, and there is no centralized resource for vendors or manufacturers to access information about Kansas's capabilities, infrastructure, or assets. This activity aims to create a comprehensive inventory of test sites, connect providers, and streamline access for UAS operators to match their testing needs with the most suitable Kansas test site. Efforts should focus on improving accessibility, sharing capabilities, and enhancing collaboration to support AAM certification, airworthiness, and operations.

### Activity 2: Enable Flight Demonstrations

Support planning and infrastructure for AAM flight demonstrations.

Flight demonstrations allow aircraft manufacturers, industry stakeholders, policymakers, and the public to see the capabilities of piloted eVTOL aircraft and large UAS in a controlled environment. These demonstrations not only engage the public but also provide valuable data for developers and regulators on performance, safety, airspace integration, and community impact. Kansas should collaborate with stakeholders to support and invest in targeted OEM demonstration opportunities, ensuring their success.

## OBJECTIVE 2: EMPOWERED KANSAS USE CASES

Adopting AAM in Kansas requires identifying how these technologies can address state-specific challenges and opportunities while supporting industry business cases. By collaborating with Kansas stakeholders like airport authorities, logistics operators, and air ambulance services, the State can develop strategies to integrate AAM into key sectors, ensuring solutions meet state needs, drive innovation, improve connectivity, and enhance community quality of life.

### Activity 1: Improve Air Medical Operations with AAM

Develop a strategy to deploy AAM technology for medical transport.

Kansas can use AAM aircraft to enhance EMS response and inter-hospital transfers via air taxis. Collaborating with air ambulance providers and initiatives like Drive to Zero, the state can assess the feasibility and benefits of AAM for air ambulance services. Grants such as Safe Streets and Roads for All could fund air ambulance demonstrations with OEM AAM operators. Kansas should also engage providers and OEMs to align AAM implementation with Key Performance Indicators in the Long-Range Transportation Plan. This includes rethinking infrastructure, such as vertiports and hospital helipads, to expand AAM operations.

| PRIORITY: Enabling AAM Operations  | TIMELINE   |          |           | Lead Stakeholder Group |
|--|--|----------|-----------|------------------------|
|  | Near-Term  | Mid-Term | Long-Term |                        |
| <b>OBJECTIVE 1: ESTABLISH OPERATIONAL EVALUATIONS AND TESTING SYSTEM</b> |  |          |           |                        |
| 1-1  | Activity 1: Create a Kansas AAM Innovation Portal                |          |           | Government             |
| 1-2  | Activity 2: Enable Flight Demonstrations                         |          |           | Airports               |
| <b>OBJECTIVE 2: EMPOWER KANSAS USE CASES</b>                             |  |          |           |                        |
| 2-1  | Activity 1: Improve Air Medical Operations with AAM              |          |           | Industry               |
| 2-2  | Activity 2: Invest in Precision Agriculture Operational Enablers |          |           | Industry               |
| 2-3  | Activity 3: Improve Air Cargo Operations                         |          |           | Industry               |
| 2-4  | Activity 4: Enhance Emergency Response with AAM                  |          |           | Government             |
| 2-5  | Activity 5: Boost Passenger Air Mobility                         |          |           | Airports               |
| <b>OBJECTIVE 3: INCORPORATE AAM IN KANSAS STRATEGY</b>                   |  |          |           |                        |
| 3-1  | Activity 1: Integrate AAM into Transportation Plans              |          |           | Government             |
| 3-2  | Activity 2: Integrate AAM into Other Kansas Strategic Plans      |          |           | Government             |
| <b>OBJECTIVE 4: EFFICIENT AND EFFECTIVE GOVERNANCE</b>                   |  |          |           |                        |
| 4-1  | Activity 1: Encourage Innovation and Investment through Policy   |          |           | Government             |
| 4-2  | Activity 2: Create an AAM Advisory Council                       |          |           | Government             |
| 4-3  | Activity 3: Establish Formal State AAM Leader                    |          |           | Government             |



## **Enabling AAM Operations**

Objective 1: Establish Operational Evaluations and Testing System

Objective 2: Empower Kansas Use Cases

Objective 3: Incorporate AAM in Kansas Strategy

Objective 4: Establish Efficient and Effective Governance



## **Ensuring AAM Infrastructure and Services Readiness**

Objective 1: Develop Vertiports and Supporting Infrastructure

Objective 2: Determine Enhanced Infrastructure and Services

Objective 3: Establish Service Providers



## **Connecting AAM Stakeholders**

Objective 1: Convene Communities

Objective 2: Connect Industry

Objective 3: Enable Airports



## **AAM Economic and Workforce Development**

Objective 1: Demonstrate AAM Job Growth

Objective 2: Prepare an AAM Ready Workforce

Objective 3: Cultivate AAM Interest



## Enabling AAM Operations

Objective 1: Establish Operational Evaluations and Testing System

Objective 2: Empower Kansas Use Cases

Objective 3: Incorporate AAM in Kansas Strategy

Objective 4: Establish Efficient and Effective Governance

### **Objective 1: Establish Operational Evaluations and Testing System**

Activity 1: Create a Kansas AAM Innovation Portal

Activity 2: Enable Flight Demonstrations

### **Objective 2: Empower Kansas Use Cases**

Activity 1: Improve Air Medical Operations with AAM

Activity 2: Invest in Precision Agriculture Operational Enablers

Activity 3: Improve Air Cargo Operations

Activity 4: Enhance Emergency Management with AAM

Activity 5: Boost Passenger Air Mobility

### **Objective 3: Incorporate AAM in Kansas Strategy**

Activity 1: Integrate AAM into Transportation Plans

Activity 2: Integrate AAM into Other Kansas Strategic Plans

### **Objective 4: Establish Efficient and Effective Governance**

Activity 1: Encourage Innovation and Investment through Policy

Activity 2: Create an AAM Advisory Council

Activity 3: Establish Formal State AAM Leader

# Enabling AAM Operations

## **Objective 1: Establish Operational Evaluations and Testing System**

### **Activity 1: Create a Kansas AAM Innovation Portal**

*Create a centralized resource that catalogs AAM test sites, labs, and capabilities.*

### **Activity 2: Enable Flight Demonstrations**

*Support planning and infrastructure for AAM flight demonstrations.*

## **Objective 2: Empower Kansas Use Cases**

### **Activity 1: Improve Air Medical Operations with AAM**

*Develop a strategy to deploy AAM technology for medical transport.*

### **Activity 2: Invest in Precision Agriculture Operational Enablers**

*Position Kansas as a leader in advancing large UAS for precision farming.*

### **Activity 3: Improve Air Cargo Operations**

*Develop a strategy to enhance cargo distribution operations with AAM.*

### **Activity 4: Enhance Emergency Management with AAM**

*Develop a strategy to integrate AAM into Kansas emergency management services.*

### **Activity 5: Boost Passenger Air Mobility**

*Develop a strategy to improve passenger access to air mobility.*

# Enabling AAM Operations

## **Objective 3: Incorporate AAM in Kansas Strategy**

### **Activity 1: Integrate AAM into Transportation Plans**

*Include AAM in long-term transportation plans and strategies at state, regional, and local levels.*

### **Activity 2: Integrate AAM into Other Kansas Strategic Plans**

*Integrate AAM Across Kansas Strategic Plans: Aligning Workstreams, Priorities, and Objectives*

## **Objective 4: Establish Efficient and Effective Governance**

### **Activity 1: Encourage Innovation and Investment through Policy**

*Incentivize innovation through policy aligned with the priorities in the AAM roadmap.*

### **Activity 2: Create an AAM Advisory Council**

*Establish a formal steering group to unite state and private partners for effective AAM progress.*

### **Activity 3: Establish Formal State AAM Leader**

*Create a dedicated leadership role or office to oversee AAM development.*



## Ensuring AAM Infrastructure and Services Readiness

Objective 1: Develop  
Vertiports and Supporting  
Infrastructure

Objective 2: Determine  
Enhanced Infrastructure  
and Services

Objective 3: Establish  
Service Providers

### **Objective 1: Develop Vertiports and Supporting Infrastructure**

Activity 1: Define Best Practices for AAM Infrastructure

Activity 2: Assess Financial Assistance Programs

Activity 3: Perform Initial Feasibility Studies

### **Objective 2: Determine Enhanced Infrastructure and Services**

Activity 1: Identify Surveillance Requirements and Gaps

Activity 2: Identify Weather Data Requirements and Gaps

Activity 3: Identify Communications Requirements and Gaps

Activity 4: Explore Investment and Integration Approaches

### **Objective 3: Establish Service Providers**

Activity 1: Plan Service Provision Networks

Activity 2: Establish On-Boarding Process

Activity 3: Initiate Cooperative Operating Practice Development

# Ensuring AAM Infrastructure and Services Readiness

## Objective 1: Develop Vertiports and Supporting Infrastructure

### Activity 1: Define Best Practices for AAM Infrastructure

*Develop and share best practices for vertiport planning, design, and integration.*

### Activity 2: Assess Financial Assistance Programs

*Update the KAIP to support AAM projects and expand funding options.*

### Activity 3: Perform Initial Feasibility Studies

*Fund and develop vertiport feasibility studies.*

## Objective 2: Determine Enhanced Infrastructure and Services

### Activity 1: Identify Surveillance Requirements and Gaps

*Determine AAM needs, gaps, and mitigations for low-altitude surveillance.*

### Activity 2: Identify Weather Data Requirements and Gaps

*Determine AAM needs, gaps, and mitigations for weather services.*

### Activity 3: Identify Communications Requirements and Gaps

*Determine AAM needs, gaps, and mitigations for communications services.*

### Activity 4: Explore Investment and Integration Approaches

*Determine government and industry roles in service infrastructure development.*

# Ensuring AAM Infrastructure and Services Readiness

## **Objective 3: Establish Service Providers**

### **Activity 1: Plan Service Provision Networks**

*Plan the state approach to implement AAM service networks.*

### **Activity 2: Establish On-Boarding Process**

*Standardize interoperability and secure third-party services.*

### **Activity 3: Initiate Cooperative Operating Practice Development**

*Define the state's role in xTM federated architecture.*



## **Connecting AAM Stakeholders**

Objective 1: Convene Communities

Objective 2: Connect Industry

Objective 3: Enable Airports

### **Objective 1: Convene Communities**

Activity 1: Engage with AAM Consumer Communities

Activity 2: Increase Public Awareness

Activity 3: Explore Cross-State and Regional Collaboration

Activity 4: Engage with Local Government

Activity 5: Pursue Funding and Partnerships

### **Objective 2: Connect Industry**

Activity 1: Identify Collaborative Research Opportunities

Activity 2: Convene Mission-Oriented Industry Forums

### **Objective 3: Enable Airports**

Activity 1: Establish Airport Communities of Interest

Activity 2: Coordinate National Engagement

Activity 3: Accelerate Community Showcases

Activity 4: Leverage Emerging National Funding Programs

# Connecting AAM Stakeholders

## Objective 1: Convene Communities

### Activity 1: Engage with AAM Consumer Communities

*Connect with key organizations and user groups to shape Kansas's AAM vision and use cases.*

### Activity 2: Increase Public Awareness

*Raise awareness of AAM opportunities, risks, and challenges.*

### Activity 3: Explore Cross-State and Regional Collaboration

*Collaborate with nearby states to support regional AAM operations.*

### Activity 4: Engage with Local Government

*Engage with local government planning and economic development organizations.*

### Activity 5: Pursue Funding and Partnerships

*Explore funding initiatives and partnerships.*

## Objective 2: Connect Industry

### Activity 1: Identify Collaborative Research Opportunities

*Partner with industry to advance AAM through joint programs and public-private partnerships.*

### Activity 2: Convene Mission-Oriented Industry Forums

*Establish focused working groups to address AAM.*

# Connecting AAM Stakeholders

## **Objective 3: Enable Airports**

### **Activity 1: Establish Airport Communities of Interest**

*Create an online community for Kansas airport managers and sponsors.*

### **Activity 2: Coordinate National Engagement**

*Involve Kansas airport stakeholders in national level AAM activities and share insights locally.*

### **Activity 3: Accelerate Community Showcases**

*Facilitate connections between airports, service providers, and AAM operators and OEMs.*

### **Activity 4: Leverage Emerging National Funding Programs**

*Collaborate with FAA for current and future airport funding opportunities and explore additional national funding opportunities, sharing these opportunities with airports and communities as they become available.*



## **AAM Economic and Workforce Development**

Objective 1: Demonstrate AAM Job Growth

Objective 2: Prepare an AAM Ready Workforce

Objective 3: Cultivate AAM Interest

### **Objective 1: Demonstrate AAM Job Growth**

Activity 1: Develop an AAM Business Strategy

Activity 2: Promote Kansas as an Innovation Hub

Activity 3: Attract & Retain AAM Business

### **Objective 2: Prepare an AAM Ready Workforce**

Activity 1: Adapt Workforce Capabilities & Skills

Activity 2: Establish AAM-Ready Training Programs

### **Objective 3: Cultivate AAM Interest**

Activity 1: Inspire Future Leaders

Activity 2: Foster Community Outreach Opportunities

# **AAM Economic and Workforce Development**

## **Objective 1: Pursue AAM Job Growth**

### **Activity 1: Develop an AAM Business Strategy**

*Create a comprehensive business plan with clear goals and funding priorities.*

### **Activity 2: Promote Kansas as an Innovation Hub**

*Market Kansas research facilities and test sites as a unified opportunity for AAM innovation.*

### **Activity 3: Attract & Retain AAM Business**

*Promote job growth by connecting AAM companies to Kansas aviation areas of expertise.*

## **Objective 2: Prepare an AAM Ready Workforce**

### **Activity 1: Adapt Workforce Capabilities & Skills**

*Leverage Kansas's aerospace expertise to evaluate MRO and operational training needs.*

### **Activity 2: Establish AAM-Ready Training Programs**

*Develop structured and hands-on curricula to position Kansas as a global training hub.*

# **AAM Economic and Workforce Development**

## **Objective 3: Cultivate AAM Interest**

### **Activity 1: Inspire Future Leaders**

*Integrate AAM into STEM programs to engage students and develop future professionals.*

### **Activity 2: Foster Community Outreach Opportunities**

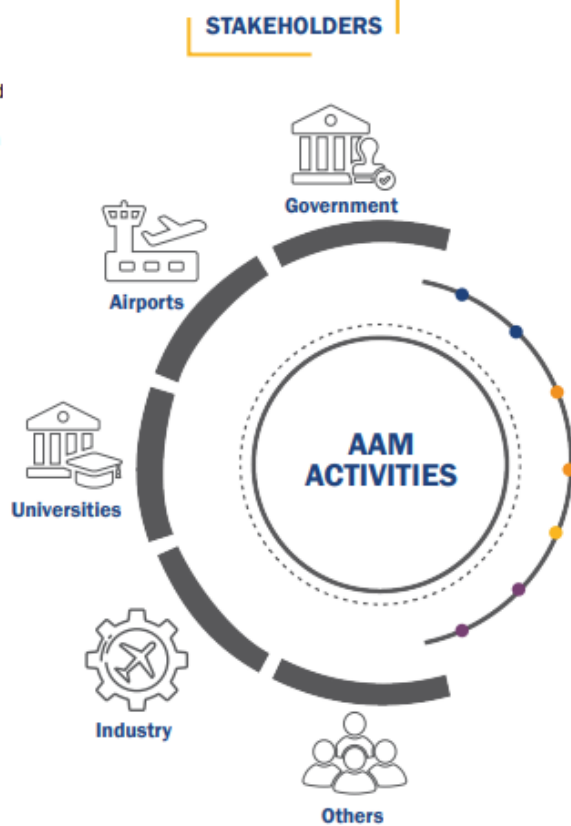
*Host events and exhibits to raise public awareness and excitement for AAM.*

# Part 4- Navigating by Workstream

## ROADMAP

For roadmap priorities to be met and AAM to be realized, all workstreams must be prioritized and make progress concurrently. The roadmap activities capture the progression of each workstream from initial near-term efforts to long-term activities over the next decade, shown in *Workstream Summary by Strategic Evolution*.

| (Near-Term)  | (Mid-Term) | (Long-Term) |
|--|------------|-------------|
| Adapt Workforce Capabilities and Skills              |            |             |
| Create a Kansas AAM Innovation Portal                |            |             |
| Engage with Local Government                         |            |             |
| Accelerate Community Showcases                       |            |             |
| Integrate AAM into Transportation Plans              |            |             |
| Create an AAM Advisory Council                       |            |             |
| Establish Formal State AAM Leader                    |            |             |
| Assess Financial Assistance Programs                 |            |             |
| Identify Surveillance Requirements and Gaps          |            |             |
| Invest in Precision Agriculture Operational Enablers |            |             |
| Integrate AAM into Transportation Plans              |            |             |
| Establish Airport Communities of Interest            |            |             |
| Develop an AAM Business Strategy                     |            |             |
| Integrate AAM into Other Kansas Strategic Plans      |            |             |
| Pursue Alternative Funding and Partnerships          |            |             |
| Coordinate National Engagement                       |            |             |
| Perform Initial Feasibility Studies                  |            |             |
| Improve Air Medical Operations with AAM              |            |             |
| Enable Flight Demonstrations                         |            |             |
| Encourage Innovation and Investment through Policy   |            |             |



# Questions?

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