Aviation Digital Transformation: AI, Data Platforms and Roadmap for Airlines and Airports

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Introduction:

Aviation digital transformation often stalls because airlines, airports and service partners each digitise their own processes while passenger, flight and aircraft data stay locked in separate systems. Biometric pilots, AI forecasting projects and new operational tools then fail to scale. This Core Concept course gives airline, airport and aviation services managers practical methods to map aviation data flows, design shared data platforms, select AI use cases, govern and audit aviation information systems and sequence change. Participants build an Aviation Digital Transformation Roadmap for a case airport or airline.

Course Objectives:

- Assess the digital maturity of airline, airport and ground handling functions and record legacy system constraints
- Design an aviation data platform and data sharing model that links operational databases, A-CDM information and partner feeds
- Map a digitalised passenger journey using the IATA One ID concept, biometric touchpoints and self-service channels
- Prioritise AI use cases in demand forecasting, dynamic pricing, crew rostering, turnaround and predictive maintenance by value and data readiness
- Set aviation IT governance, information systems audit checks and cyber security oversight for digital programmes
- Build a phased Aviation Digital Transformation Roadmap with benefits tracking for an airport or airline

Target Audience:

- Managers responsible for airline operations control, network planning and disruption recovery
- Managers running airport terminal, passenger processing and operational systems
- Managers accountable for aircraft maintenance planning, MRO records and engineering data
- Commercial and revenue managers responsible for pricing, distribution and customer channels
- IT, data and digital programme managers serving airlines, airports and aviation services providers

Course Outline:

Day 1: Aviation Digital Landscape and Current-State Assessment

- Aviation Digital Value Chain Map: Airline, Airport, Ground Handler and MRO Systems
- Passenger, Aircraft, Baggage and Cargo Data Flows Across Aviation Stakeholders
- Digital Disruption Drivers: Self-Service Demand, Capacity Constraints and Cost Pressure
- Aviation Digital Maturity Scorecard for Airline and Airport Functions
- Legacy System Inventory and Technical Debt Register for an Aviation Operator

Day 2: Aviation Data Architecture, Platforms and Data Sharing Models

- Airport Operational Database AODB Role, Flight Data Feeds and Master Data
- A-CDM Information Sharing: TOBT, TSAT and TTOT Data Exchange Between Partners
- Aviation Data Platform Architecture: Data Lake, Integration Layer and APIs
- Data Sharing Agreements Between Airports, Airlines and Ground Handlers
- Aviation Data Quality Rules and Data Ownership Matrix

Day 3: Passenger Journey Digitalisation and AI Use Cases

- IATA One ID Concept: Digital Admissibility and Contactless Travel
- Biometric Touchpoint Design: Enrolment, Bag Drop, Boarding and Consent Handling
- Self-Service Kiosk, Mobile Boarding Pass and Digital Wallet Journey Mapping
- AI Demand Forecasting and Dynamic Pricing Use Case Canvas
- Crew Rostering and Turnaround Optimisation Models: Inputs, Constraints and Outputs

Day 4: Operations Control, Predictive Maintenance, Governance and Cyber Risk

- Airline Operations Control Disruption Tools: Recovery Options, Rebooking Logic and Alerts
- Predictive Maintenance Analytics: Aircraft Health Monitoring and MRO Records Data
- Aviation IT Governance Board, Decision Rights and Digital Investment Gating
- Aviation Information Systems Audit: Access, Change and Interface Control Checks
- ICAO Aviation Cybersecurity Overview: Annex 17 Provisions and Cyber-Safety Interfaces

Day 5: Case Study: Aviation Digital Transformation Roadmap

- Case Brief: Hub Airport and Home-Base Airline Digital Baseline
- Use Case Prioritisation Matrix: Value, Feasibility and Data Readiness
- Phased Roadmap Waves: Quick Wins, Platform Build and AI Scale-Up
- Benefits Tracking KPIs: On-Time Performance, Processing Time and Maintenance Delays
- Aviation Digital Transformation Roadmap Presentation and Steering Committee Challenge

Skills You Will Gain:

- Aviation Digital Maturity Assessment
- Aviation Data Platform Design
- Partner Data Sharing Design
- Passenger Journey Digitalisation
- AI Use Case Prioritisation
- Predictive Maintenance Analytics
- Aviation IT Governance
- Transformation Roadmap Sequencing

Why Attend This Course:

- Return with an Aviation Digital Transformation Roadmap built on a case airport or airline and tested by a mock steering committee
- Move AI and biometric pilots into scaled services by linking them to shared data and agreed decision rights
- Speak with IT teams, data specialists and technology suppliers using precise aviation data and systems terms
- Compare digital programmes with managers from airlines, airports, ground handlers and maintenance organisations

Conclusion:

Digital change in aviation delivers value when passenger, flight and aircraft data move freely between partners and every investment is tied to an operational result. The course moves from the aviation digital landscape and maturity assessment, through operational databases, A-CDM information sharing and data platforms, to One ID passenger journeys and AI use cases, then operations control tools, predictive maintenance, IT governance, systems audit and cyber security. The final day produces an Aviation Digital Transformation Roadmap ready for steering committee review.