Smart Airport Technology and Digital Transformation Training Course



14 - 18 Dec 2026

Lisbon

4500 € (Per Person)

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Course Introduction / Overview:

The global aviation industry is undergoing a profound transformation, driven by technological innovation and evolving passenger expectations. This shift towards 'smart airports' leverages digital technologies to enhance operational efficiency, improve the passenger journey, and bolster security. This intensive training course provides a comprehensive exploration of the concepts, technologies, and strategies underpinning this digital revolution. Drawing on insights from leading academics like Dr. Richard de Neufville, author of "Airport Systems: Planning, Design, and Management", the program delves into the practical application of IoT, AI, big data, and biometrics within the airport ecosystem. Participants will gain a holistic understanding of how to plan, implement, and manage digital transformation initiatives. BIG BEN Training Center has designed this course to equip aviation professionals with the critical skills needed to navigate the complexities of modernizing airport infrastructure and operations, ensuring they can lead their organizations towards a more connected, efficient, and passenger-centric future. This is not merely a technical overview; it is a strategic guide to creating the airports of tomorrow.

Target Audience / This training course is suitable for:

- Airport Directors and Senior Management.
- Aviation Operations Managers.
- Airport IT and Technology Leaders.
- Airline Strategy and Operations Planners.
- Airport Security and Safety Managers.
- Civil Aviation Authority and Regulatory Officials.
- Aviation Consultants and Technology Vendors.
- Airport Infrastructure and Engineering Project Managers.
- Passenger Experience and Customer Service Managers.
- Ground Handling Operations Supervisors.

Target Sectors and Industries:

- Airport Authorities and Operators.
- Commercial Airlines.
- Air Cargo and Logistics Companies.
- Ground Handling and Airport Service Providers.
- Aviation Technology and Software Companies.
- Governmental bodies, including Civil Aviation Authorities and Transportation Ministries.
- Engineering and Construction Firms specializing in aviation infrastructure.
- Aviation Consulting and Advisory Firms.

Target Organizations Departments:

- Information Technology (IT) and Digital Transformation.
- Airport Operations and Airside Management.
- Security and Emergency Services.
- Passenger Services and Terminal Management.
- Strategic Planning and Business Development.
- Infrastructure and Facilities Management.
- Corporate Communications and Public Relations.
- Finance and Procurement.
- Human Resources and Training.

Course Offerings:

By the end of this course, the participants will have able to:

- Analyze the key drivers and components of airport digital transformation.
- Evaluate the role of core technologies like IoT, AI, and Big Data in airport operations.
- Design strategies to create a seamless, contactless passenger journey using biometrics.
- Assess and mitigate cybersecurity risks within a connected airport environment.
- Develop a framework for implementing Airport Collaborative Decision Making (A-CDM).
- Optimize resource allocation and operational efficiency through data analytics.
- Integrate sustainable technologies and practices into airport modernization plans.
- Formulate a strategic roadmap for smart airport implementation and change management.
- Benchmark airport performance against global best practices in digital innovation.

Course Methodology:

This training course from BIG BEN Training Center employs a dynamic and interactive learning methodology designed for maximum knowledge retention and practical application. The approach is centered on a blend of expert-led instruction, real-world case study analysis, and collaborative problem-solving. Participants will move beyond theoretical concepts to explore tangible examples from leading smart airports like Singapore Changi and Dubai International. Each module incorporates interactive group discussions, workshops, and simulation exercises that challenge participants to apply new concepts to realistic airport scenarios. The training emphasizes a hands-on approach, where attendees will work in teams to develop strategic roadmaps and technology implementation plans. Our experienced instructors facilitate a supportive learning environment, encouraging active participation and knowledge sharing among peers from diverse backgrounds. Continuous feedback and Q&A sessions are integrated throughout the five days to ensure all concepts are clearly understood and can be confidently applied in the participants' professional roles upon completion of the course.

Course Agenda (Course Units):

Unit One: Foundations of the Smart Airport Ecosystem

- Introduction to Airport Digital Transformation.
- Key Drivers: Passenger Expectations, Operational Efficiency, and Revenue Growth.
- The Four Pillars of a Smart Airport: Operations, Passenger Experience, Security, and Sustainability.
- Understanding the Digital Maturity Model for Airports.
- Challenges and Barriers to Digitalization in the Aviation Sector.
- Global Trends and Benchmarks in Smart Airport Development.
- Regulatory Frameworks and Compliance Considerations.

Unit Two: Core Technologies Driving Airport Innovation

- The Internet of Things (IoT) for Asset Tracking and Environmental Monitoring.
- Artificial Intelligence (AI) and Machine Learning (ML) in Predictive Maintenance and Resource Allocation.
- Big Data Analytics for Passenger Flow Management and Commercial Insights.
- Biometric Technology and Digital Identity for a Seamless Passenger Journey.
- Cloud Computing and its Role in Airport Information Systems.
- Blockchain Applications in Baggage Handling and Supply Chain.
- The Impact of 5G Connectivity on Airport Operations.

Unit Three: Optimizing Operations and the Passenger Journey

- Creating a Seamless and Contactless Passenger Experience from Curb to Gate.
- Smart Baggage Handling and Tracking Systems.
- Airport Collaborative Decision Making (A-CDM) for Enhanced Efficiency.
- Optimizing Airside Operations: Turnaround Management and Gate Allocation.
- Intelligent Terminal Management: Wayfinding, Queue Management, and Ambiance Control.
- Data-Driven Approaches to Non-Aeronautical Revenue Enhancement.
- Personalization of the Airport Retail and Service Experience.

Unit Four: Digital Security, Safety, and Sustainability

- Cybersecurity Threats and Mitigation Strategies for Connected Airports.
- Advanced Physical Security: Smart Surveillance and Access Control.
- Integrating Unmanned Aerial Vehicles (UAVs) for Inspection and Security.
- Digital Solutions for Airport Emergency Response and Crisis Management.
- Smart Technologies for Enhancing Runway and Airside Safety.
- The Role of Digitalization in Achieving Airport Sustainability Goals.
- Implementing Green Technologies and Energy Management Systems.

Unit Five: Strategy, Implementation, and Future Outlook

- Developing a Digital Transformation Roadmap and Business Case.
- Change Management and Stakeholder Engagement Strategies.
- Vendor Selection and Technology Integration Best Practices.
- Data Governance and Privacy in the Airport Environment.
- Case Study Deep Dive: A to Z Implementation of a Smart Airport Project.
- The Future of Air Travel: Urban Air Mobility and Hyperloop Integration.
- Final Workshop: Crafting a Smart Airport Initiative for your Organization.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As airports become increasingly reliant on interconnected digital systems, how can they balance the drive for operational efficiency and enhanced passenger experience with the escalating threats to cybersecurity and data privacy?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by adopting a holistic, strategic perspective on airport digitalization, moving beyond a mere technical survey of available technologies. While other programs may focus narrowly on specific systems, this curriculum integrates technology, operations, passenger experience, and business strategy into a unified framework. It emphasizes the 'why' behind the transformation, not just the 'how', equipping participants with the critical thinking skills to develop robust business cases and lead complex change management initiatives. The methodology is deeply rooted in practical application, utilizing in-depth case studies of both successful and challenging real-world airport projects. This provides invaluable lessons on implementation pitfalls and success factors. Furthermore, the course content is forward-looking, addressing not only current technologies but also emerging trends like Urban Air Mobility and the role of airports in a sustainable aviation future. It is designed not to create technicians, but to cultivate visionary leaders capable of navigating the multifaceted challenges of building the next generation of smart airports.