

Incorporating Technology into Airport Concessions

February 9, 2026
1pm-2pm



Today's Learning Objectives

- (1) Understand airport stakeholders and their relationships with technology**
- (2) Leverage different technologies to enhance airport concessions programs, including forward/customer-facing, operational, and back-of-the-house solutions**
- (3) Explore how airports can set a path forward and plan for the future**

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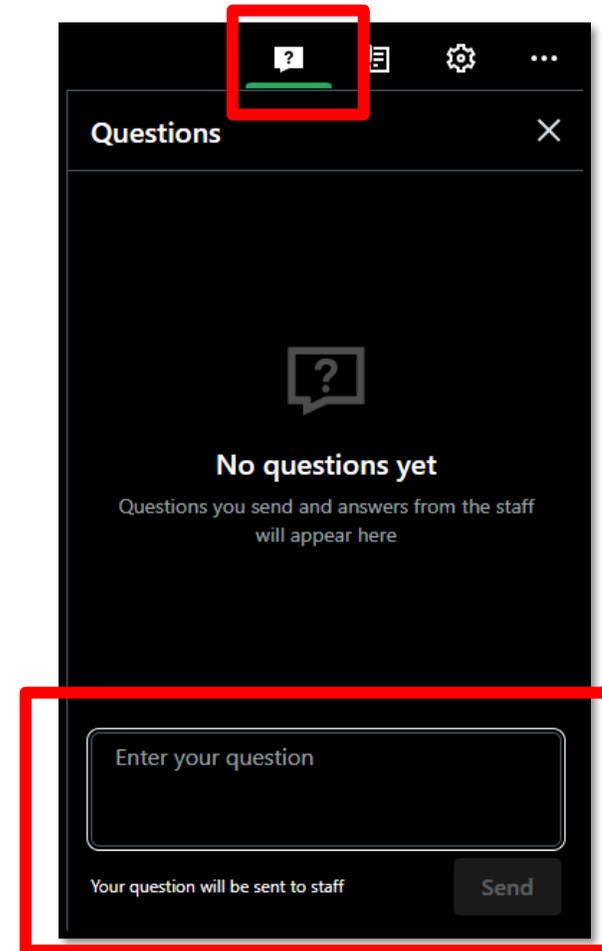
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Questions and Answers

Please type your questions into
your webinar control panel

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

#TRBwebinar



Stephen Freibrun Principal Investigator

- Senior Principal, ICF
- Leads ICF's Global Airports Commercial Center of Excellence
- 30+ years of management and real estate experience in both the public and private sectors.
- Began aviation career at O'Hare International and Midway Airports
- Oversees client activities for customer experience and commercial planning projects
- Significant expert witness and research work



Incorporating Technology into Airport Concessions

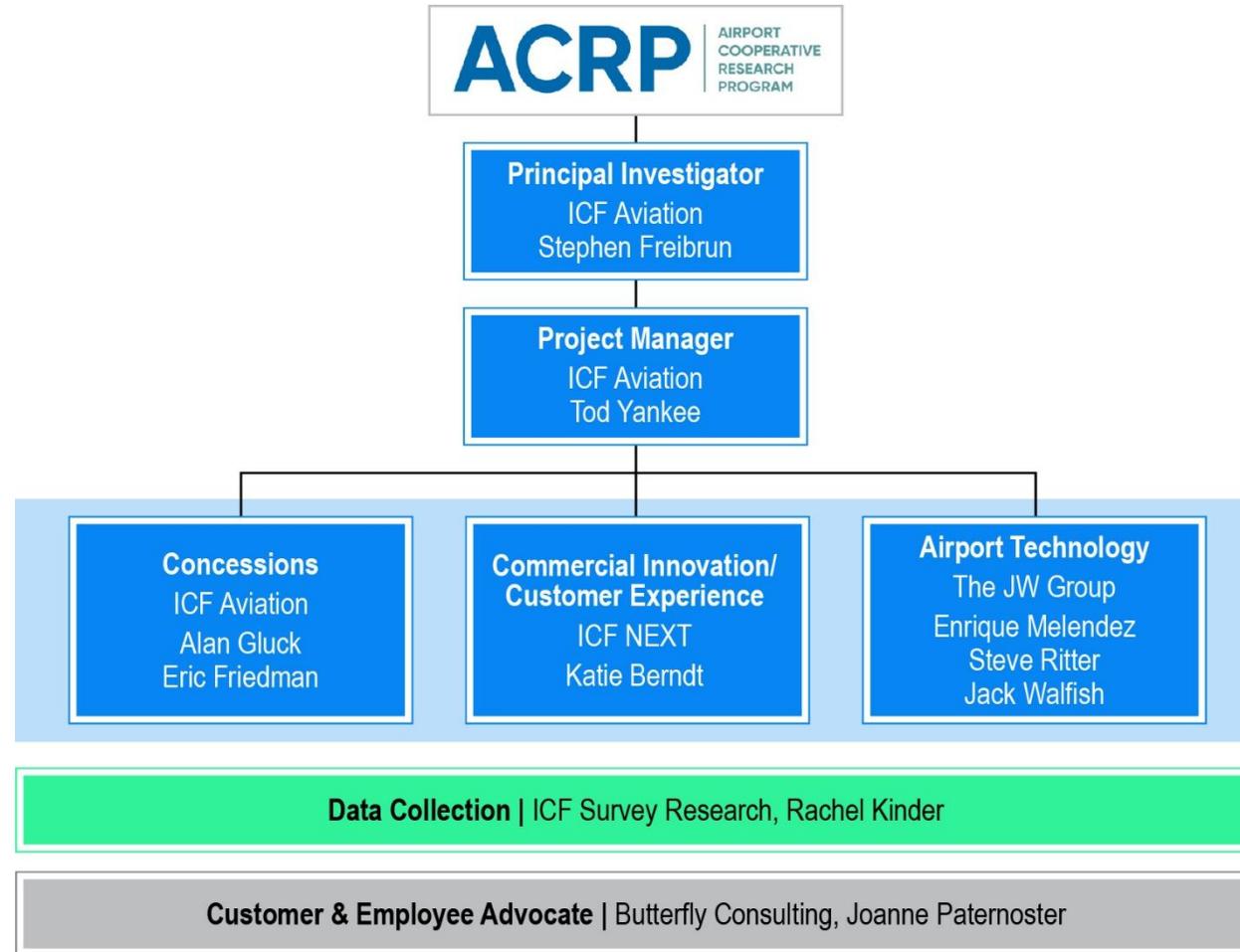
Key Insights

Stephen Freibrun, ICF
Enrique Melendez, The JW Group, Inc.
Peter Knudsen, Veovo



February 9, 2025

Introductions – ACRP 03-70 included a team of three companies



Agenda

- I. Welcome & Context
- II. Project Overview & Objectives
- III. Key Findings & Insights
- IV. Case Study (Veovo)
- V. Framework & Tools for Implementation
- VI. Closing Remarks
- VII. Q&A

→ I. Welcome & Context

Speaking Today



Enrique Melendez

Senior Specialty Systems Consultant
at The JW Group, Inc.

Lead Technology Researcher



Peter Knudsen

General Manager, Americas
at Veovo

Interviewee for Case Study



the JW group



ACRP

AIRPORT
COOPERATIVE
RESEARCH
PROGRAM

Incorporating Technologies into In-Terminal Airport Concessions

What is technology? – It is more than gadgets and gizmos

technology noun

tech·nol·o·gy (tek-'nä-lə-jē) »

plural **technologies**

Synonyms of *technology* >

1 **a** : the practical application of knowledge especially in a particular area :
ENGINEERING sense 2
| medical *technology*

b : a capability given by the practical application of knowledge
| a car's fuel-saving *technology*

2 : a manner of accomplishing a task especially using technical processes, methods, or knowledge **TO SOLVE PROBLEMS**
| new *technologies* for information storage

3 : the specialized aspects of a particular field of endeavor
| educational *technology*

technologist (tek-'nä-lə-jist) » noun

Dictionary

Definitions from [Oxford Languages](#) · [Learn more](#)

 tech·nol·o·gy

noun

noun: **technology**; plural noun: **technologies**

the application of scientific knowledge for practical purposes, especially in industry.
"advances in computer technology"

- machinery and equipment developed from the application of scientific knowledge.
"it will reduce the industry's ability to spend money on new technology"
- the branch of knowledge dealing with engineering or applied sciences.

Why was the research commissioned?

→ Evolving Passenger Expectations

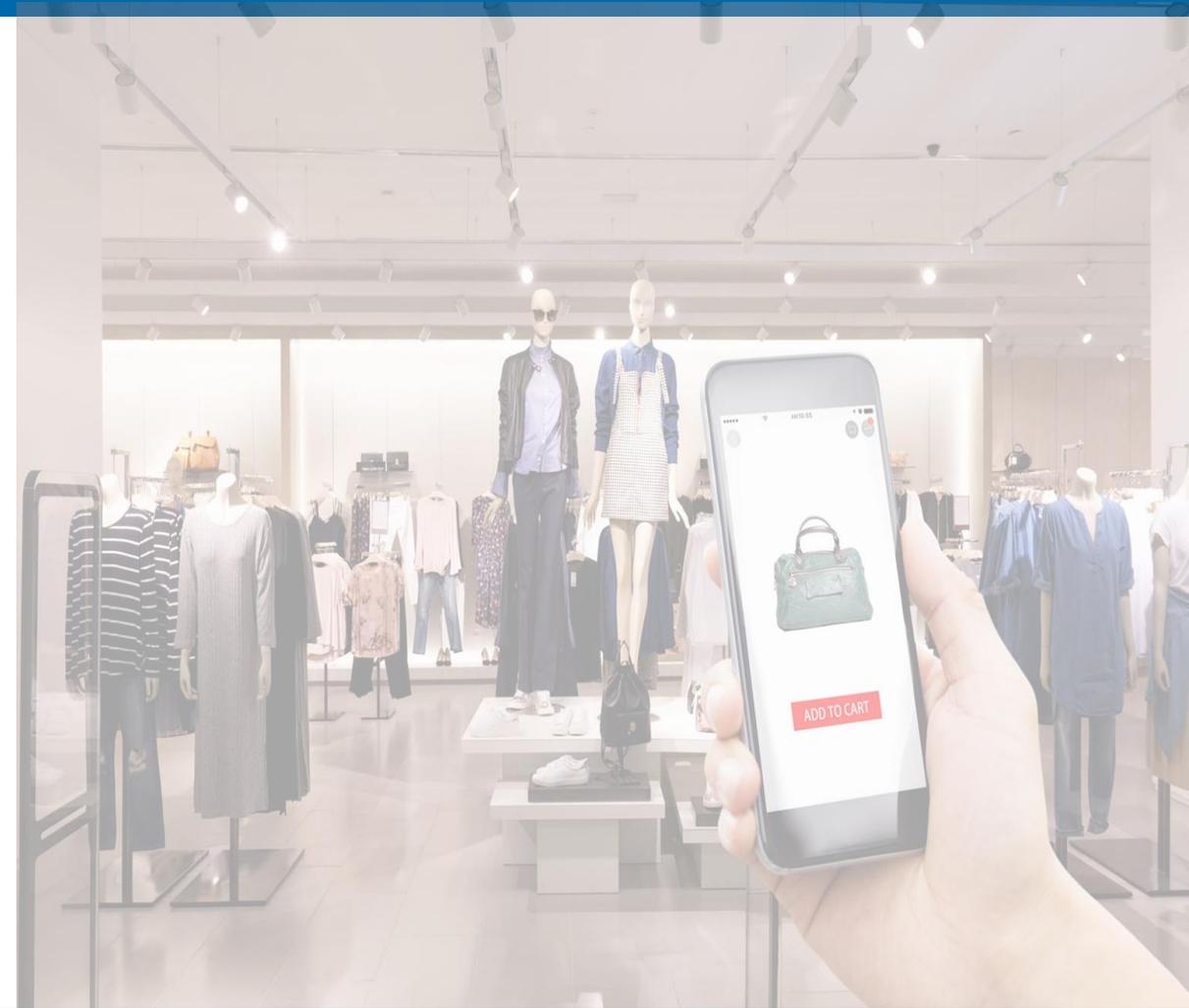
- Passengers now demand convenience, personalization, and speed within airport concession experiences.

→ Technology Transforming Operations

- Robotics, dynamic signage, and AI analytics optimize operational efficiency and revenue streams.

→ Strategic Leadership and Innovation

- Airport leaders must understand tech trends to remain competitive and improve customer engagement.



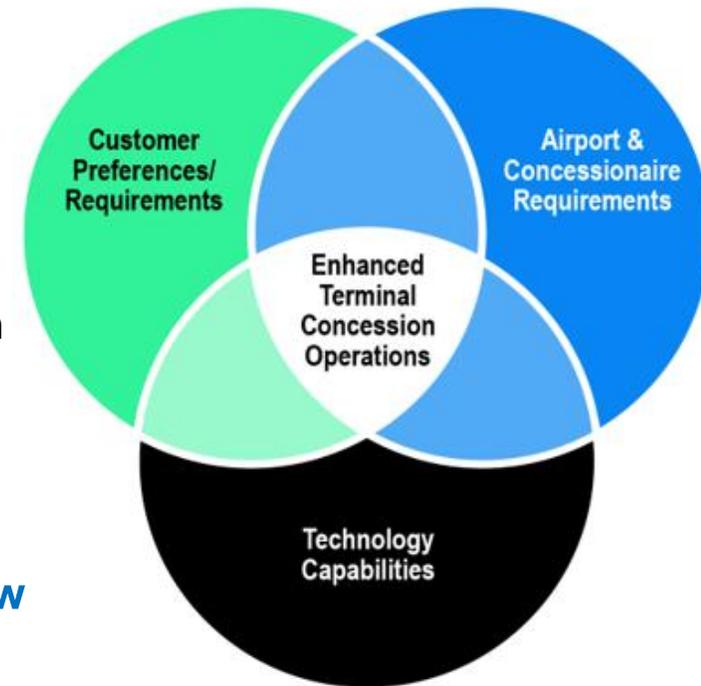
→ II. Project Overview & Objectives

The project objective was well-defined

Develop practical guidance, a primer, framework, and tools to help airports adopt technology in concessions effectively

Our project approach was dynamic

1. **Identify + assess technology opportunities and capabilities.**
 - Literature review and industry research
 - Airport interviews and surveys
 - Stakeholder interviews (concession mgmt., technology providers, etc.) and surveys
2. **Identify airport customer preferences and requirements.**
 - Online survey of 1,200 U.S. adults who have traveled through an airport 2x+ in the past 12 months
 - Create 4 customer “personas” to understand how technology will impact various customer segments
3. **Understand airport and concessionaire requirements and their exploration of new technologies**
 - Airport management interviews and surveys across different airport sizes
 - Understand unique needs, constraints, and concerns re: technology



→ III. Key Findings & Insights

Enrique M. Melendez, PMP, C.M. Key Senior Systems Researcher

- 30+ Years as Business Technology Consultant at airports world-wide
- Certified Member of AAAE, ACI-NA Associates/World Business Partner Board Member, and ACI-NA Business Information Technology Steering Committee
- Former BWI Airport Commissioner and Board Member of Airport Consultants Council
- Currently serving on several ACRP projects and project panels touching on various technologies including AI.

Four Pillars of Success in Technology-Driven Concessions

Four Pillars of Success in Technology-Driven Airport Concessions



BUSINESS DRIVERS

Why airports invest in technology



CUSTOMER JOURNEY

How passengers interact with technology



IMPLEMENTATION CHALLENGES

Critical domains for success



FOUNDATION REQUIREMENTS

Infrastructure and architecture needs

Why Technology? Two Goals, One Solution

Non-Aeronautical Revenue Growth

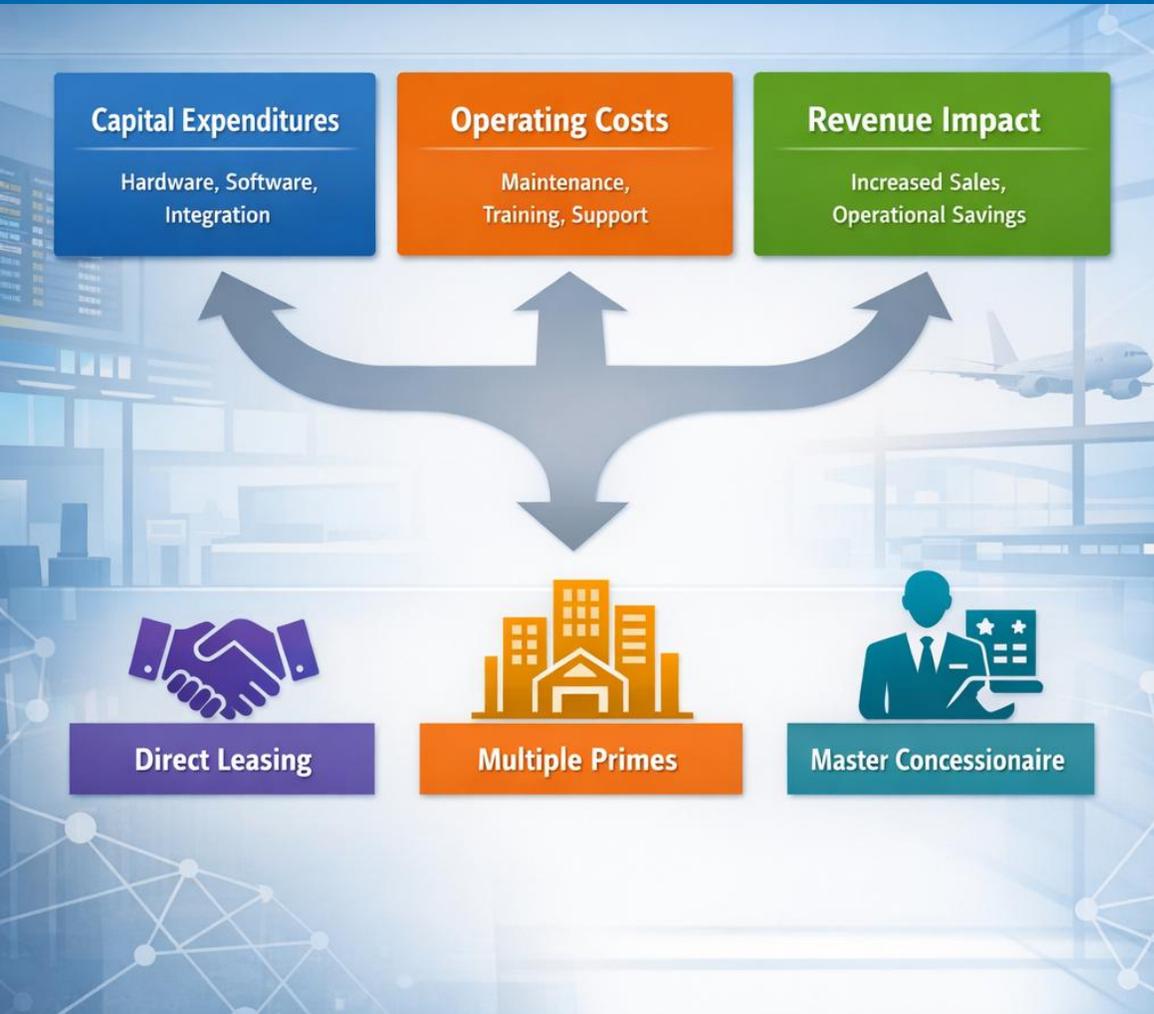
- Higher transaction values
- Expanded purchasing opportunities
- Operational Efficiencies



Enhanced Passenger Experience

- Convenience and personalization
- Reduced friction and wait times
- Control over their journey

Business Drivers – The Investment Question



Who Pays? Understanding the Financial Model

→ INVESTMENT CONSIDERATIONS

- **Capital Expenditures** Hardware • Software • Integration
- **Operating Costs** Maintenance • Training • Support
- **Revenue Impact** Increased sales • Operational savings

→ CRITICAL SUCCESS FACTOR – Your concessions contracting model determines who can-and should – invest

- Direct Leasing → Airport leads
- Multiple Primes → Shared investment
- Master Concessionaire → Operator drives innovation

Customer Journey – What Passengers Expect

The Modern Traveler: Digital, Demanding, Diverse

EXPECTATIONS ARE CLEAR

- ✓ Real-time information (wait times, flight status)
- ✓ Contactless and mobile payment options
- ✓ Self-service alternatives to queuing
- ✓ Personalized offers based on preferences

BUT ALSO CONCERNED

- ⚠ Data privacy and security
- ⚠ Technology accessibility
- ⚠ Balance between automation and human service

THE TENSION: Passengers want convenience and confidence



Customer Journey – Four Passenger Personas

Not All Passengers Are Alike: Design for Diversity



TOD
Tech-Savvy Young Explorer
10%

- Budget conscious
- Mobile-first
- Social media engaged

KATIE
Digitally Engaged Family Navigator
34%

- Efficiency focused
- Self-Service preference
- Real-Time updates critical

STEPHEN
Connected Business Professional
24%

- Highest Spenders
- Values Speed
- Contactless payment

RACHEL
Golden Age Leisure Enthusiast
32%

- Traditional Approach
- Needs simplicity
- Appreciates assistance

KEY INSIGHT:
Your highest-spending segment (business travelers) has different needs than your largest segment (leisure/family)

Customer Journey – Technology Touchpoints

TREND:

The passenger journey starts before they leave home and continues after boarding.

	Pre-Arrival	Parking/ Curbside	Check-in/ Bag Drop	Security	Concourse	Arrival	Baggage Claim	Ground Transportation
Online F&B/Retail Pre-Ordering	•	•	•	•	•	•		
Online F&B/Retail Ordering & Delivery						•	•	
Parking Reservations	•							•
Ticketless Parking Entry/Exit		•						•
Push Notifications on Amenities & Services	•	•	•	•	•	•	•	
Dynamic Wayfinding/Signage		•	•		•	•	•	•
Touchless Passenger Processing			•	•	•			
Dynamic Advertising			•		•	•	•	
Passenger Flow Tracking & Optimization		•	•	•	•	•	•	•
Wireless & Cellular Data Coverage			•	•	•	•	•	
Mobile Virtual Assistant	•	•	•	•	•	•	•	•
Self-Service Kiosks			•		•	•		
Interactive Entertainment					•			
Touchless In-Store Transactions					•	•	•	
Kitchen Automation					•	•		

Implementation Challenges – Critical Success Factors

Organizational

- Culture & Leadership Alignment
- Stakeholder Coordination

Operational

- Concessions Agreement Flexibility
- Workforce Readiness & Skills

Technical

- System Architecture & Integration
- Infrastructure Capacity

Governance

- Data Privacy & Security
- Financial Analysis & Performance Metrics

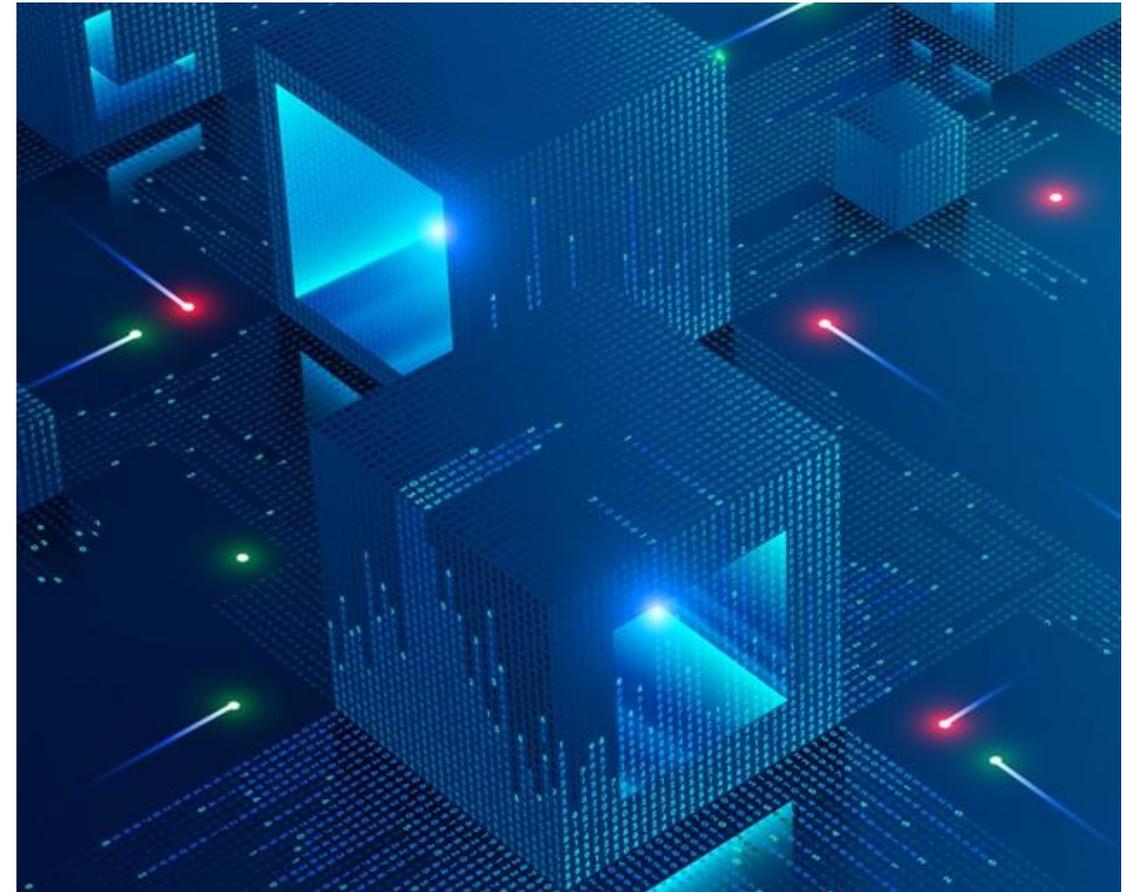
Foundation Requirements – Infrastructure & Architecture

INFRASTRUCTURE ESSENTIALS

- **Connectivity** Robust Wi-Fi (public + private tenant networks) 5G/private wireless capability
- **Power & Space** Adequate power with redundancy Physical space for equipment and back-of-house

SYSTEM ARCHITECTURE

- **Integration** Open APIs and standards
Legacy system compatibility
- **Scalability** Cloud-based solutions
Modular, future-proof design



Data Governance – Opportunity and Obligation

OPPORTUNITY

- Predictive analytics • Personalized marketing • Demand forecasting Inventory optimization • Dynamic pricing • Performance benchmarking

THE OBLIGATION

- Privacy: GDPR, CCPA compliance
- Security: Encryption, access controls, incident response
- Transparency: Clear passenger communication
- Minimization: Collect only what's needed

BALANCE POINT

- Robust governance enables innovation and builds trust



Key Findings - Summary

STRATEGIC IMPERATIVES

- ✓ Technology serves both goals (passenger experience AND revenue growth)
- ✓ Culture precedes technology (organizational readiness determines success)
- ✓ Collaboration is essential (*break down internal and external silos early*)
- ✓ Design for diversity (*different passenger segments have different needs*)
- ✓ Infrastructure is foundational (*inadequate systems doom even great ideas*)
- ✓ Governance enables innovation (*data protection and data utilization go hand-in-hand*)

YOUR NEXT STEP: Use the Framework to assess readiness before investing

→ IV. Case Study – Veovo

Trends in the market

- Expected wait times at processes are considered commodity. If you don't have it, you're not meeting your customers' expectations
- Moving from wait times to understanding the journey
- Moving from real time measurements to predicting the future
- Enables differentiated experiences and next level efficiency gains.

Understanding the journey

Overview Dashboard

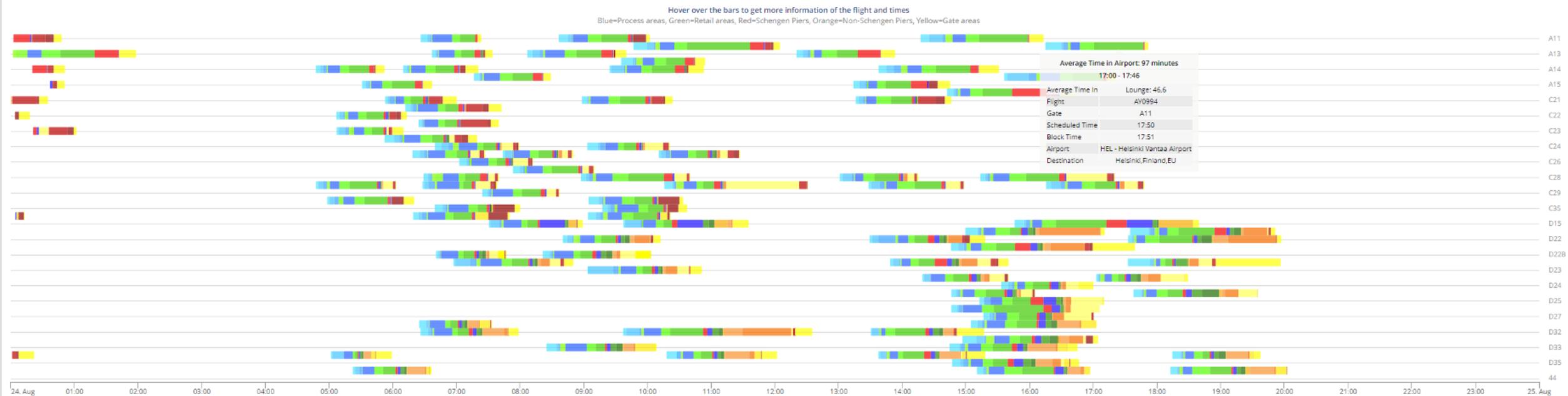
Month View Dashboard

Day View Dashboard

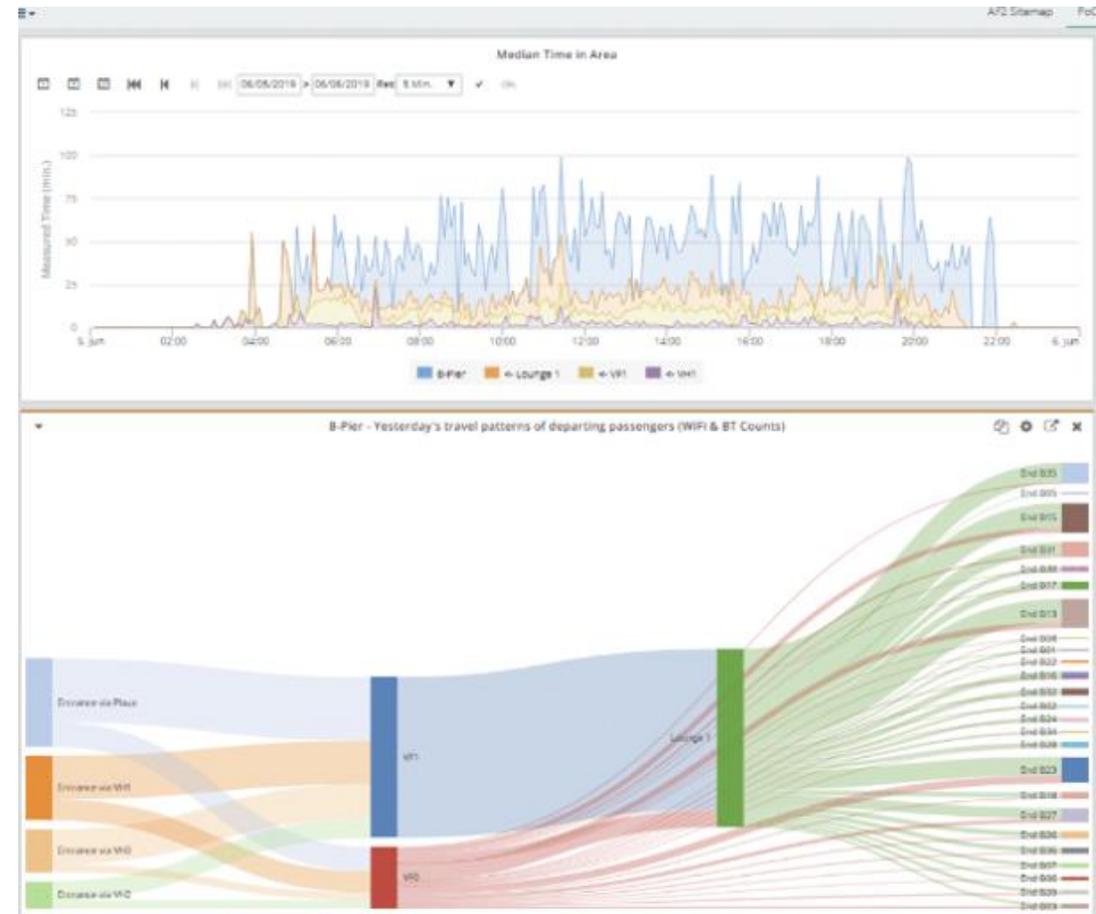
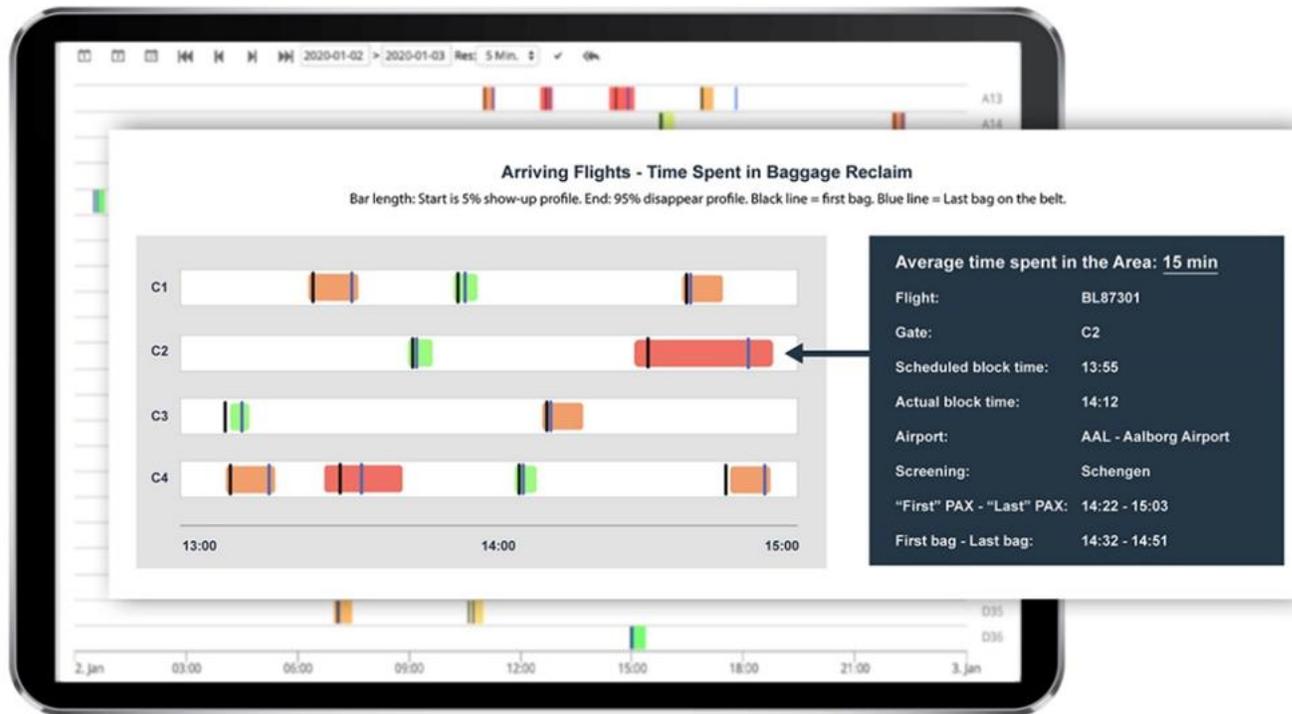
Detailed Dashboard

Departing Flights - Total Average Time in the Airport and per Area

2023-08-24 > 2023-08-25 Res: 5 Min.

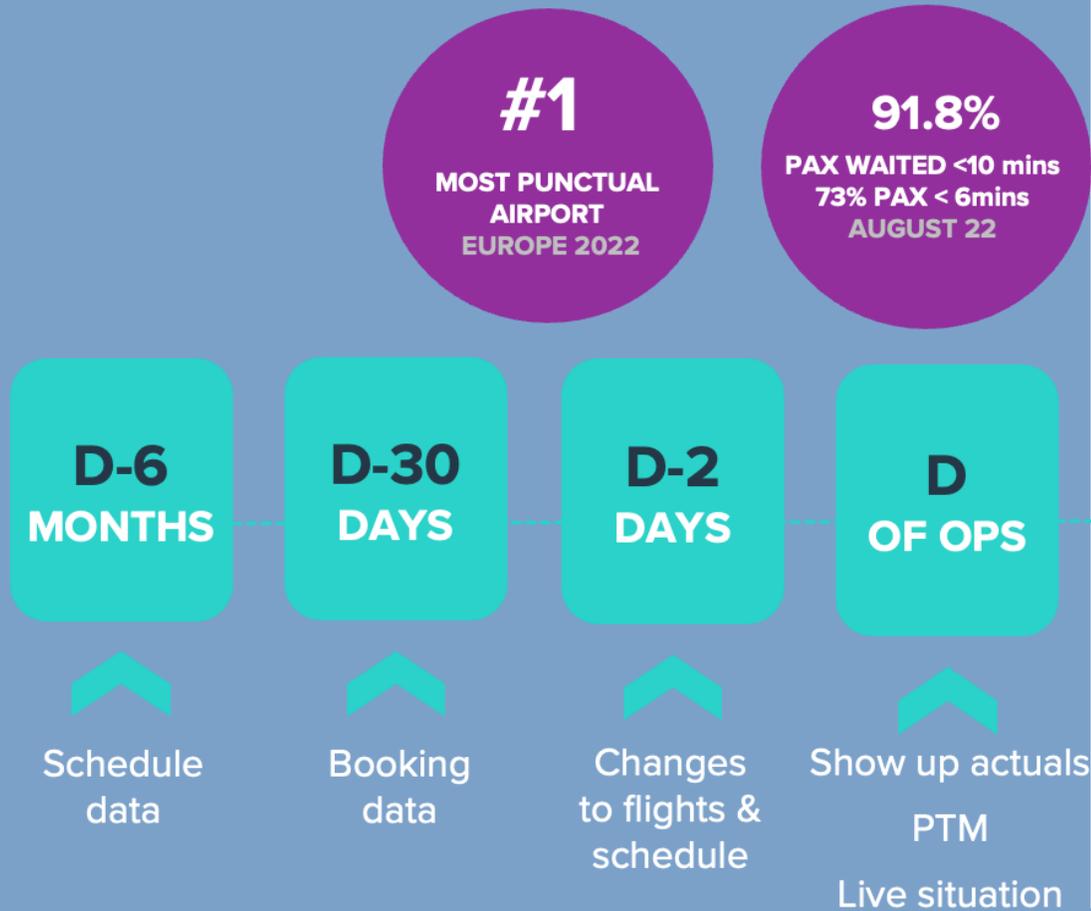


Understanding the behaviour per flight



A glimpse of the future

Forecast anything, adjust dynamically



This table displays a comprehensive list of flight operations. Each row represents a flight, with columns for flight number, origin, destination, status, and other operational details. The data is color-coded to highlight specific categories or statuses.

→ V. Framework & Tools for Implementation

The ACRP 03-70 Framework – Your Implementation Roadmap

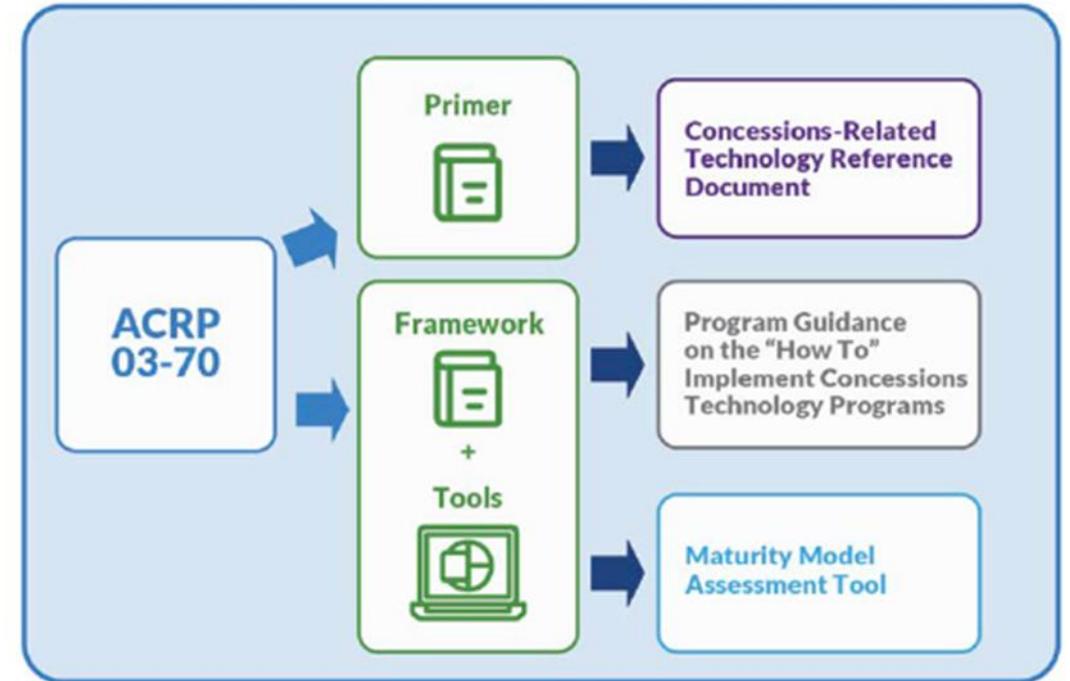
THREE INTEGRATED TOOLS

 **PRIMER** Background on technologies, trends, and best practices - *What's possible and how others are doing it*

 **FRAMEWORK** Strategic guidance on evaluation, selection, and implementation - *How to make decisions and manage the process*

 **SELF-ASSESSMENT TOOL** Maturity evaluation across 11 domains - *Where you stand and where to focus*

DESIGNED FOR SCALABILITY Small regionals to major hubs—same principles, different scale



Identifying, Evaluating, Selecting and Incorporating Technologies



Incorporating Technology in Concession Programs

Implementation Strategies



Technologies, Interoperability, and Risk Management

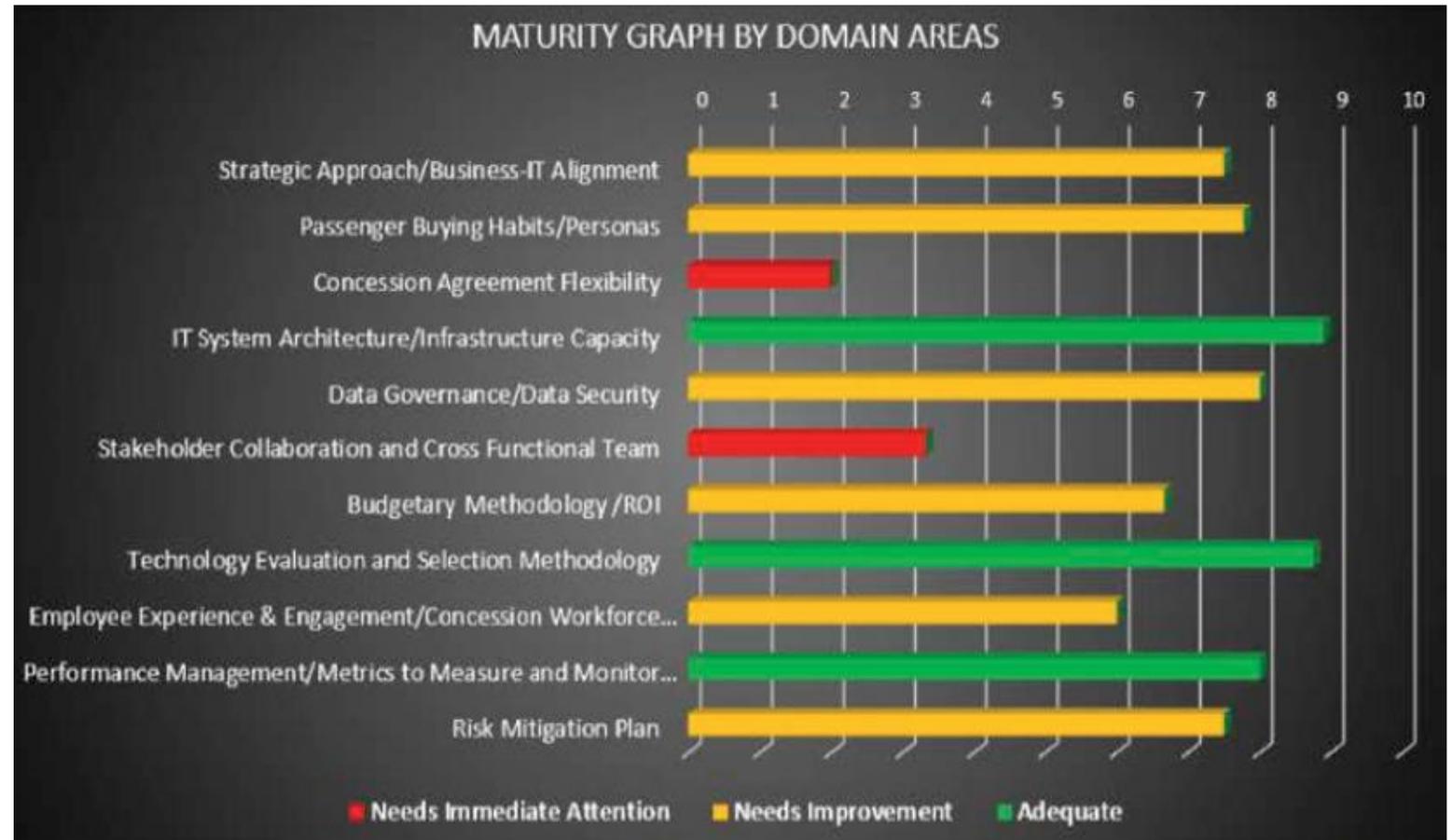
- Choose the right technologies
- Make them work with legacy systems
- Manage data and operational risks across the concession's ecosystem



Self-Assessment Tool – Knowing Your Starting Point

BEFORE YOU INVEST: ASSESS YOUR READINESS

- 11 READINESS DOMAINS
- Three Maturity Levels
- Approximately 30 minutes
- Output: Visual Dashboard along with Recommendations



→ VI. Closing Remarks

As we conclude, let's focus on actionable strategies and real-world examples



- **Technology is a Strategic Imperative** - Integrating tech into concessions is essential for enhancing passenger experience and driving non-aeronautical revenue.
- **Start Small, Scale Smart** - Pilot programs allow airports to test technologies before full-scale implementation, reducing risk and improving ROI.
- **Use the ACRP 03-70 Framework** - Leverage the decision-making tools, readiness assessments, and prioritization matrices to guide technology adoption.
- **Collaboration is Critical** - Success depends on strong partnerships among airports, concessionaires, and technology providers like Veovo.
- **Future-Proof Your Strategy** - Maintain flexibility in contracts and infrastructure while monitoring emerging trends to stay ahead of passenger expectations.

→ VII. Q&A

FOR ADDITIONAL INFORMATION



Stephen Freibrun
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ACRP Report 03-70 Oversight Panel

- Jeff Taylor, Jacksonville Aviation Authority, Jacksonville, FL (Chair)
- Jenna Buckner, Ricondo and Associates, Mount Pleasant, SC
- Daniel Shimelis. Kebede, Abstract Group, Inc., Columbia, MD
- Rohini Kumarage, ABIA, City of Austin, TX
- Larry Leung, Transformidy, Toronto, ON
- Aneil Patel, Airports Council International–North America Liaison



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Other Events for You:

Conference on Scenario Planning in Transportation ACRP Insight Event: Exploring the Impact of Artificial Intelligence on the Airport Industry

May 19 - 20, 2026

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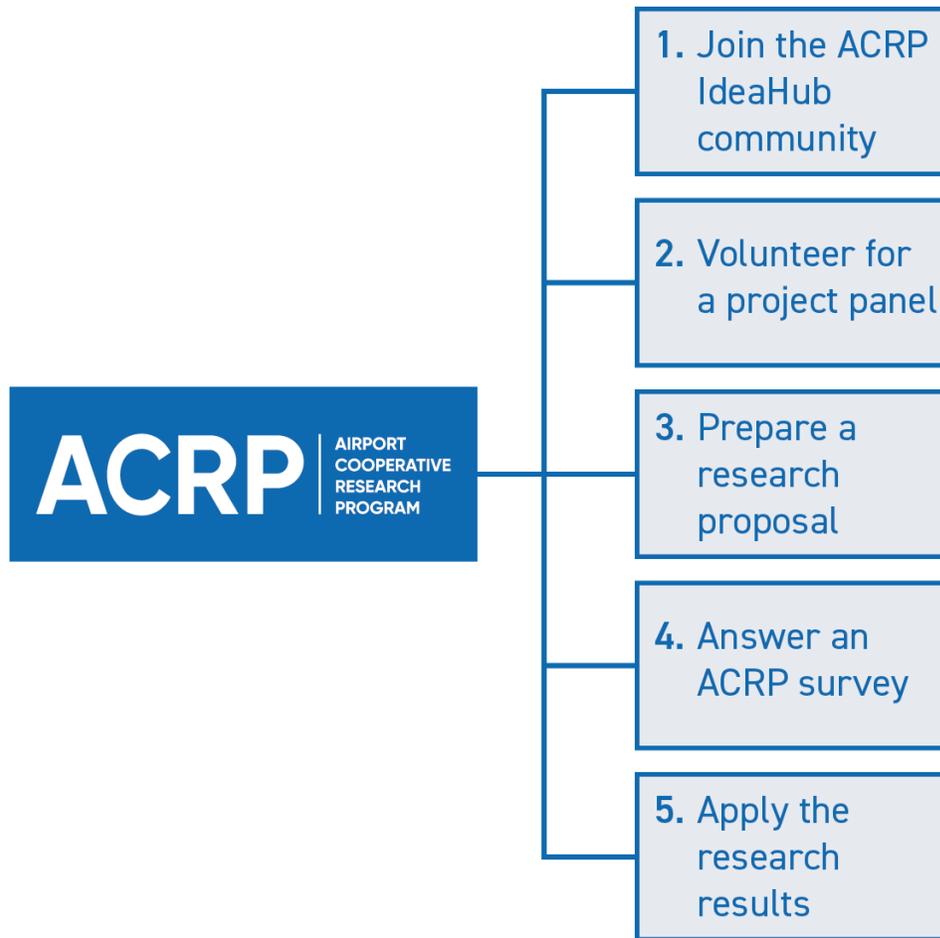
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