Geospatial Data Governance Policies and Procedures

2PM (Eastern Time)

November 20, 2025

TRB Webinar based on ACRP Report 278: Geospatial Data Governance Policies and Procedures: A Guide

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ACRP | AIRPORT COOPERATIVE RESEARCH PROGRAM

Today's Learning Objectives

(1) Understand tactics and strategies that can help airports adopt geospatial policies & procedures,

(2) Identify the benefits and opportunities of data governance, and

(3) Establish metrics and benchmark its data governance against other organizations.

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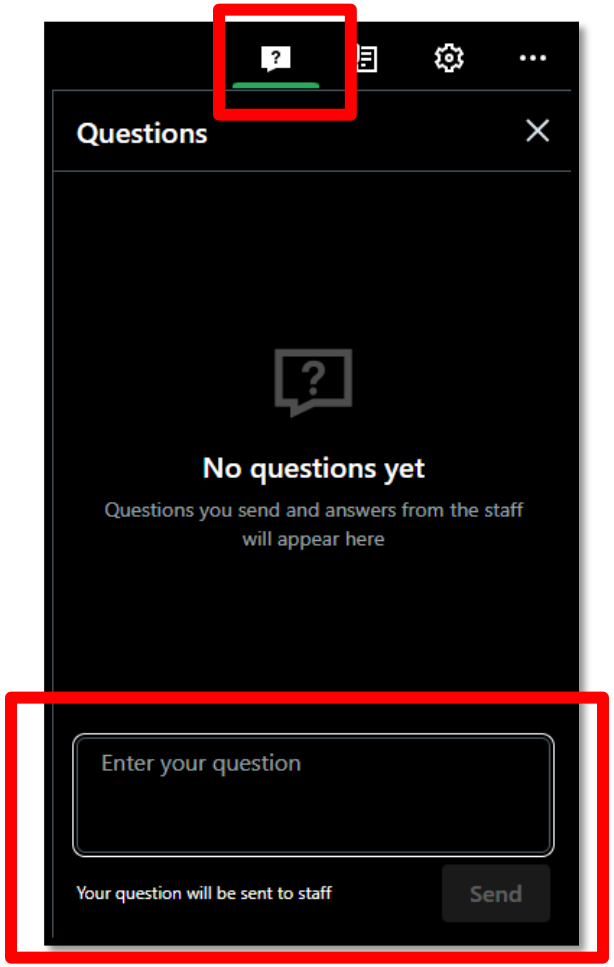
Questions and Answers

Please type your questions into your webinar control panel

We will read your questions out loud, and answer as many as time allows

#TRBwebinar



Today's Presenters

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WOOLPERT

ACRP Report 278

Geospatial Data Governance and Procedures

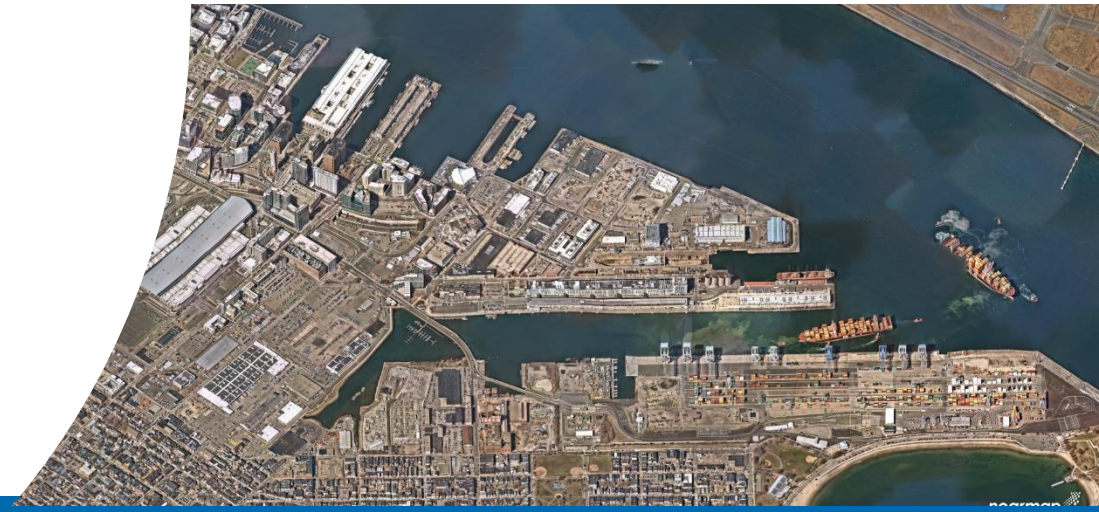
Mark Ricketson (Moderator) – Massport
Eric Risner, PS, IAM, PMP – Woolpert
Tom Tiner, GISP - Arora

ACRP Report 278 Oversight Panel

Mark P. Ricketson, Massport, Panel Chair
Jennifer Gora, RS&H
Mark Hughes, AECOM
Majed A. Khater, McCarran International Airport
Thane M. Seeley, Northwest Arkansas Regional Airport Authority
Charles Zuckerman, San Francisco, CA
Christopher Criswell, FAA Liaison
Jordan Christensen, ACRP Senior Program Officer

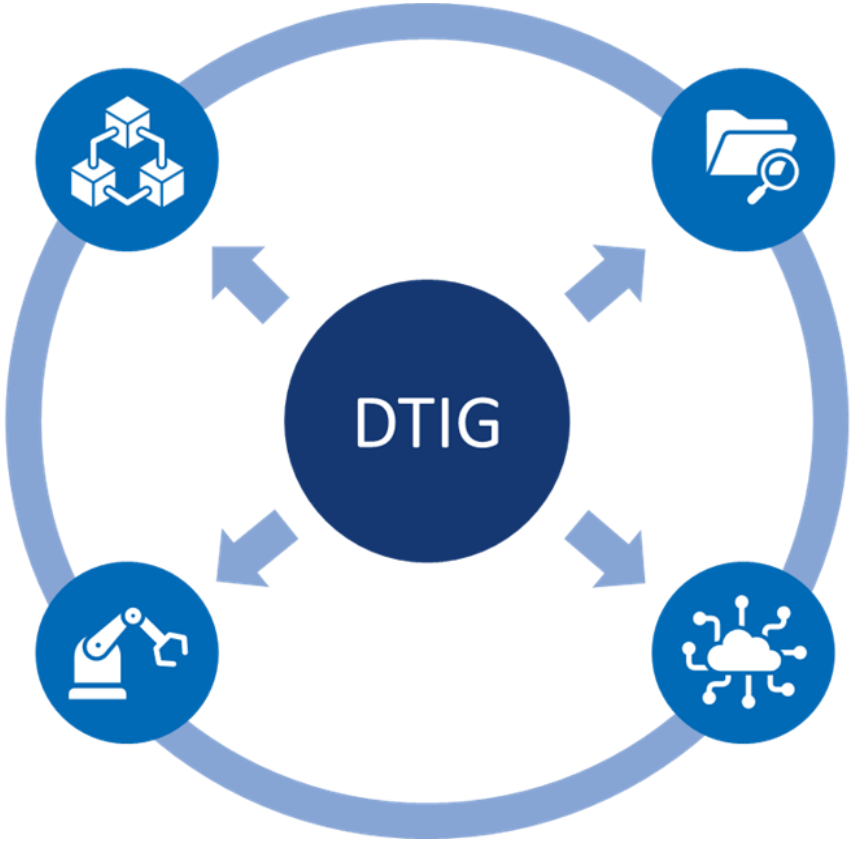
Massport

- ✈ 3 Airports
  - Logan International
  - Worcester Regional
  - Hanscom
- ✈ Seaport
  - Cargo
  - Passenger
- ✈ Real Estate
  - Parklands
  - Commercial Properties



DTIG Services

Project Support
-Support the capital project delivery teams.
-Oversee BIM and asset data deliverables.



Data Management
-Provide central hub for CAD/BIM, CMMS, GIS, and enterprise data.
-Develop unified data governance workflows.

Emerging Technologies
-Adopt digital twin, AI, and IoT initiatives.

Cloud Platform
Manage Massport's Common Data Environment (CDE).

Agenda

- ✈ Session Introduction & Background
- ✈ Define Data Governance
- ✈ Drivers and Components of Data Governance
- ✈ Challenges Faced
- ✈ Research Efforts
- ✈ Prepare for the Future
- ✈ Questions

ACRP Report Problem Statement

- With the amount of development happening nationwide at airports, the need to have current and accurate geospatial data to support the design, delivery, and maintenance of both existing and new facilities has never been more important.
- Data governance policies and procedures should at least address issues of data distribution, data privacy and security, information life-cycle, data architecture, metadata management, master data management, and data quality and accuracy. Furthermore, data policies and procedures have to be resilient to technology and personnel changes.

ACRP Report Objectives

- ✈ Sample data governance and policy
- ✈ Data Governance Roadmap
- ✈ Training Tools to support the policies and procedures
- ✈ Executive level presentation
- ✈ Step-by –step considerations and case studies
- ✈ Sample data management plans

Data Governance

Data governance is the process of setting and enforcing priorities for managing and using data as a strategic asset

Source : ACRP Research Report 278: Geospatial Data Governance Policies and Procedures: A Guide

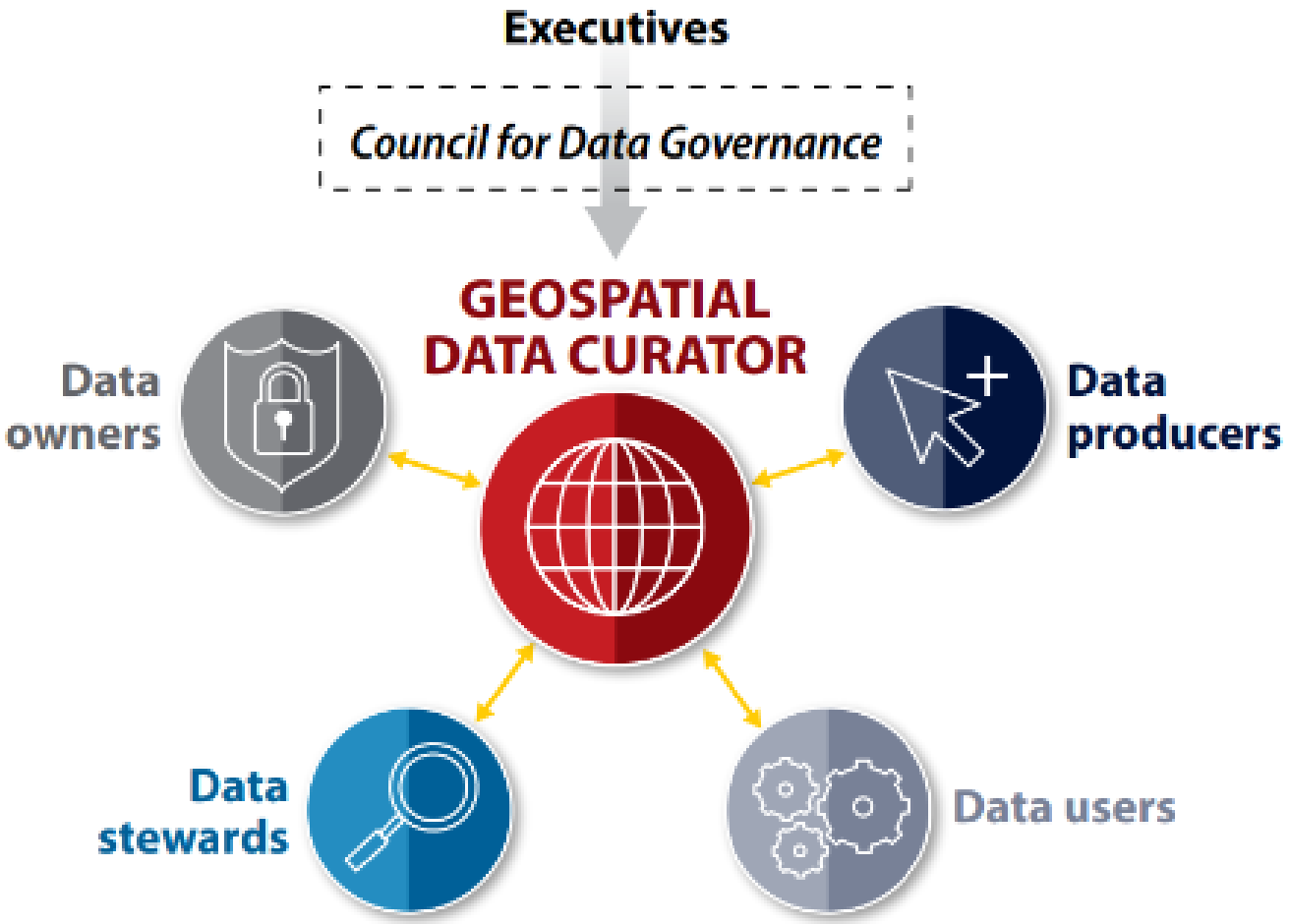
Drivers of Data Governance

- Regulation (e.g. Geospatial Data Act of 2018, Airport Data Quality, South Carolina Code of Laws Section 55-13-5, FAA AC's)
- Champions (i.e. outspoken, persistent, proactive)
- Data Maintainers seeking efficiency
- Increasing reliance on data (e.g. assets, airspace)
- Return On Investment

Components of Data Governance

- Standardized data structure
- Policy
  - Enforcement, storage, archiving, backup, destruction, security, distribution, and handling
- Roles & Responsibilities
- Data maintenance procedures
- Metrics
- Governing Body
- Training & Education

Components of Data Governance



External influencers and stakeholders:

- Public involvement
- Community engagement
- Contractors
- Military
- City, town, county, etc.
- FAA
- Airlines

Components of Data Governance

RESPONSIBILITIES

Geospatial Data Curator

- Communication
- Monitor
- Policy
- Innovation

Council for Geospatial Data Governance

- Enforcement
- Procedures
- Vision/ strategy
- Collaboration

Geospatial Data Owners

- Improvements
- Decision-makers
- Reporting
- Champions

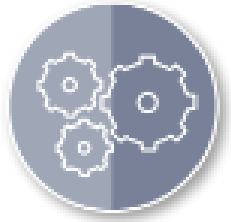
Geospatial Data Stewards

- Conflict-resolution
- Testing
- Quality control
- Archival

Geospatial Data Producers

- Data creation
- Quality assurance
- Compliance
- Reporting

Geospatial Data Users



- Data review
- Technical support
- Communication
- Advocacy

Benefits/Costs

BENEFITS

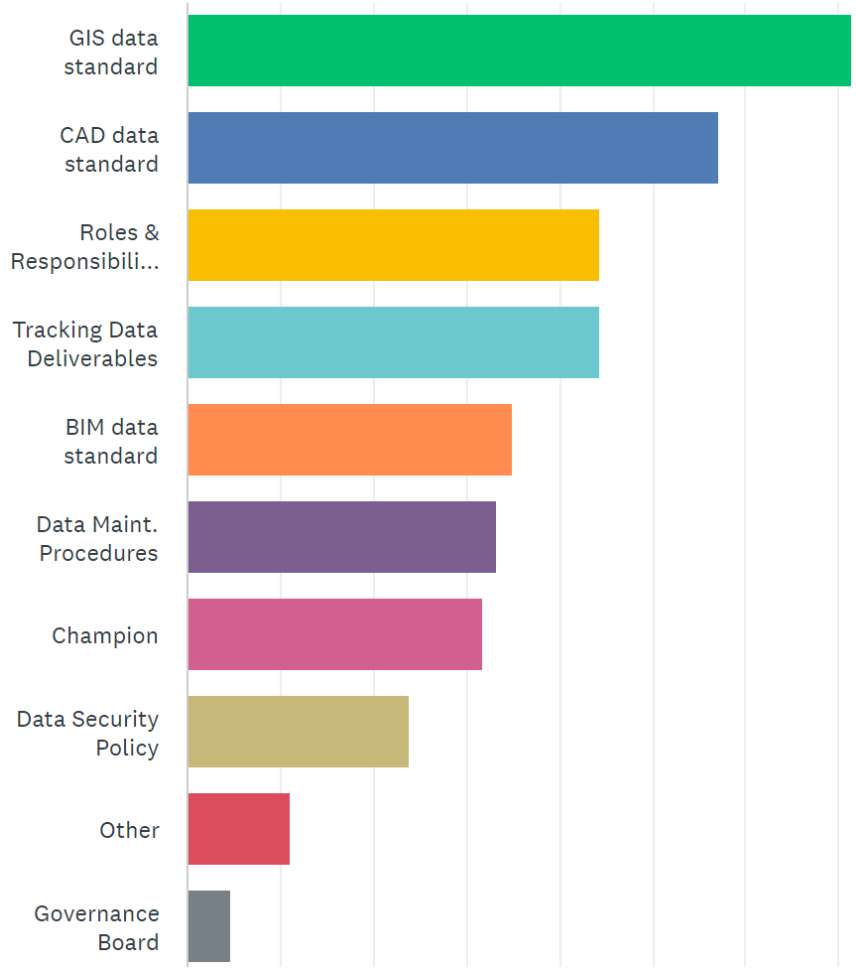
- Reduced change orders on CIP projects
- Additional revenue from available lease space
- More efficient terminal cleaning
- More efficient work order closure
- Data costs between departmental silos
- Fees charged to shared ride services
- Better asset replacement versus maintain decisions on assets
- Reduced cost of Obstacle Action Plan updates
- Reduced cost of collecting data for CIP projects
- Avoidance of utility breaks
- Reduce costs of Airport Layout Plan updates

COST

INITIAL COSTS

- Development of data governance documentation
- GIS data standard and templates
- CAD data standard and templates
- BIM data standard, roles, and responsibilities
- Data maintenance procedures
- Data governance policy statement
- Geospatial data security policy
- Program initiation
- Meetings with senior management
- Meetings with managers and practitioners
- Practitioner training
- Labor hours

Forms of Data Governance in Place



Source : 2022 Airport Geospatial & Digital Twin Survey

Case Studies and Chapters

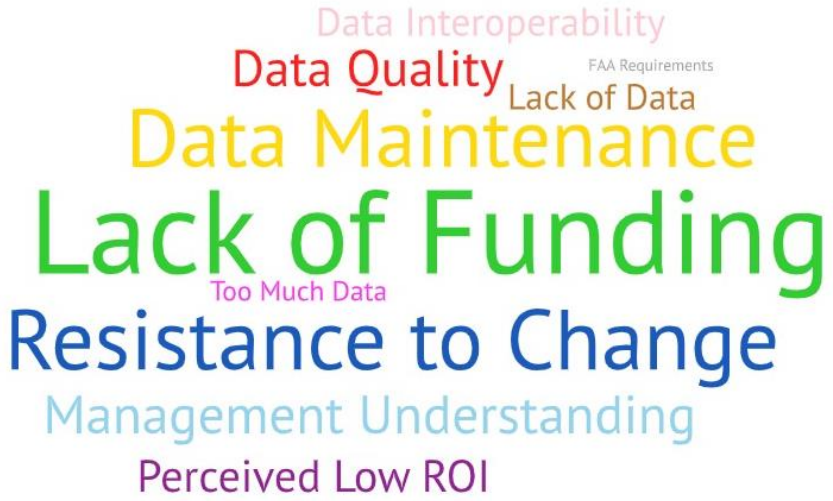
- ✈ Amsterdam Schiphol International Airport (AMS)
- ✈ Hartsfield-Jackson Atlanta International Airport (ATL)
- ✈ Cincinnati Children's Hospital Medical Center (CCHMC)
- ✈ Lexington Blue Grass Airport (LEX)
- ✈ Munich International Airport (MUC)
- ✈ North Carolina Department of Transportation (NCDOT)
- ✈ Ohio Department of Transportation (ODOT)
- ✈ San Francisco International Airport (SFO)

CHAPTERS

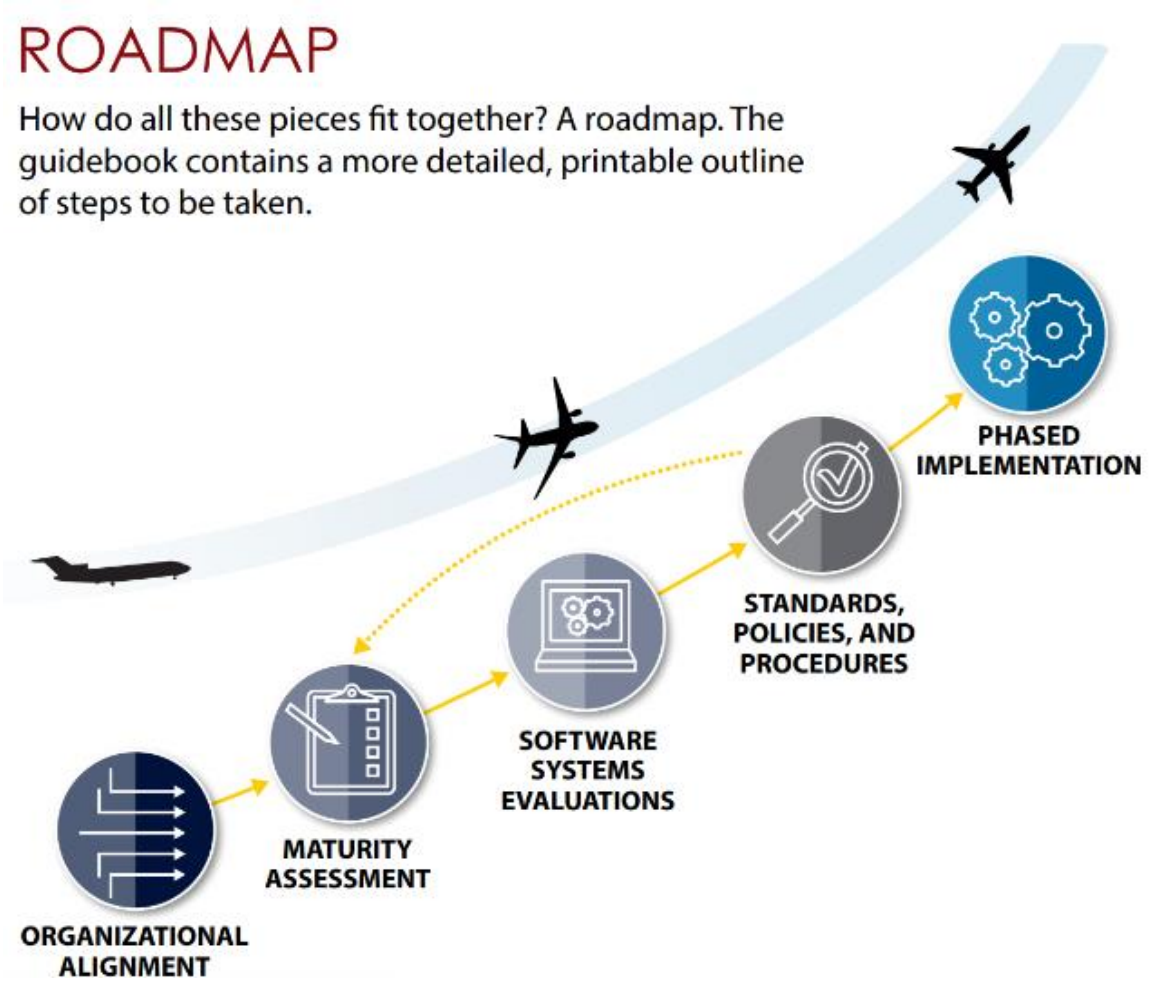
1. Introduction
2. Drivers for Data Governance
3. Organizational Alignment
4. Policies
5. Standards
6. Procedures
7. Data Exchange
8. Data Security
9. Road Maps
10. Data Maintenance Plan

Be Prepared for the Future

- ✈ Present to Airport Executives
  - Return on Investment
  - Infographics
  - Posters
  - Dashboards
- ✈ Address these challenges mentioned earlier
- ✈ Prepare for the future
  - Digital Twins
  - Incorporation of more 3D data with BIM

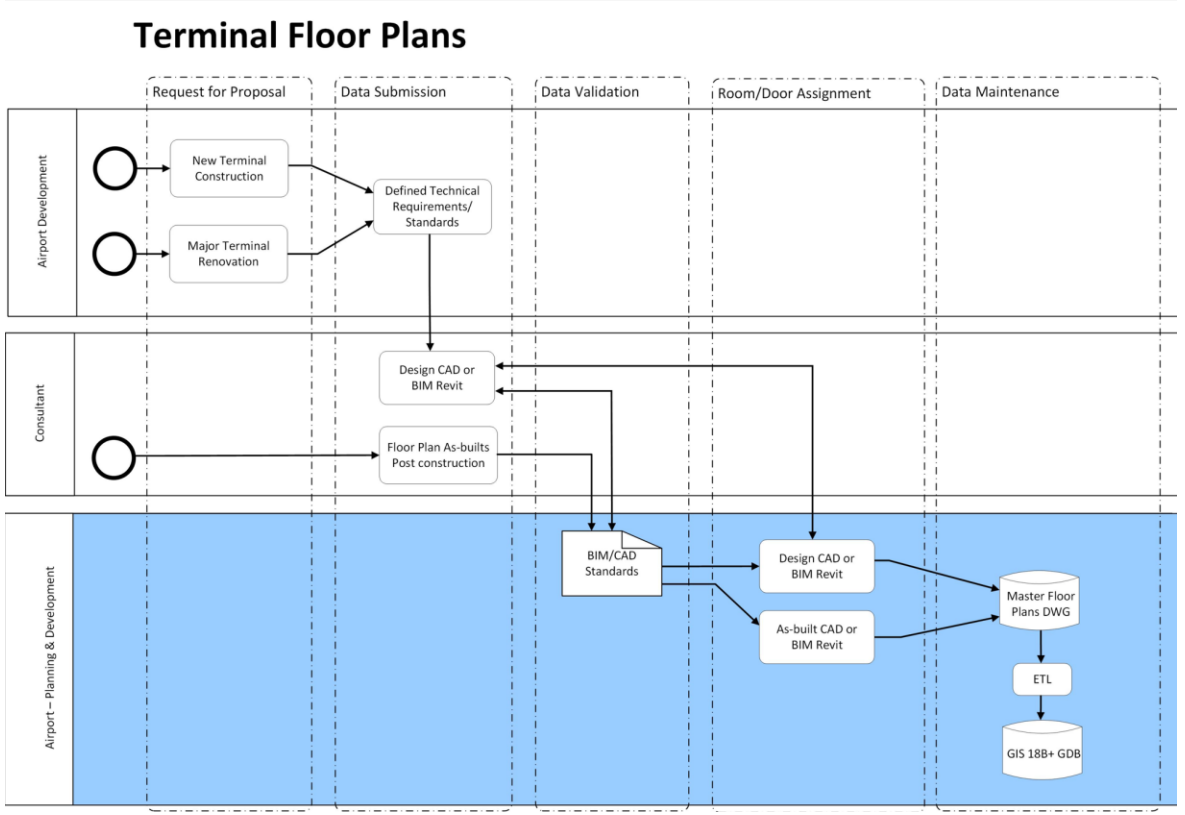


Roadmap


ROADMAP
How do all these pieces fit together? A roadmap. The guidebook contains a more detailed, printable outline of steps to be taken.
ORGANIZATIONAL ALIGNMENT
MATURITY ASSESSMENT
SOFTWARE SYSTEMS EVALUATIONS
STANDARDS, POLICIES, AND PROCEDURES
PHASED IMPLEMENTATION

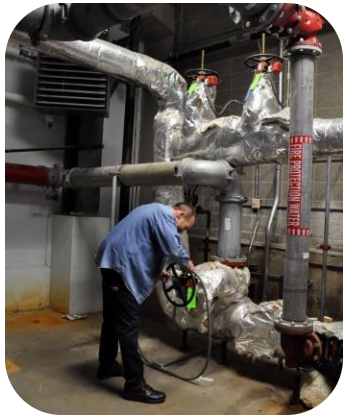
Documenting Workflows

- ✈ Why are workflows importance?
- ✈ Develop consistent and sustainable procedures
- ✈ Business Process Model and Notation
  - Base Map – support Master Planning
  - Floor Plans
    - Design Build
    - Tenant Improvement
    - DOA Improvements
  - Utility
  - Assets
  - Airspace
- ✈ Supports transparency and training



Project Data Acquisition Procedures

- ✈ Alignment with workflow procedures
- ✈ Contract Language & Data Standards
  - Airside – runway, taxiway, facilities, utilities
  - Landside – terminal, parking, landscape
  - Security – cameras, access control
  - Assets – infrastructure assessment reports
  - Enterprise Asset Management – Collection
- ✈ Define Deliverables
  - Details – assets/attributes
  - Timing
  - Format
- ✈ How to track



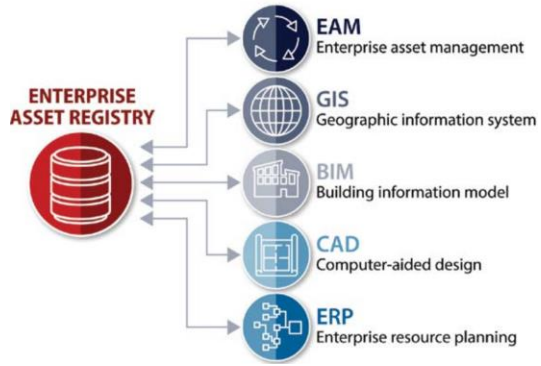
Data Exchanges

- ✈ Relies on data standard compliance
- ✈ Establish validation routines based on delivery method
- ✈ Use of FME or other automated procedures
- ✈ Interoperability - Crosswalk data migration
- ✈ Doing More with Less
- ✈ Progress toward a Digital Twin

GIS Data Set	GIS Feature Class	Geometry Type	GIS Attribute	GIS Attribute Value	CAD Layer	Layer Description
Airfield	AirOperationsArea	Polygon			C-AFLD-OTLN-AOA~	Air Operations Area
Airfield	AirportSign	Point	signType	HOLD_INSTRUMENT_LANDING_SYSTEM	C-TAXI-SIGN-HILS	Hold Instrument Landing System
Airfield	AirportSign	Point	signType	HOLD_RUNWAY_APPROACH	C-TAXI-SIGN-HRAP	Hold Runway Approach
Airfield	AirportSign	Point	signType	ROAD_STOP	C-ROAD-SIGN-STOP	Road Stop
Airfield	AirportSign	Point	signType	ROAD_YIELD	C-ROAD-SIGN-YILD	Road Yield
Airfield	AirportSign	Point	signType	TAXIWAY_DIRECTION	C-TAXI-SIGN-TDIR	Taxiway Direction
Airfield	AirportSign	Point	signType	TAXIWAY_END	C-TAXI-SIGN-TEND	Taxiway End
Airfield	AirportSign	Point	signType	TAXIWAY_LOCATION	C-TAXI-SIGN-TLOC	Taxiway Location
Airfield	AirportSign	Point	signType	TERMINAL	C-TAXI-SIGN-TERM	Terminal

Asset Registry

- Asset Data Registry – is a centralized database or system that tracks and manages all the assets owned or controlled by an organization.
- Creation of a unique Asset_ID for system integration – (HVAC)
  - (F) AH123 / (EAM) AHU5 = (AR) AHU011
- One to Many relationships
- Characteristics and Integration
  - Unique identifier, barcode
  - Description
  - Location – physical (X, Y, Z)
  - Financial Data – reporting and calculating depreciation
  - Asset Management
  - Ownership – role and responsibility



Data Maintenance Procedures

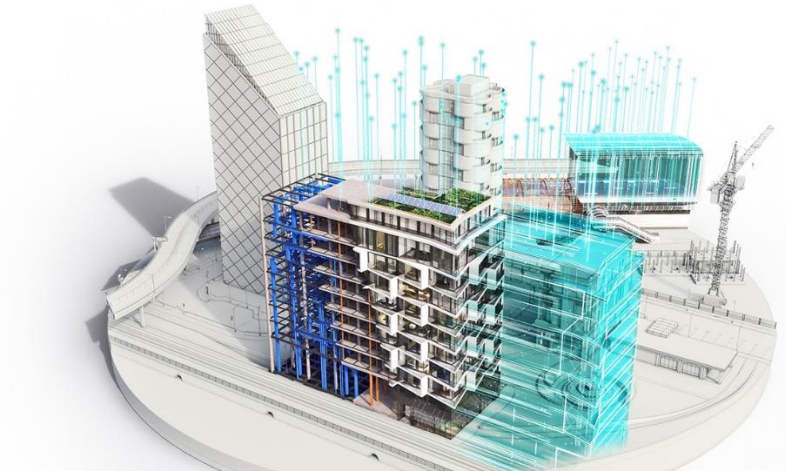
- Where are the projects occurring throughout the airport campus?
  - Who, what, when, where…
- Who is the Project Manager?
- Who will maintain the authoritative sources?
- What data is being developed?
- When is the project completion date?
- Where is the location and extent of the project?
- Early Communication is the Key to Success
- Reduce/Eliminate Data Redundancy
  - Remove silos
  - Facilitate data-sharing

95.5%

of all **data goes unused** in engineering and construction[1]

$7.77

Spent on operations and maintenance over the life of the facility for every $1 of construction costs [2]



[1] Source: Big Data = Big Questions for the Engineering and Construction Industry, FMI Report

[2] Source: Ratio of Operating and Maintenance Costs to Initial Costs of Building Services Systems, Cost Engineering Vol 49/No.12

Strategic Roadmap Planning – Part 1

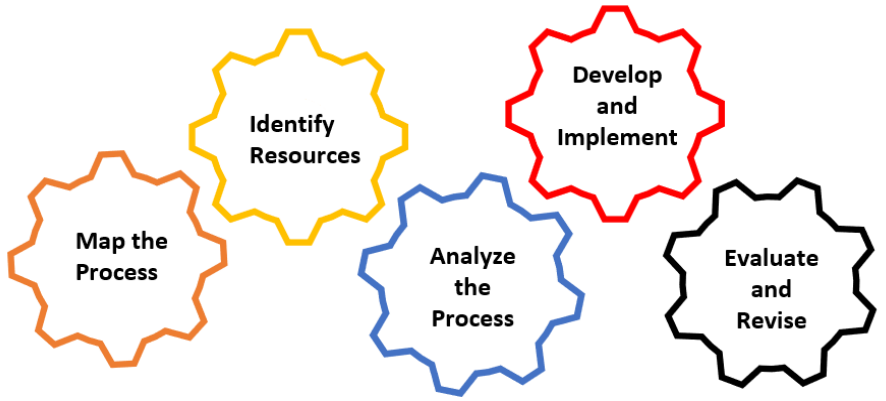
- ✈ Configured to the level of maturity
- ✈ Procedural Elements – Data Standards
  - Collaboration Engagement - Stakeholder Meetings
  - Develop RACI Matrix
  - Maturity Assessment - Document Findings
  - Selecting Software – BIM/CAD/GIS
  - Change Control
  - Develop Recommendations
  - Strategic "Path Forward" tasks based on priorities
    - Funding
    - Planning Horizon

	Project Leadership		Key Collaborators			Technical Delivery		
Projects Tasks	Executive Sponsor	Project Manager	Customer Experience & Media	Business & Leasing	System & Facility Manager	Technical Manager	Senior Analyst	Analyst
Phase 1: Requirements Gathering								
Needs assessment	R	A	C	C	C	C	C	I
Requirements gathering	R	A	C	C	C	C	C	I
Risk factors	R	A	C	C	C	C	C	I
Phase 2: Initial Project Design								
Specifications	R	C	I	I	C	A	I	C
Wireframe design	R	C	I	I	I	A	C	C
Use case/user story	R	C	C	C	I	A	C	C
User experience testing	R	C	C	I	I	A	C	C
Evaluation	R	C	C	C	C	A	I	C
Development	R	C	I	I	C	A	I	C
Delivery roadmap	R	C	C	C	C	A	C	I

R = Responsible A = Accountable C = Consulted I = Informed

Strategic Roadmap Planning - Part 2

- ✈ Formation of Data Governance Committee
  - Distribution and Dissemination
  - Outreach
  - Training
  - Compliance/Enforcement
  - Sustainable and Transparent
  - Key Performance Indicators (KPIs)
  - Continual Process Improvement of content



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December 9, 2025
TRB Webinar: Environmental Stewardship and Compliance Training for Airport Employees

December 17, 2025
TRB Webinar: Accommodating Peer-to-Peer Carsharing at Airports

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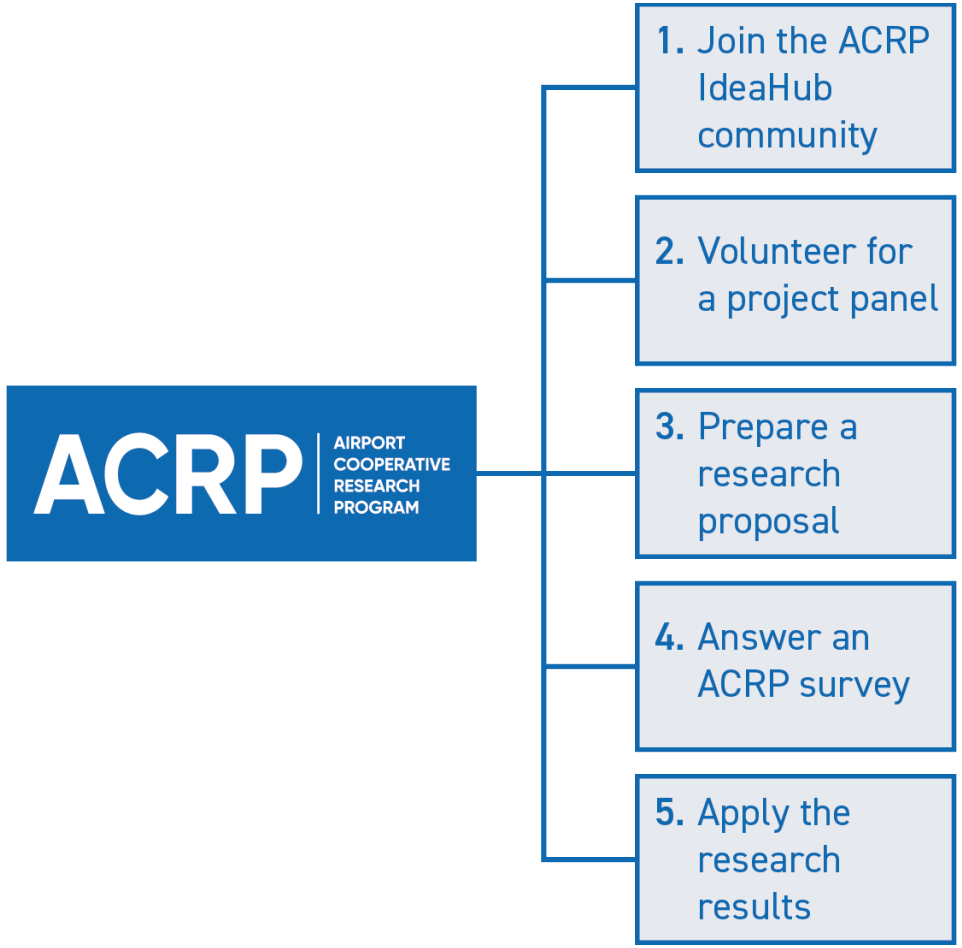

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