HCLTech | Supercharging Progress™

Cabin experience, supercharged!

Cutting-edge engineering solutions
for aircraft interiors

The importance of a meticulously designed aircraft interior cannot be overstated. It goes beyond aesthetics, as every aspect of the interior is carefully curated to enhance the travel experience. From the layout of seating and cabin space to the choice of materials and lighting to the technology that crafts a personalized experience, every detail is optimized for passenger comfort, well-being, and convenience.

A thoughtfully designed interior influences brand perception, customer satisfaction, and even passenger loyalty.

Elevating travel comfort with design detail

At HCLTech, we are committed to delivering exceptional services for Aircraft Interiors. Harnessing our comprehensive range of engineering and IT solutions, we provide solutions for both business jets and commercial aircrafts. Our offerings are designed to elevate the experiential standards of the industry, bringing innovation, efficiency, and unmatched quality to every aspect of the aircraft interior.

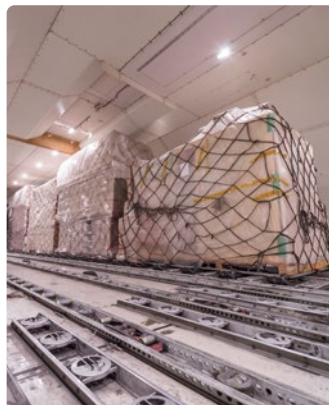## Delivering integrated cabin solutions from the beginning to the end

Seats
- Seating system design for
  - Commercial aircrafts
  - Business jets
- Seat actuation system
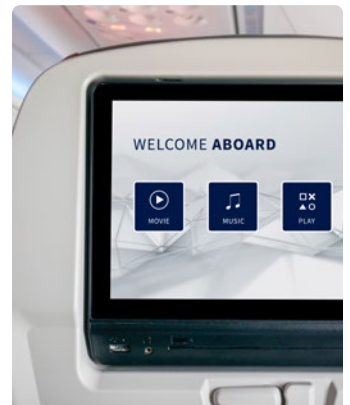- Plastic engineering
- Switches

Monuments
- Wardrobes
- Tables and extensions
- Bed and bed headboard
- Aft lavatory
- Fwd lavatory
- Divan end / Armrest
- Baggage bulkhead
- Angled cabinet

Floor to Floor
- Lining / Cargo lining / Hatrack
- Partition walls
- Flight crew rest compartment
- Dock-on crew compartment
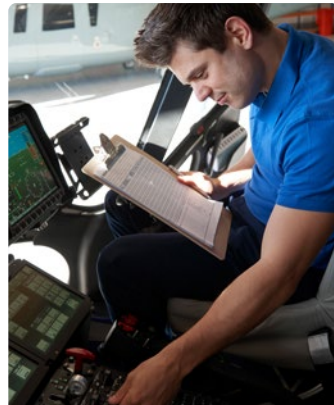- Side wall stowage / stowage
- Dado panels

Entertainment
- In-flight entertainment
- Data analytics
- Telephone / Software
- Passenger service system controller
- Cabin management system

Analysis

- Stress
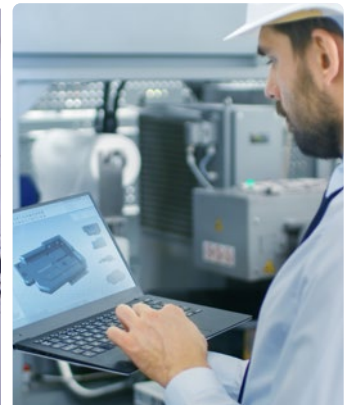- Flammability
- Reliability

Technical Publication

- Technical authoring
- Editorial services
- Illustration
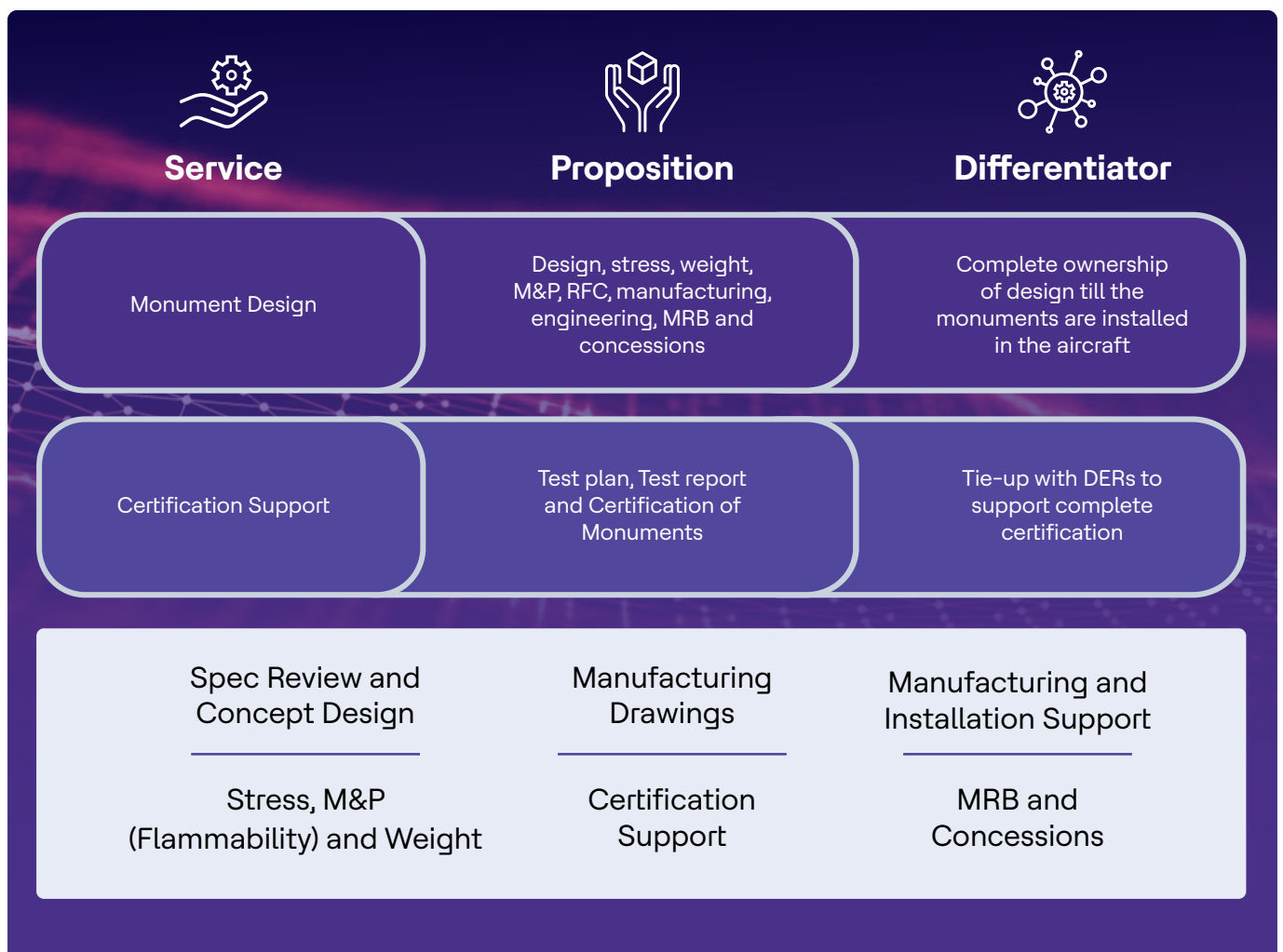- Legacy data conversion

Wiring Harness

- Cabin entertainment system
- Interior avionics systems
- Lighting systems
- Electrical systems

Miscellaneous

- Value engineering
- Placards
- KBE
- Paint schemes
- Smart ATE

Covering the full spectrum of completions engineering support

Service	Proposition	Differentiator
Monument Design	Design, stress, weight, M&P, RFC, manufacturing, engineering, MRB and concessions	Complete ownership of design till the monuments are installed in the aircraft
Certification Support	Test plan, Test report and Certification of Monuments	Tie-up with DERs to support complete certification
Spec Review and Concept Design	Manufacturing Drawings	Manufacturing and Installation Support
Stress, M&P (Flammability) and Weight	Certification Support	MRB and Concessions

Setting the standard in completions

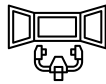| Manufacturer	Platform	Interior Work Statements	Details
Bombardier	Global Express XRS/5000/6000	40+	• Interior monuments – Concept, detail and installations; galleys, lavatories, wardrobes, credenzas, seats, divans, bulkheads, etc. • Systems – Water, waste, oxygen, ECS, lighting, entertainment • Structural interfaces, attachments, floor structure, full floor plans, zones, structural mods
	Global 7000	15+ Tails	Interior monuments – Design, analysis, weights, M&P, change management, DQ, DA and shop support
	Challenger 850	14	Interior monuments – Concept, detail and installations; galleys, lavatories, wardrobes, credenzas, seats, divans, bulkheads
	Challenger 605	4	Systems – Water, waste, oxygen, ECS, lighting, entertainment structural interfaces, attachments, floor structure
Boeing	777	3	Design and Installation – Galleys, master suites, guest suites, master and guest lavatories
	747-8i/SP	3	Cabin liner kit design and installation
	767	1	Installation of CTT Zonal Dryer System
	737 BBJ	5	Interior monuments – Concept, detail and installations; galleys, lavatories, wardrobes, credenzas, seats, divans, bulkheads Systems – Water, waste, oxygen, ECS, lighting, entertainment Structural interfaces, attachments, floor structure, full floor plans, structural modifications
	737	1	Lavatory redesign
Airbus	A340	1	Installation of cabin liner kit
	A330	2	Design and installation – Master suites, guest suites
	A320	1	Lavatory redesign
Dassault	900	1	Change management/design, interior refurbishment

Creating experiences to remember

Full spectrum coverage of In-flight Entertainment and Connectivity (IFEC) Systems

In-Flight Entertainment Systems

- Hi-Fi audio, MPEG audio, video and imaging
- In-flight games, telephony
- Content management tools
- UI themes, design and implementation
- Platform: Linux, Android, WinCE, Embedded Windows NT
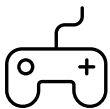- Architecture: Distributed, seat centric, wireless (with and without seat unit)

Peripheral to IFE/Cabin system

- Integration of EFB device with CMS
- Cabin application development on EFB device
- Ground-based web portals – BITE reporting, aircraft configurations, content packaging

Cabin Management Systems

- Cabin light controls
- Cabin temperature controls
- Power distribution equipment controls
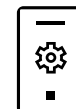- Water/Waste system interface
- Window shades

In-Flight Games

- Games application integration
- Platform: NT (Server), WinCE (Client), Linux, Android
- PCU controls (Variants)
- Touch screens (Matrix / Continuous)

IFE/CMS Systems Network

- System Backbone – RF, Ethernet, Fiber Optics, 1394 wire
- Network security and firewall functions
- Network management using SNMP

Mobility Services

- Mobile devices integration with CMS
- UI and Native application development on iOS, Android platforms

In-flight Telephony

- Design and development of application software and diagnostics routine for the telephony (VoIP) module
- Development of core diagnostics framework and message handler
- Integration with telephony system

Satellite Communications

- Broadcast, broadband and mobile services over satellite
- Bandwidth management
- Integration with SOC
- Spectrum and feeder link management
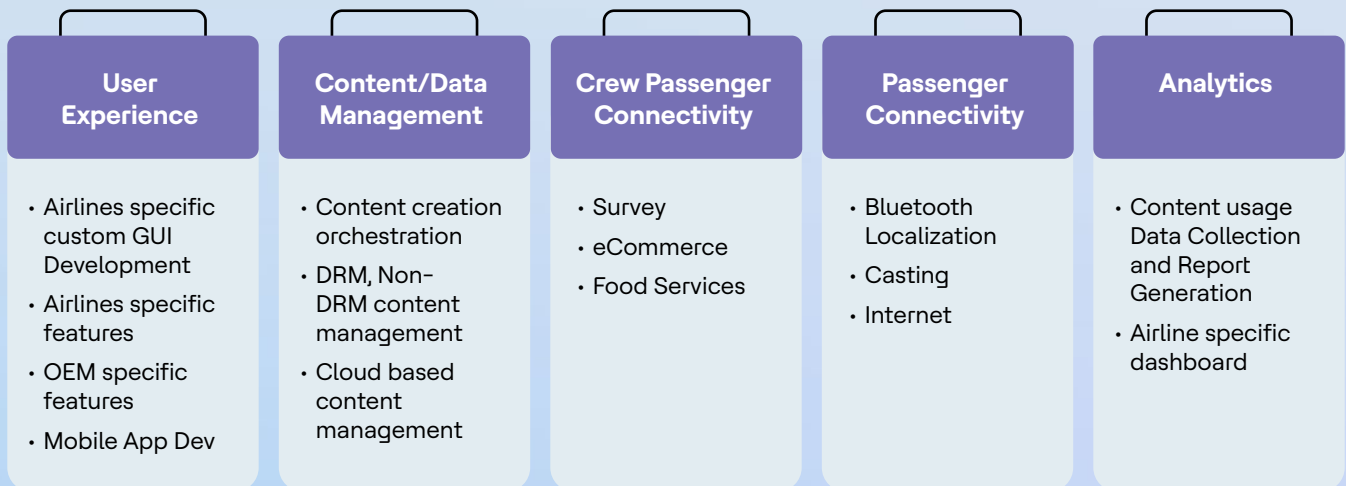
Onboard Aggregation Platform

- Enabling a high-speed airplane network and services for Connected Cabin features
- Design, development and verification of the platform

Expertise and innovation powering the future of In-flight Entertainment and Connectivity
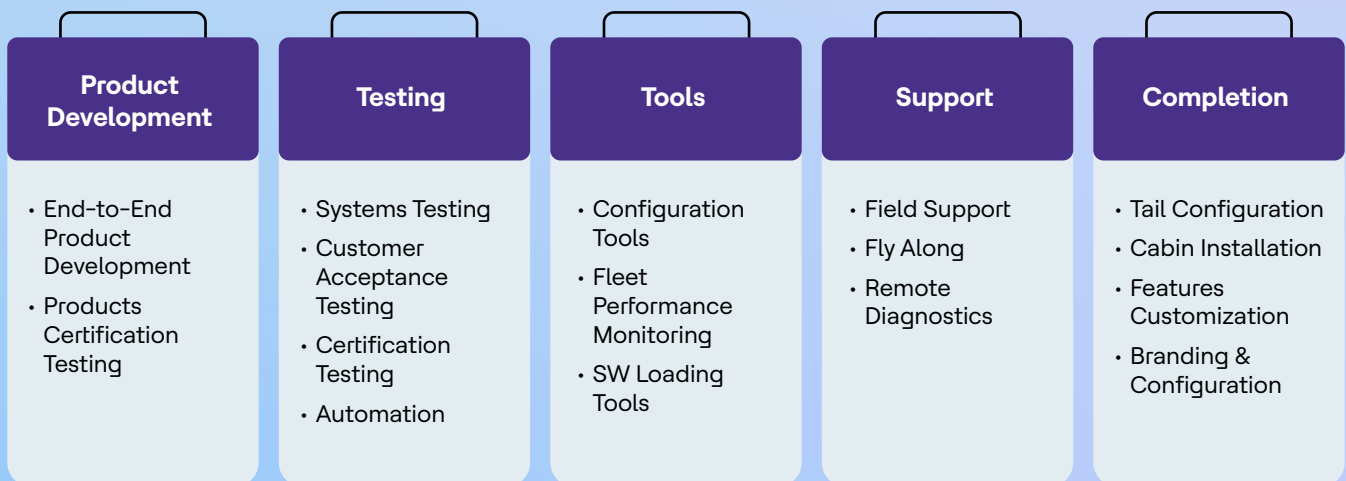
IFE and Cabin Management System (CMS)

With over 20 years of experience, we have established dedicated labs and a talented team that has collectively contributed more than 7000+ person-years of work on multiple programs and IFE partnerships.

Offerings

User Experience
- Airlines specific custom GUI Development
- Airlines specific features
- OEM specific features
- Mobile App Dev

Content/Data Management
- Content creation orchestration
- DRM, Non-DRM content management
- Cloud based content management

Crew Passenger Connectivity
- Survey
- eCommerce
- Food Services

Passenger Connectivity
- Bluetooth Localization
- Casting
- Internet

Analytics
- Content usage Data Collection and Report Generation
- Airline specific dashboard

Services

Product Development
- End-to-End Product Development
- Products Certification Testing

Testing
- Systems Testing
- Customer Acceptance Testing
- Certification Testing
- Automation

Tools
- Configuration Tools
- Fleet Performance Monitoring
- SW Loading Tools

Support
- Field Support
- Fly Along
- Remote Diagnostics

Completion
- Tail Configuration
- Cabin Installation
- Features Customization
- Branding & Configuration

HCLTech Intellectual Property

Test Infrastructure – IFE Test Racks

IP's/Products – Cloud based Platform for Device management, Content management

Test Tools – Test Automation Framework

Success stories cementing our expertise

Transformed passenger experience with innovative in-flight entertainment unit

Scope/Problem Statement

- Seat back media player unit for the single-aisle commercial aircraft
- Product styling and usability according to the current market trend
- To comply with aerospace standards and seat manufacturing standards

Solution

- "POD, POM build)" merge this in the first point after "POC"
- HCLTech-owned program management
- Ability to accept and play inputs from passenger mobile devices
- Hardware design to support higher display sizes
- Single display unit for seat mount/arm mount and control panel

Business Impact

- Reduction in product replacement time by 60% with innovative QRM (Quick Release Mechanism)
- End customer satisfaction with improved usability
- Increase market share through innovative product
- Design for cost and design for low power

Enabled faster time to market with Smart ATE for Cabin Systems

Scope/Problem Statement

- The automated test stations are costly, space-consuming
- High maintenance is required and every UUT needs specific software development
- Comprehensive test/measuring equipment is used for multiple channel switching, A/V quality measurements, discrete handling, etc., which increases the test solutions cost and testing time

Solution

- SMART ATE is a generic test solutions platform to support functional and acceptance testing of legacy and future product lines from cabin systems
- Primary features testing includes the A/V, communication interfaces, discrete and analogy interfaces/peripherals
- Quality of A/V signals generated is in compliance with the AV OEM group committee

Business Impact

- Eliminated the need for costly, space-consuming, high maintenance ATE racks and minimizes the test solution development time
- SMART ATE is 'extensive S/W and minimal H/W which eliminates manual A/V analysis using Oscilloscopes
- The Re-usability of SMART ATE saves cost by reducing expenditure on future products

Ensuring in-flight safety with Modular Control development for cabin systems

Scope/Problem Statement

- Delays or pauses during the full spectrum of actuator travel
- System noise via quiet-operation actuators
- Fault in tolerance with its distributed architecture design
- Poor collision avoidance and jam detection technology

Solution

- Revolutionary modular system architecture
- Increased fault tolerance with its distributed architecture design
- Enhanced diagnostic capabilities provide superior troubleshooting and fault isolation capabilities
- System can be powered via mcX power supply module, aircraft power, or alternate regulated power source

Business Impact

- Coordinated motion control ensures no delays or pauses during the full spectrum of actuator travel
- Reduced system noise via quiet-operation actuators
- Industry-leading safety zone collision avoidance and jam detection technology
- Enhanced system diagnostics and BITE

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HCLTech is a global technology company, home to 225,900+ people across 60 countries, delivering industry-leading capabilities centered around digital, engineering and cloud, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, Technology and Services, Telecom and Media, Retail and CPG, and Public Services. Consolidated revenues as of 12 months ending March 2023 totaled $12.6 billion. To learn how we can supercharge progress for you, visit hcltech.com