Overview of Harbor’s Services

Research Services
Research, tracking, market intelligence and Harbor’s Smart Systems forecast

Strategy Consulting
Business development & growth strategy consulting services

Smart Systems Lab
Venture development, start-up advisory and community networking to implement strategies

RESEARCH
Analyst Interactions & Support
Scenario Planning, Modeling & Forecasts
Technology Research & Market Analysis

STRATEGY
Growth Strategy Development

DESIGN
Business Model Design

FACILITATE
Collaboration Workshops
Tech Discovery Forums
Innovation Workshops
Smart Systems Lab
Trends Impacting the Airport Industry

The Opportunity for Emerging Technologies

Emerging Technologies Empowering Airport Transformation

Globally Interconnected Business & Tourism

Sustainability
- Net-Zero Emissions Targets
  - Renewables & DER
  - GSE Fleet Electrification

Changing Workforce
- Shortages & Specialized Roles
  - AR / XR Tools
  - Connected Workforce

Passenger Experience
- Sensitive Passenger Sentiment
  - Personalization Analytics
  - Biometrics & AI-Vision

Globally Interconnected Business & Tourism

Virtualization & Digital Twins
- Distributed Open Data Exchange

AI & Automation
- Hybrid Connectivity

Renewables & DER

GSE Fleet Electrification

Net-Zero Emissions Targets

Personalization Analytics

Biometrics & AI-Vision

AR / XR Tools

Connected Workforce

Distributed Open Data Exchange

Connected Workforce

Virtualization & Digital Twins

Globally Interconnected Business & Tourism
Smart Airport Use Case Landscape

Terminal
- Check-In Systems
- Security & Processing
- Customer Engagement
- Baggage Handling
- Building Operations

Landside
- Parking & Transport
- Safety & Navigation

Airside
- Aircraft Parking & Maintenance
- Air-Traffic Management
- Airfield Security
- Command & Control Operations

Air Cargo
- Operations Management
- Cargo Handling, Processing & Distribution
Creating A Seamless, Personalized Passenger Journey
The Evolution of Smart Airports

From Simple to Complex Applications

Customer Application Evolution

**Simple**
Applications that involve single devices or narrow values that are based on basic network connectivity and monitoring

- Internet connectivity
- Asset tracking & location
- Alerts & notifications

**Compound**
Applications that involve multiple collaborating, peer-peer devices or significant interactions between and among devices, systems and people

- Site-wide security orchestration
- Multi-party equipment support
- Remote vehicle operation

**Complex**
Applications that drive interactions between and among devices, device sub-systems and people and can also allow extending and expanding values from third party collaboration and large-scale connectivity, integration and analytics

- Autonomous operations
- Collaborative service orchestration
- AI-enabled aircraft & passenger logistics

Example Applications:

- Internet connectivity
- Asset tracking & location
- Alerts & notifications
- Site-wide security orchestration
- Multi-party equipment support
- Remote vehicle operation
- Autonomous operations
- Collaborative service orchestration
- AI-enabled aircraft & passenger logistics
Understanding the Value Potential For Smart Airports

44.9K Airports
~20K Addressable Hubs | ~5,200 Core Hubs
465+ Large Hubs | 4.8K Medium Hubs | 13.9K Small Hubs

Smart Airport Maturity Framework

Over 5K Airports with Advanced to Digital Maturity

Distribution of Smart Airports
(number of hubs)
Creating Combinatorial Value from Integrated Digital Strategy