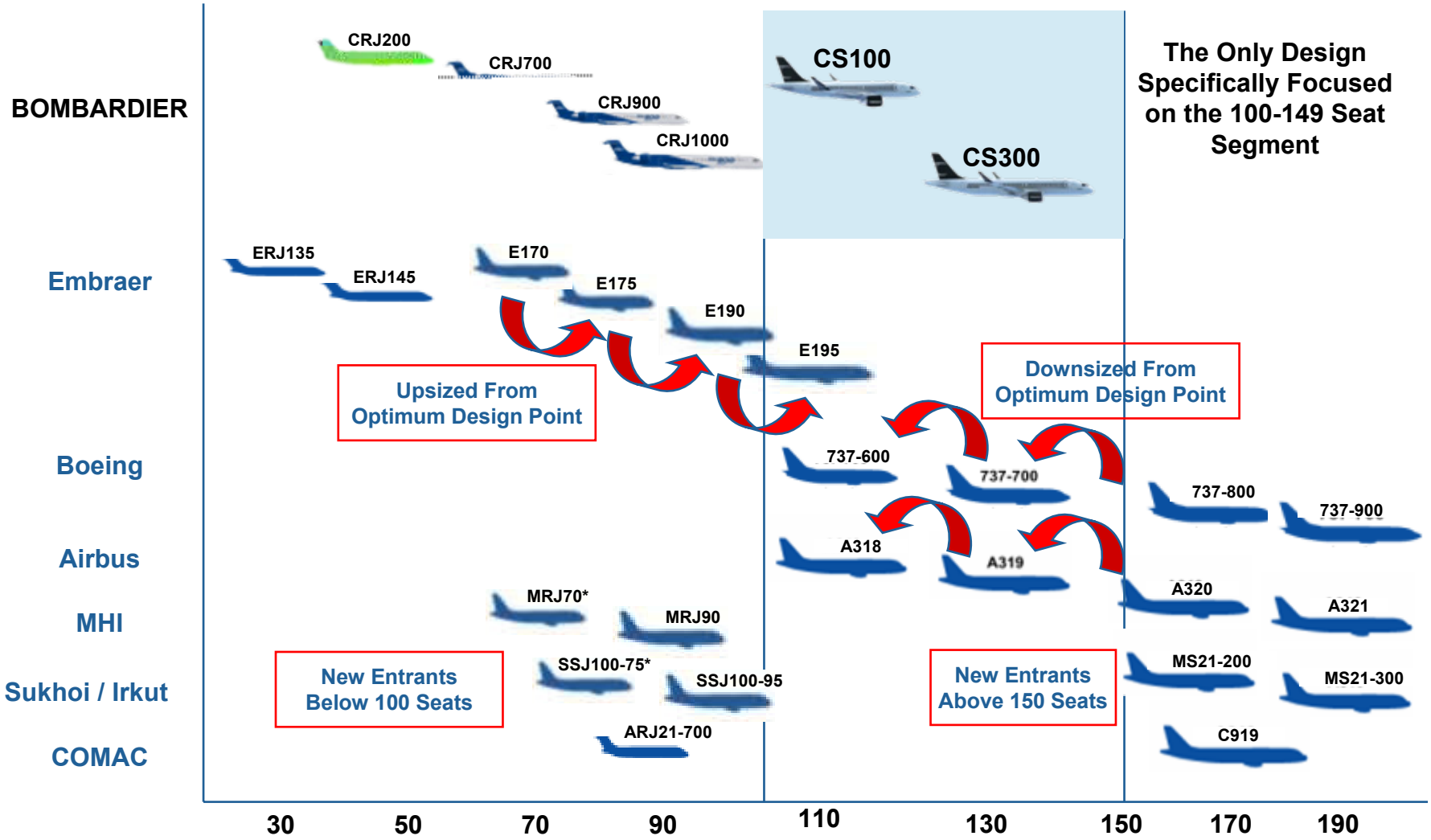
Introducing the C*SERIES*

Philippe Poutissou

VP Marketing - Commercial Aircraft

CSERIES • Introduction

CSERIES • Family of Aircraft is Optimized for the 100-149 Seat Market Segment



* Programs that are not yet launched or are under study

BOMBARDIER

CANDIDATES FOR MODERNIZATION

MD-80

700 In Service
Average Fleet
Age >20 years

B717

142 In Service
Average Fleet
Age >8 years

DC9

174 In Service
Average Fleet
Age >36 years

A319

1229 In Service
Average Fleet
Age >6 years

Fokker 100

195 In Service
Average Fleet
Age >17 years

AVRO RJ

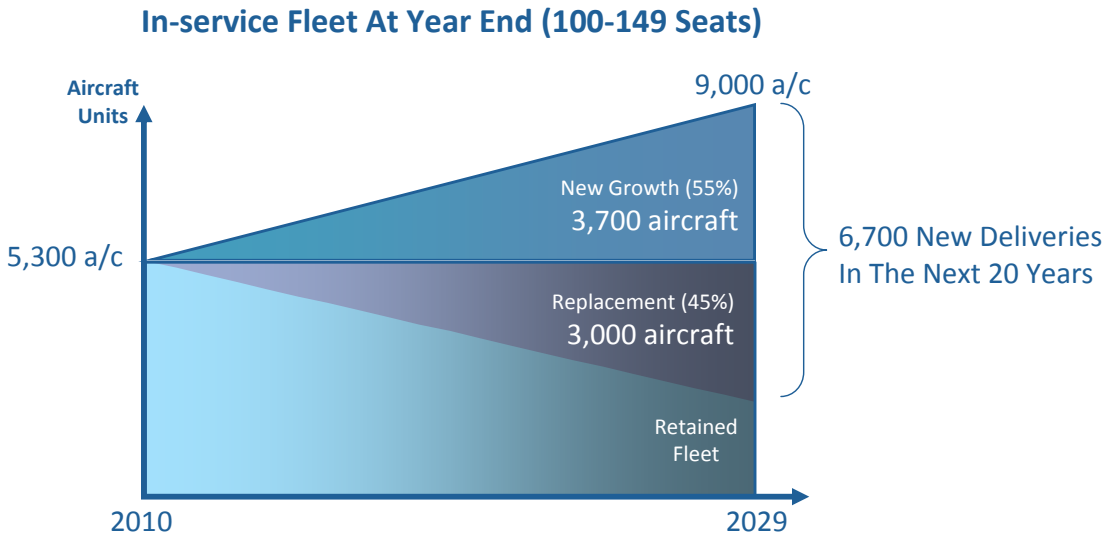
246 In Service
Average Fleet
Age >16 years

B737

1538 Classics
In Service
Average Fleet
Age >17 years

Source : ACAS, August 2010

6,700 New Aircraft Deliveries Forecasted in the 100-149 Seat Segment over the Next 20 Years



	Fleet 2010	Deliveries	Retirements	Fleet 2029
20 to 59-seats	3,700	200	2,600	1,300
60 to 99-seats	2,200	5,900	1,100	7,000
100 to 149-seats	5,300	**6,700**	3,000	9,000
Total Aircraft	11,200	12,800	6,700	17,300

Source: Bombardier Commercial Aircraft Market Forecast, 2010-2029

CSERIES • Launch Customers
90 Firm Orders + 90 Options*

Lufthansa Group / Swiss
30 CS100 + 30 options

Lease Corp. Intl. (LCI)
20 CS100/CS300 + 20 options

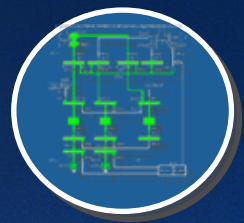
Republic Airways
40 CS300 + 40 options

*Program status as of July 31, 2010

CSERIES • Introduction

CSERIES • Design and Technologies Focused On Optimization

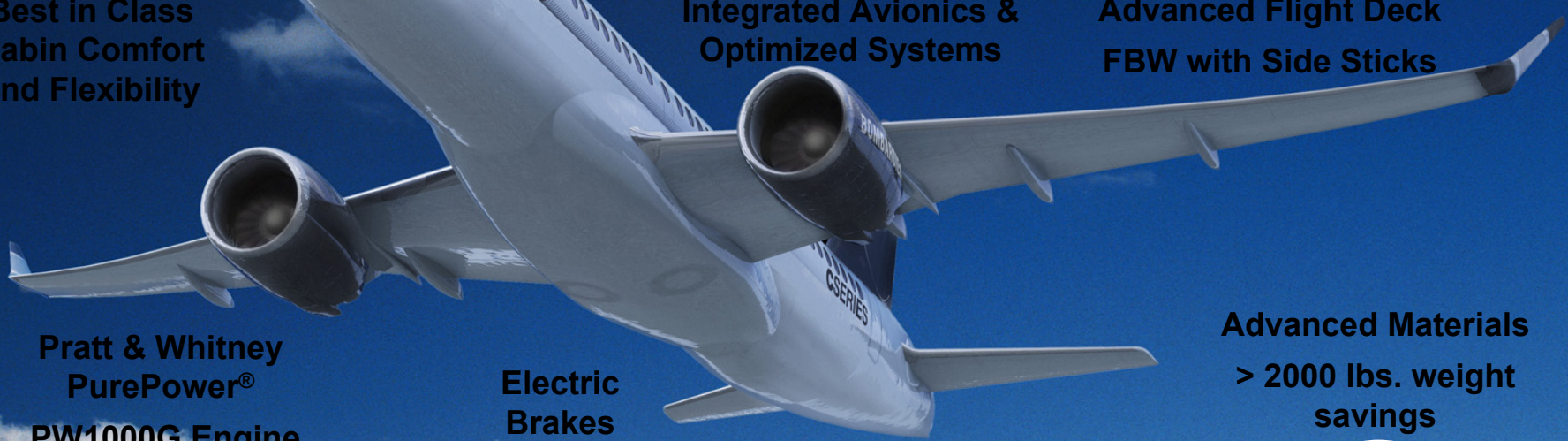
Best in Class Cabin Comfort and Flexibility



Integrated Avionics & Optimized Systems

Advanced Flight Deck

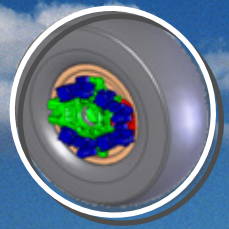
FBW with Side Sticks



Pratt & Whitney PurePower®

PW1000G Engine

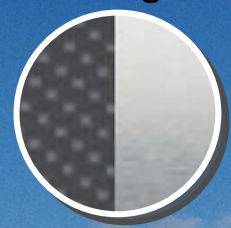
Electric Brakes



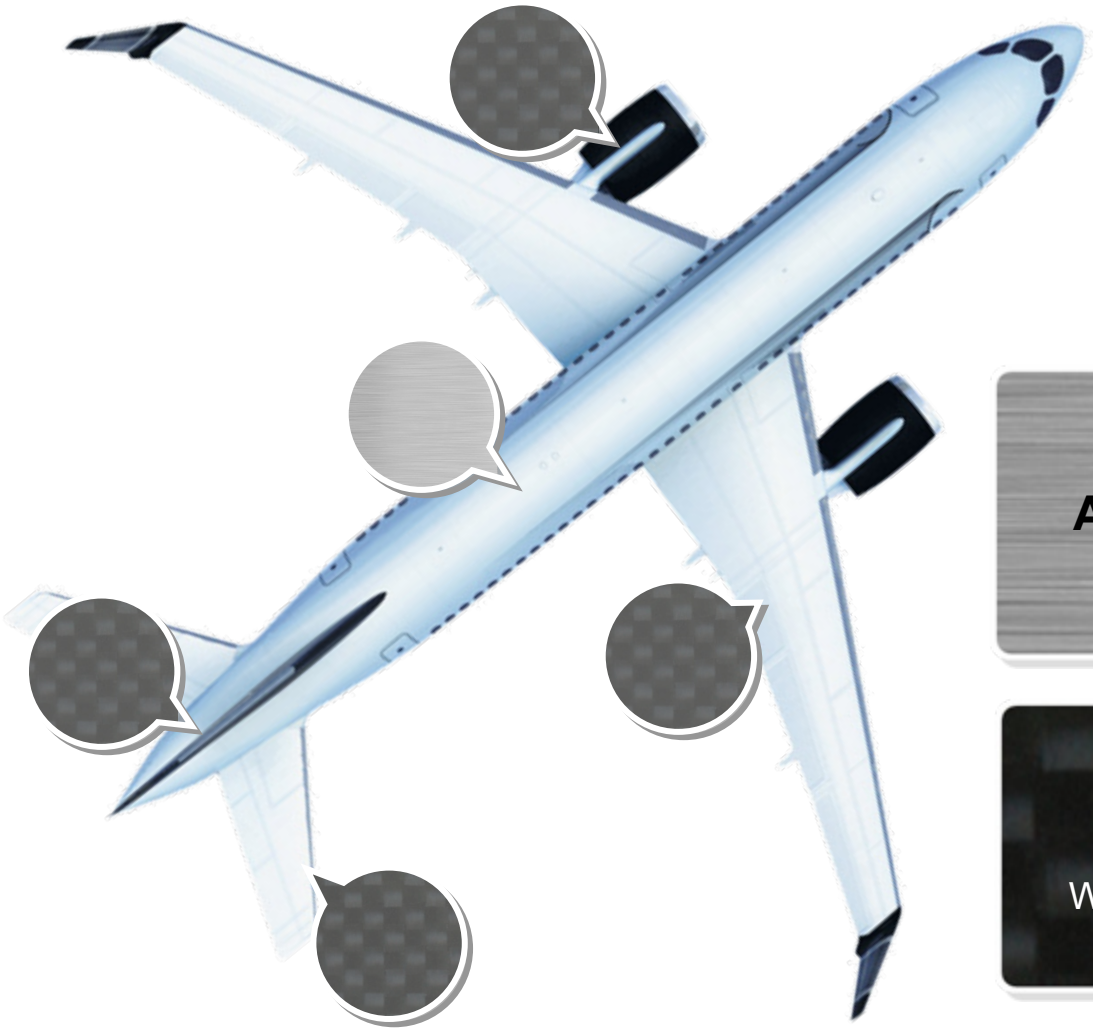
Superior Field Performance & Range Flexibility

Advanced Materials

> 2000 lbs. weight savings



CSERIES • Advanced Structural Materials
More than 2,000 Lb. Weight Savings



Advanced Aluminum Fuselage

Advanced Composite

Wing, Empennage, Rear Fuselage, Nacelle

CSERIES • Advanced Bombardier Flight Deck Design
Rockwell Collins Pro Line Fusion™

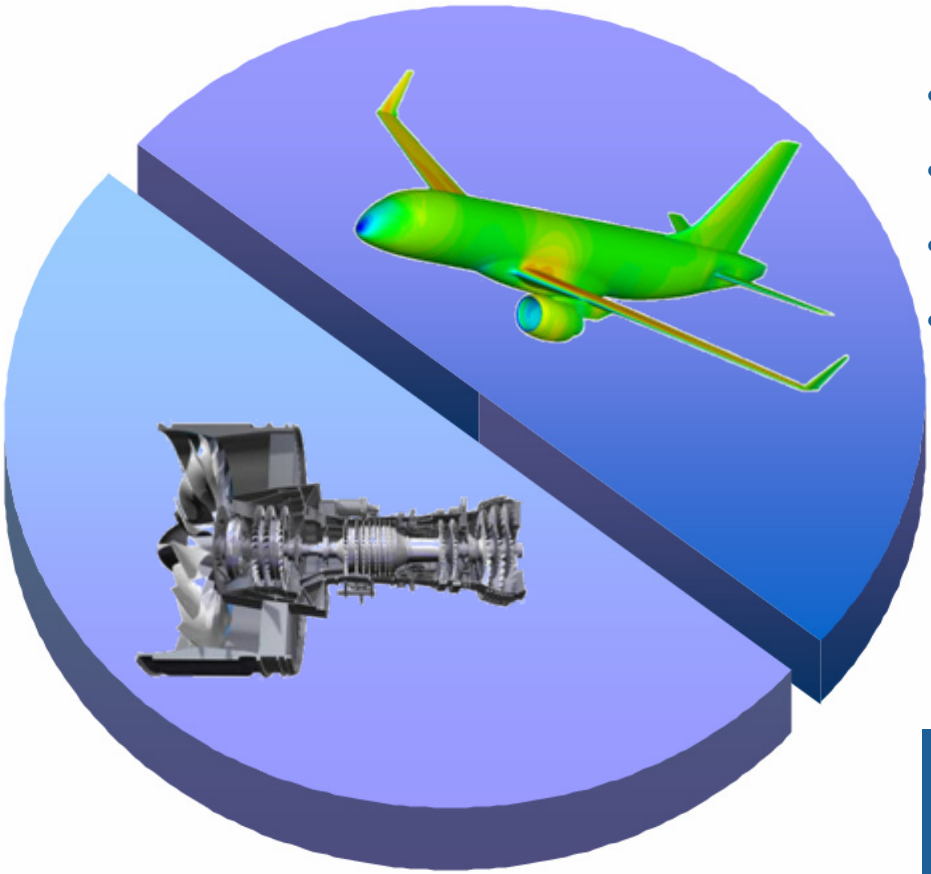
- Five large 15.1” LCD displays
- Advanced fly-by-wire with full envelope protection & speed stabilization
- Side stick controls
- Auto throttle (moving thrust levers)
- Cat IIIa Autoland
- Integrated Overhead Panel
- Integrated Flight Management System
- Cursor and keyboard
- Electronic Checklist
- Advanced Multi-Scan Weather Radar
- Data Link with Full Format Printer

Some Available Options:

- CAT IIIb Autoland
- Head Up Guidance System Displays
- Class 2 Electronic Flight Bag

Conceptual illustration – Subject to change during design evolution

CSERIES • Optimized Design and Use of Technology Lead to Unmatched Fuel Efficiency



Optimal Aircraft Integration

- Latest Generation System Technology
- State-Of-The-Art Aerodynamics
- Lighter Structure due to
- Extensive Use of Advanced Materials

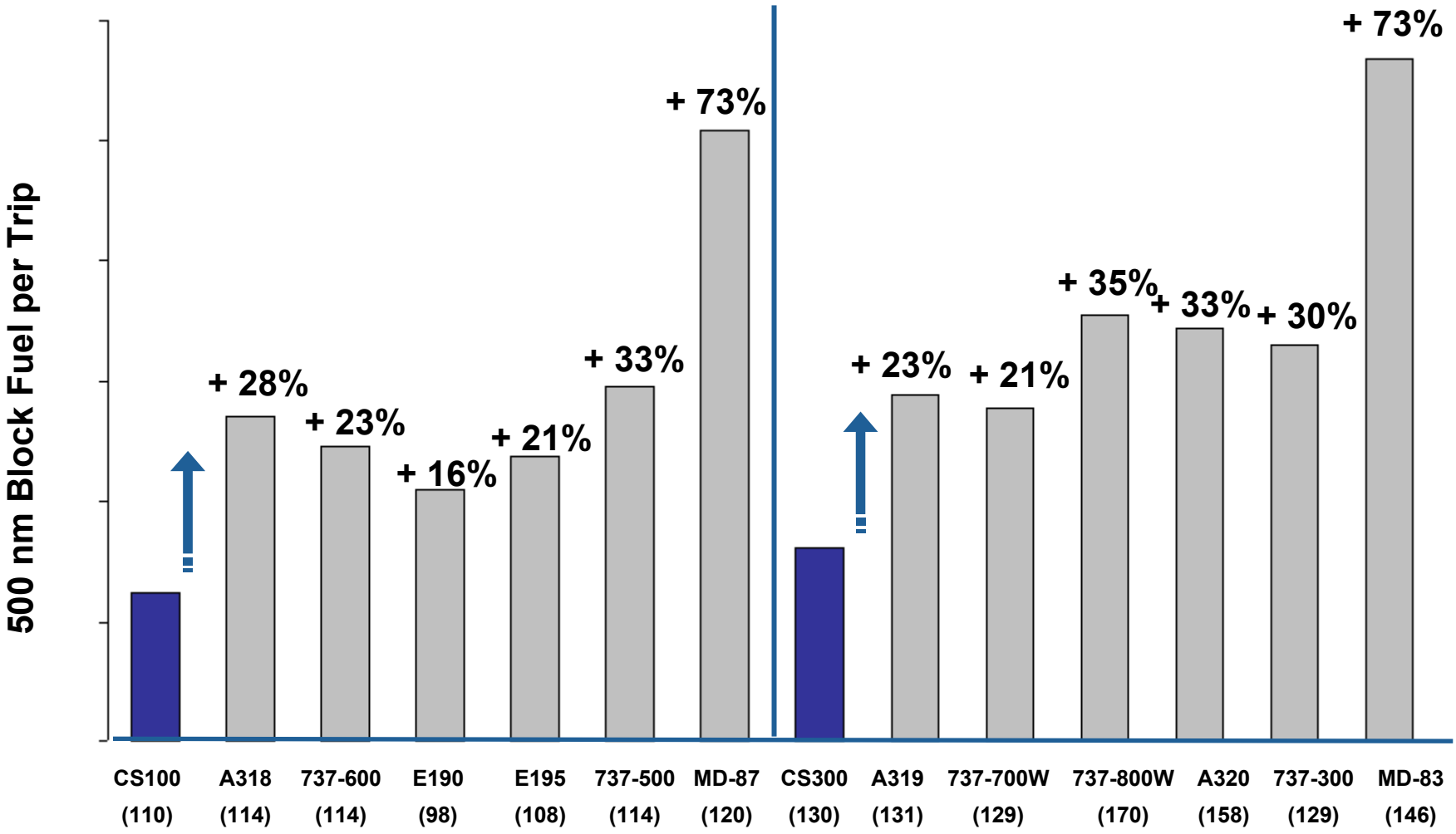
+

Game Changing Engine

PurePower® PW1000G

All Leading to More Than 20% Fuel Burn Advantage

CSERIES • Game Changing Fuel Burn Advantage



CSERIES • Range & Short Runway Capability Opens More Market Opportunities

FLEXIBILITY

737-500 (8,100 ft.)

E195

E190

F100

717

A318

737-600

Avro RJ100
(1,189 NM)

CS100

7,500 ft

6,000 ft

4,500 ft

Takeoff Field Length (at MTOW, ISA)

1,400 NM

1,850 NM

2,300 NM

2,750 NM

3,200 NM

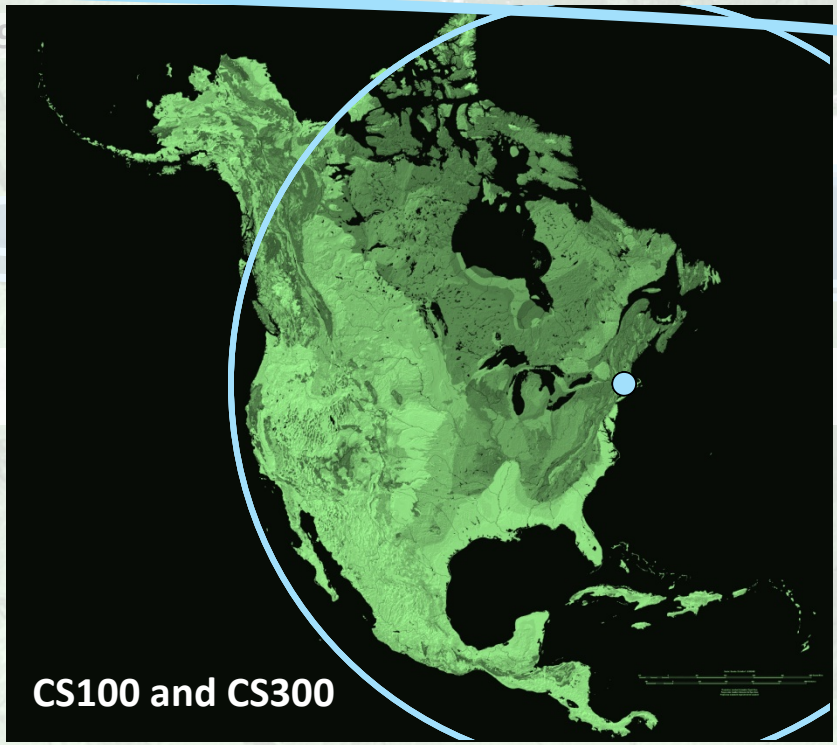
Range

CSERIES • Transcontinental Range
BOSTON → SEATTLE

MD80

E19

True Air Distance:
2,500 nm



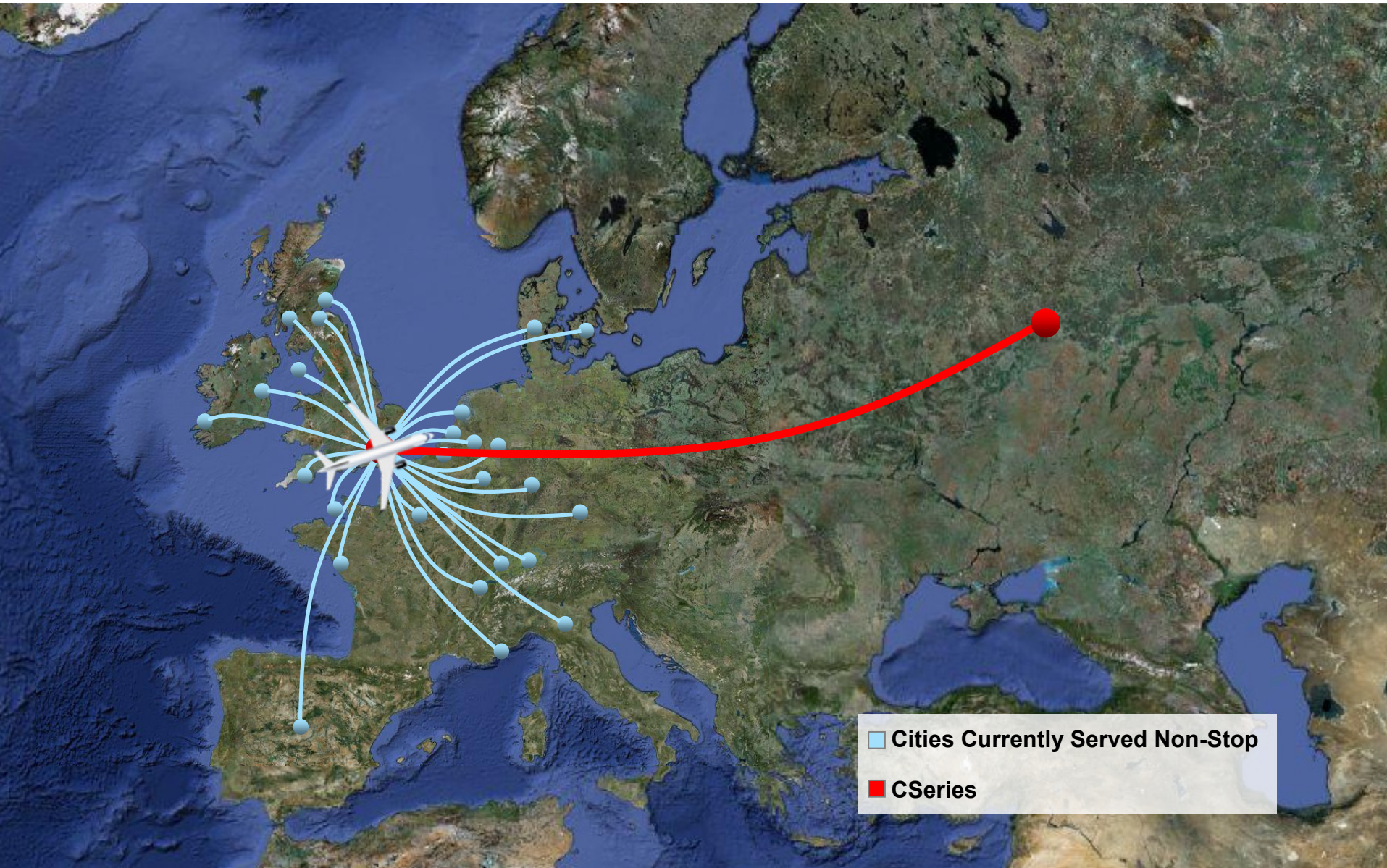
Transcontinental Range

CSERIES

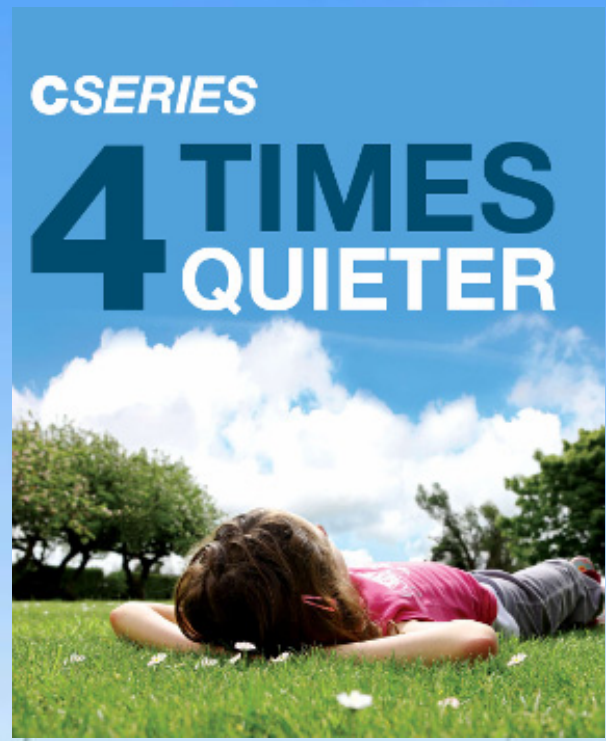
A319

B737

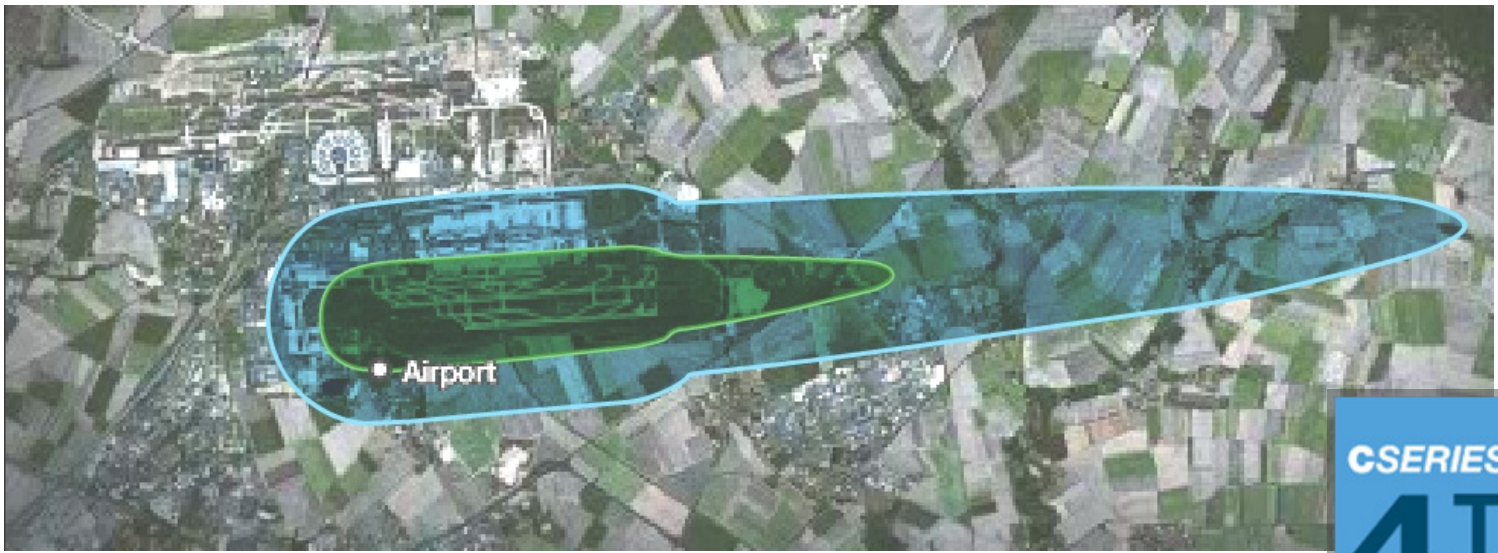
CSERIES • More Flexibility from Challenging Airports
LONDON CITY → MOSCOW



CSERIES • Unmatched Reduction In Environmental Footprint



CSERIES • 4 Times Smaller Noise Footprint

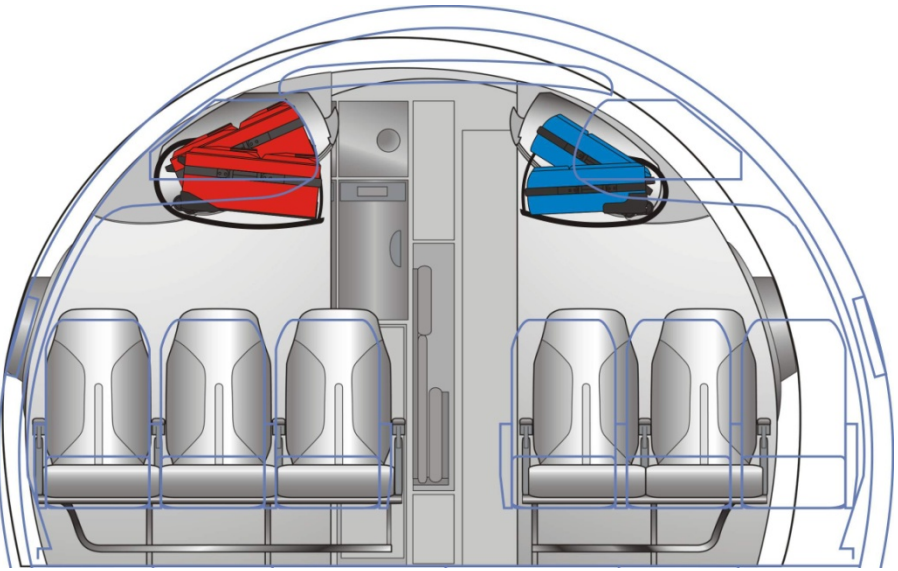


70dBA NOISE CONTOURS

- **CS300**
- **130-seat capacity in-production aircraft**

CSERIES • Wide-Body Comfort In Single-Aisle Aircraft

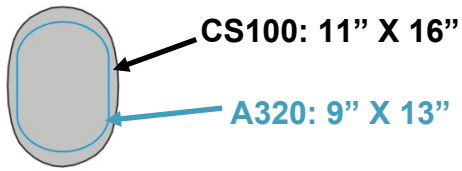
CSERIES • Offers Considerably More Passenger Cabin Stowage Space Than Current Narrowbodies



CS100 vs. A320

CSeries Advantages:

- ✓ 25% More Bin Space per Passenger
- ✓ 20% More Roller Bags per Passenger
- ✓ CSeries Can Carry Oversized Roller Bags (24” X 17” X 11”) Wheels First
- ✓ 6” Lower Loading Height for Overhead Bins
- ✓ Larger Windows



- ✓ Increased Shoulder (+ 16%) and Eye-Level (+ 33%) Sidewall Clearance*

	Cabin Width	Aisle Width / Height	Seat Width
CS100	129”	✓ 20” / 84”	✓ 18.5” / 19.0”
A320	145”	19” / 84”	18.0”

*Sidewall Clearance Measured from Window Seat Centerline

BOMBARDIER

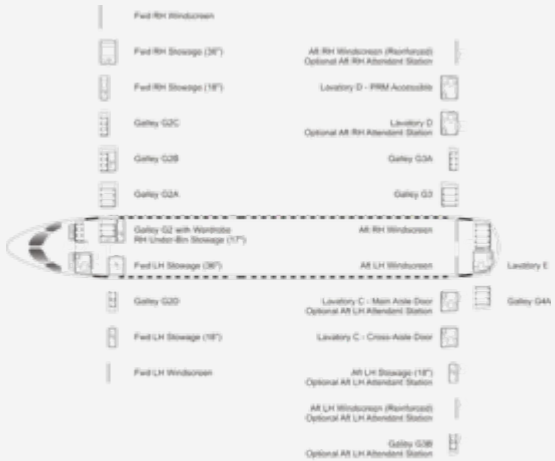
CSERIES • Cavernous Overhead Bins
Optimized For Loading Access

90 Roller-Bags Fit in Overhead Bins!
This Accommodates 80%* of the Passengers

* In CS100 Standard Configuration

BOMBARDIER

CSERIES • High Residual Value… A Design Reality !



COMMON PLATFORM

FLEXIBLE CABIN

FLEXIBLE AIRPLANE

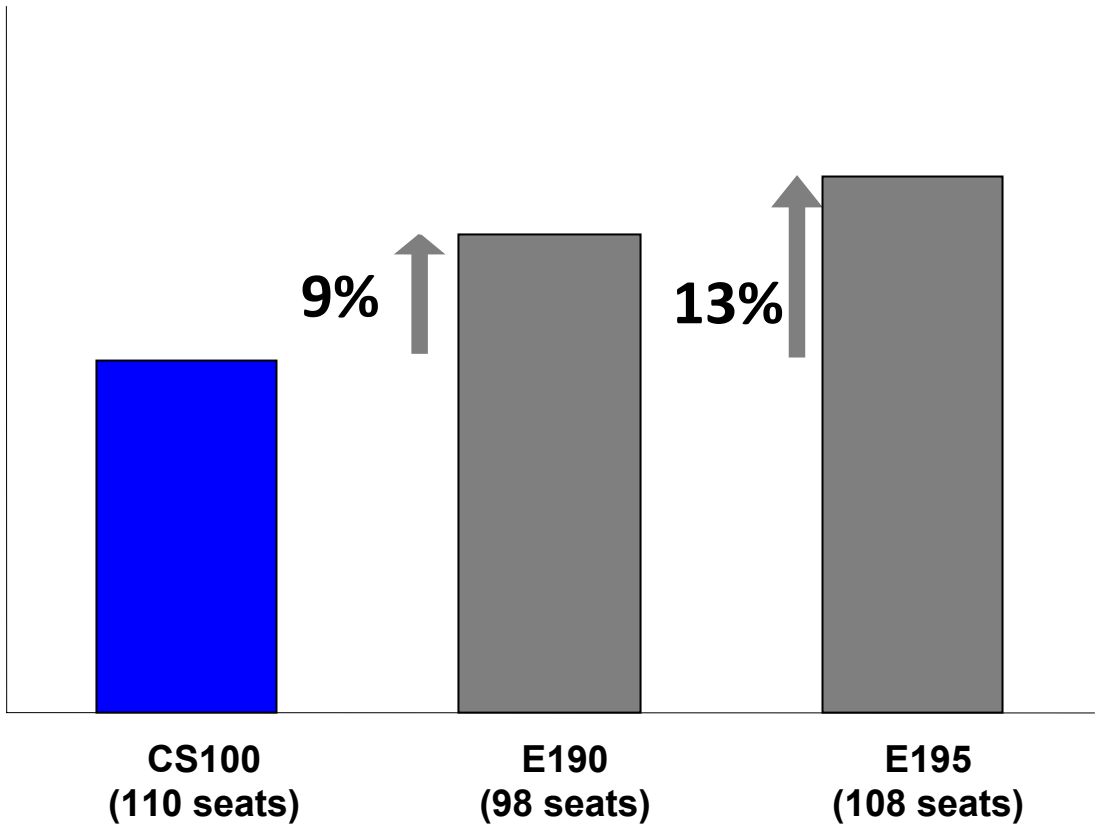
CSERIES • Entry Into Service
Key Elements of CSERIES Program

- Involvement of Customer Support from day #1 of development
- Advanced Health Management System (AHMS)
- Robust EIS Team
- Minimize direct & indirect maintenance and Life Cycle Cost (LCC)
- Improving real-time collaboration and connectivity via web solutions
- Offering nose-to-tail aircraft support and Fleet Management Services

CSERIES • Introduction

CS100 COST ADVANTAGE

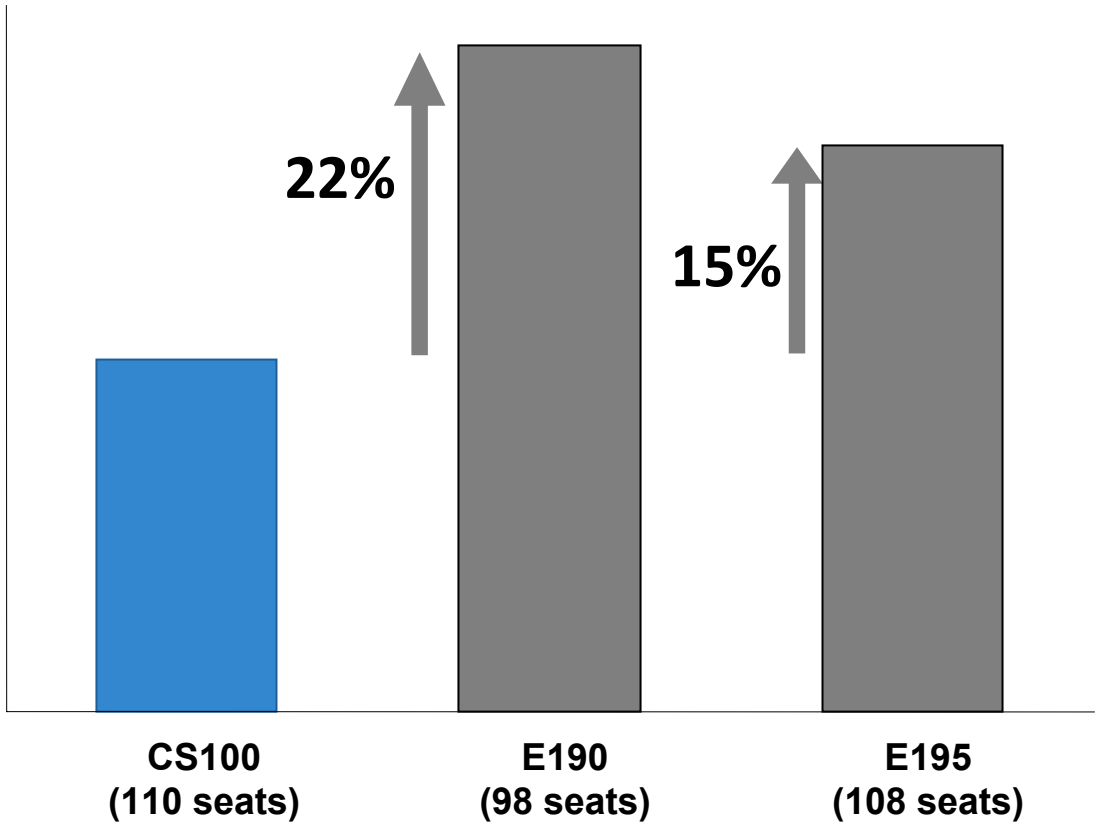
Cash Operating Cost per Trip



500 nm Mission, Fuel at 2.40 US$/USG (US$ 80 per crude oil bbl)

CS100 COST ADVANTAGE

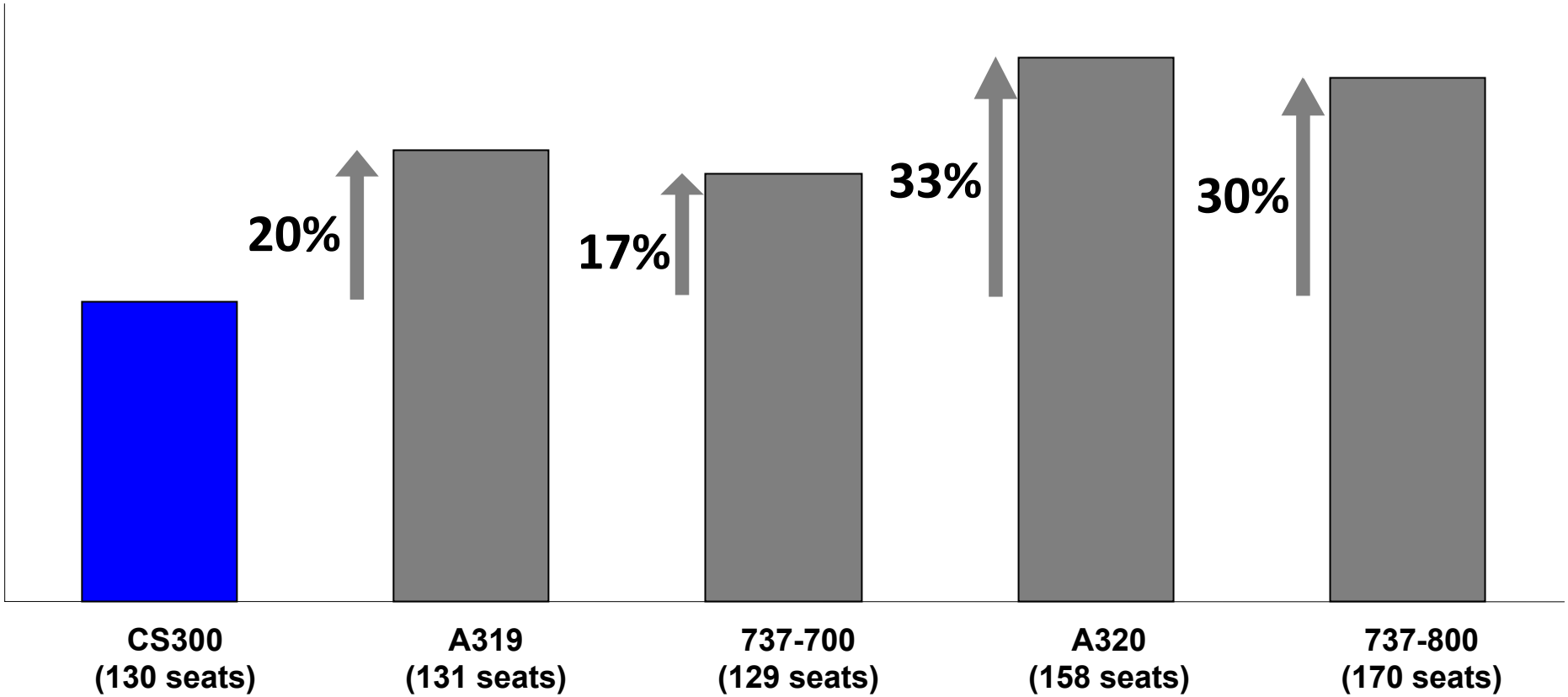
Operating Cost per Seat



500 nm Mission, Fuel at 2.40 US$/USG (US$ 80 per crude oil bbl)

CS300 COST ADVANTAGE

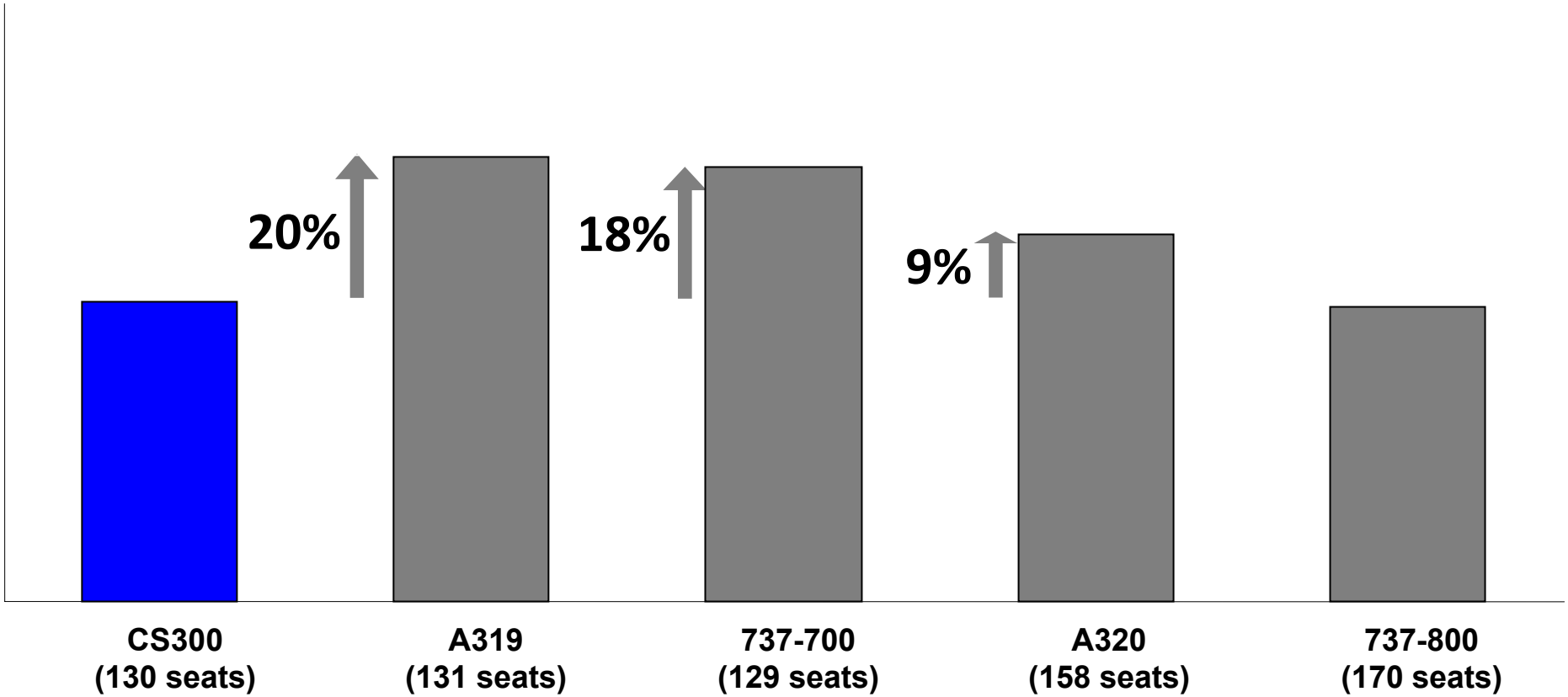
Operating Cost per Trip



500 nm Mission, Fuel at 2.40 US$/USG (US$ 80 per crude oil bbl)

CS300 COST ADVANTAGE

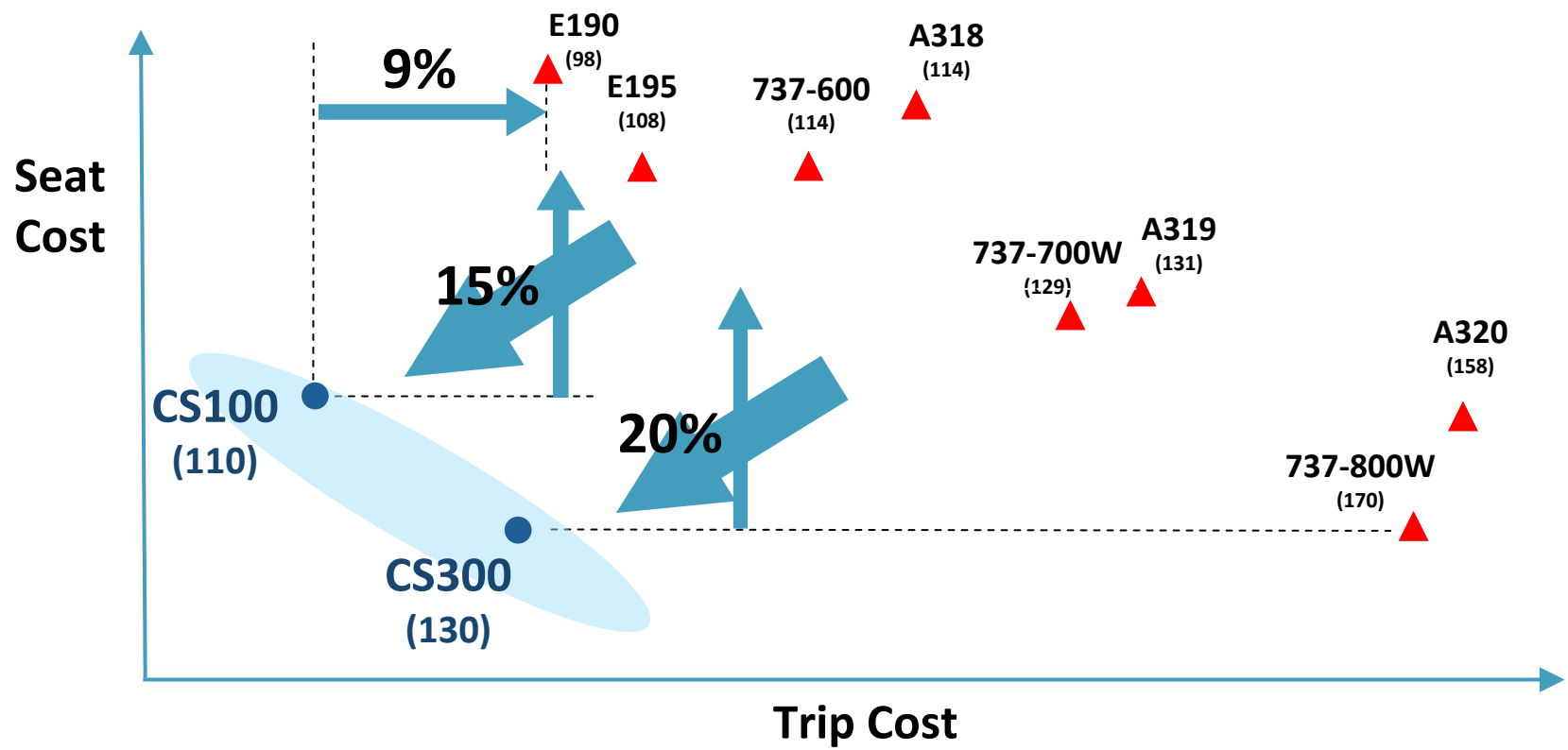
Operating Cost per Seat



500 nm Mission, Fuel at 2.40 US$/USG (US$ 80 per crude oil bbl)

CSERIES • is a *Game Changer* for Profitable Growth

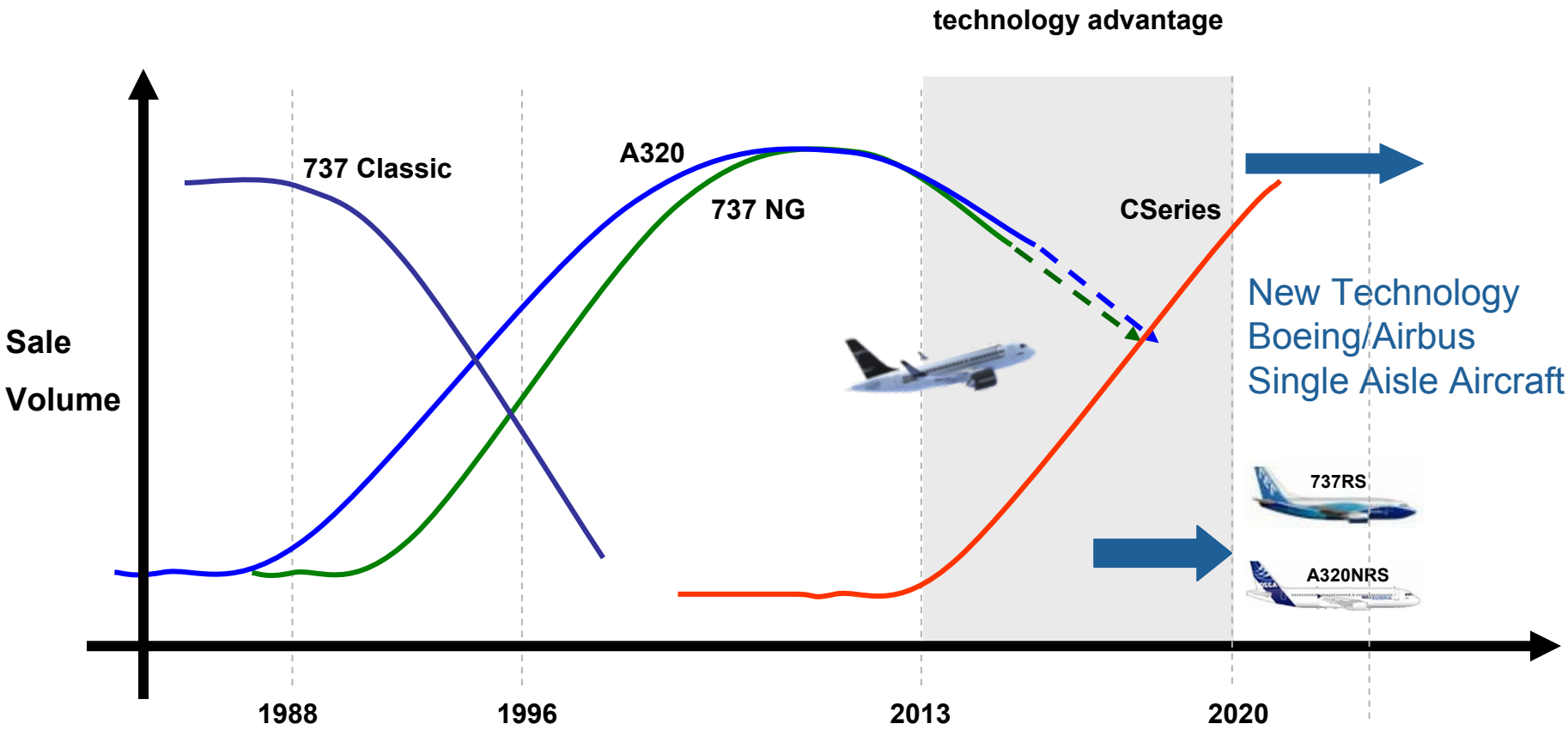
- LOW UNIT COST FOR MARKETS WITHOUT ENOUGH YIELD FOR TODAY'S 100-149 SEAT AIRCRAFT
- RIGHT SIZE FOR MARKETS WITHOUT ENOUGH DEMAND FOR 150+ SEAT AIRCRAFT



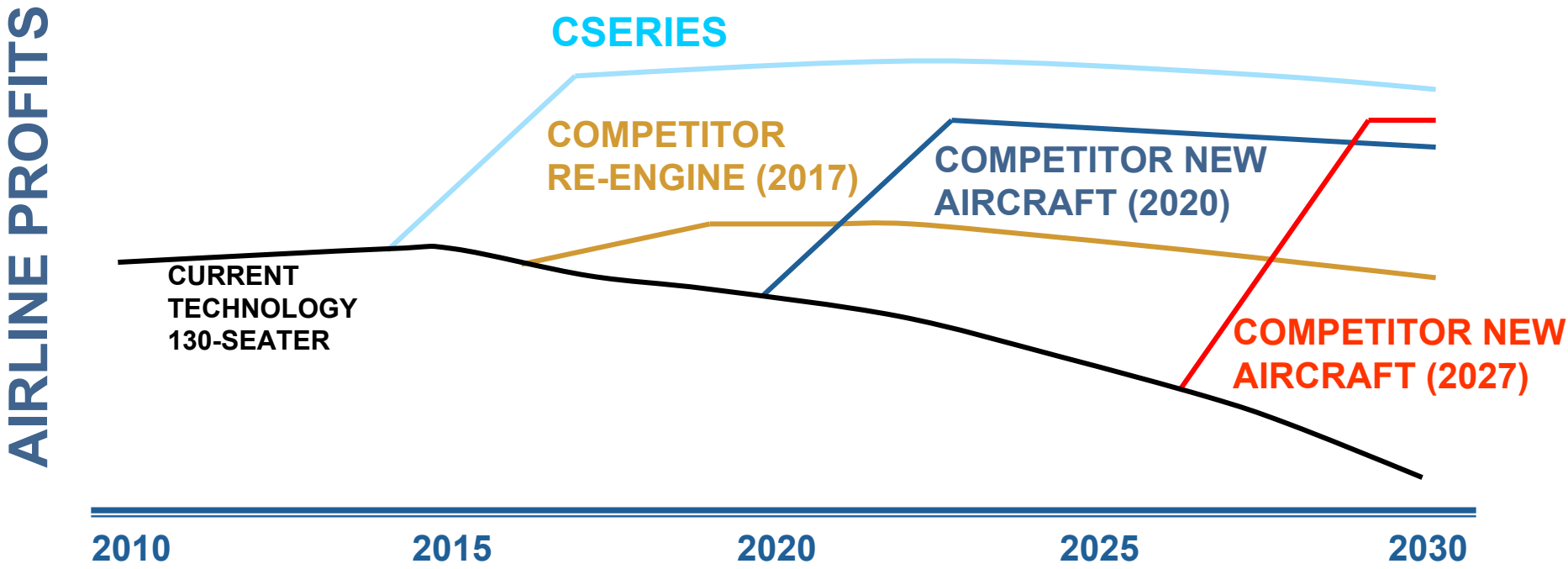
Profitability (Low Unit Cost)

CSERIES

CSERIES • Timing Fits the 737/A320 Product Life Cycle Gap



CSERIES • Timing = More Profits

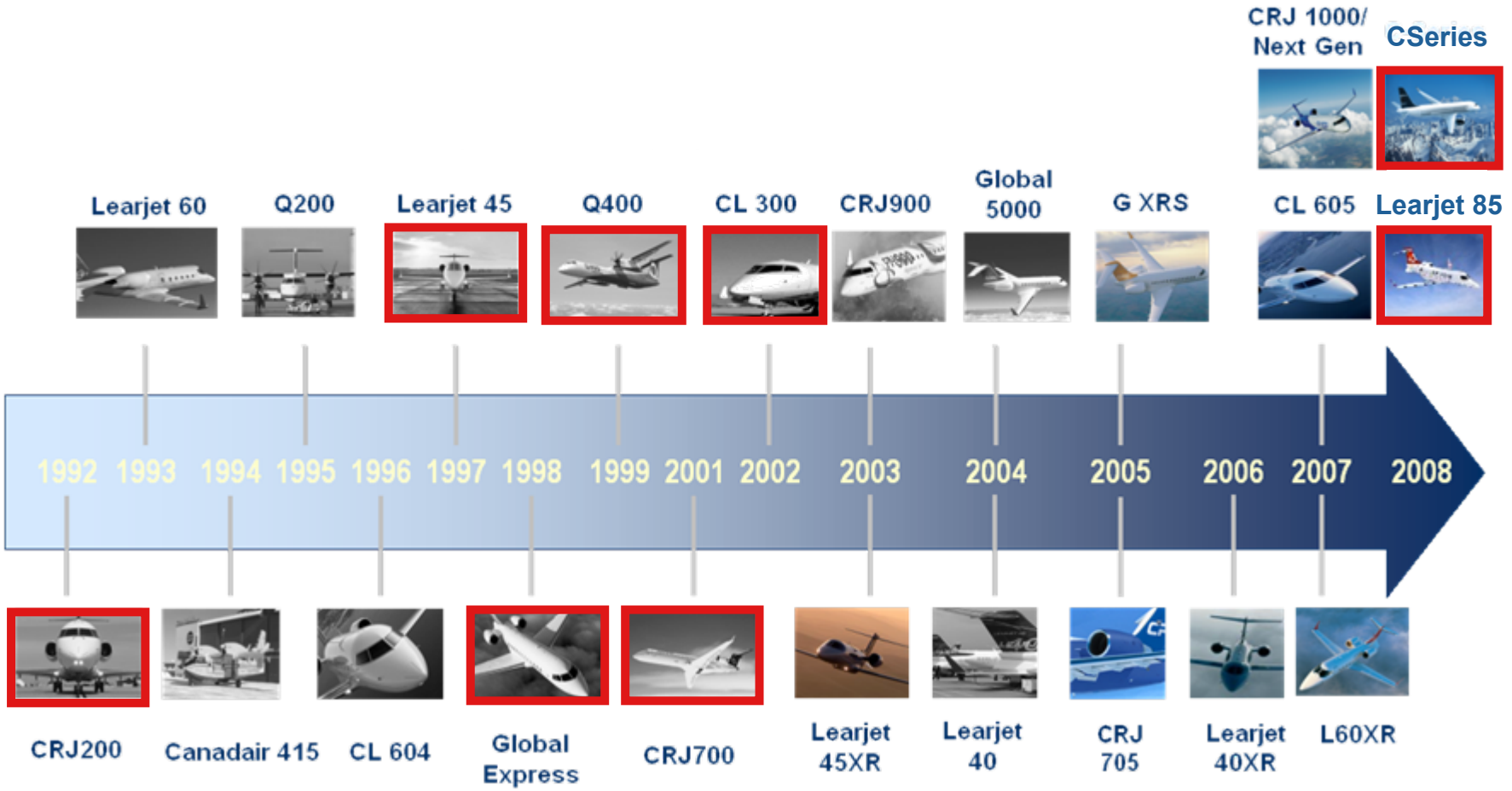


BEST SOLUTION:

All New Technology Optimized Airplane … ***NOW!***

CSeries Program Overview

Bombardier Aerospace: Building on a Long and Successful Product Development Heritage

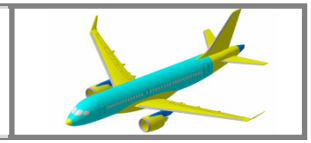
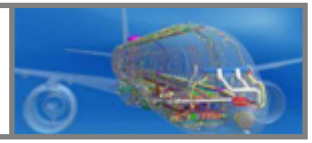


25 Aircraft Projects Since 1989

Clean Sheet Design and Major Derivatives

BOMBARDIER

CSERIES • Executing per Plan

2008	Technologies Selection and Program Launched At Farnborough Airshow	
2009	Finalizing Conceptual Design Phase And Start Definition Of System Interfaces	
2010	Joint Definition Phase, Detail Design Phase Technologies Demonstrators, Facilities	

CSERIES • Transitioned from JDP to DDP

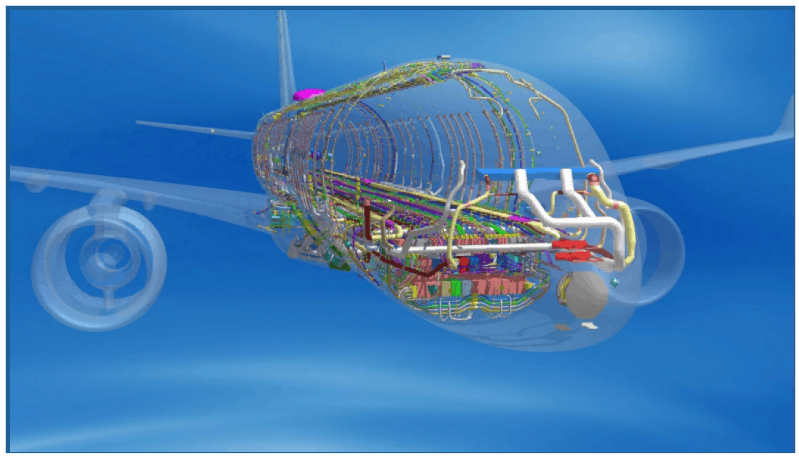
JDP: Joint Definition Phase

Structure & Systems Architecture Interfaces Defined And Frozen

Technology Demonstrators Completed

Overall Aircraft Performance Confirmed

Validated with Key Customers



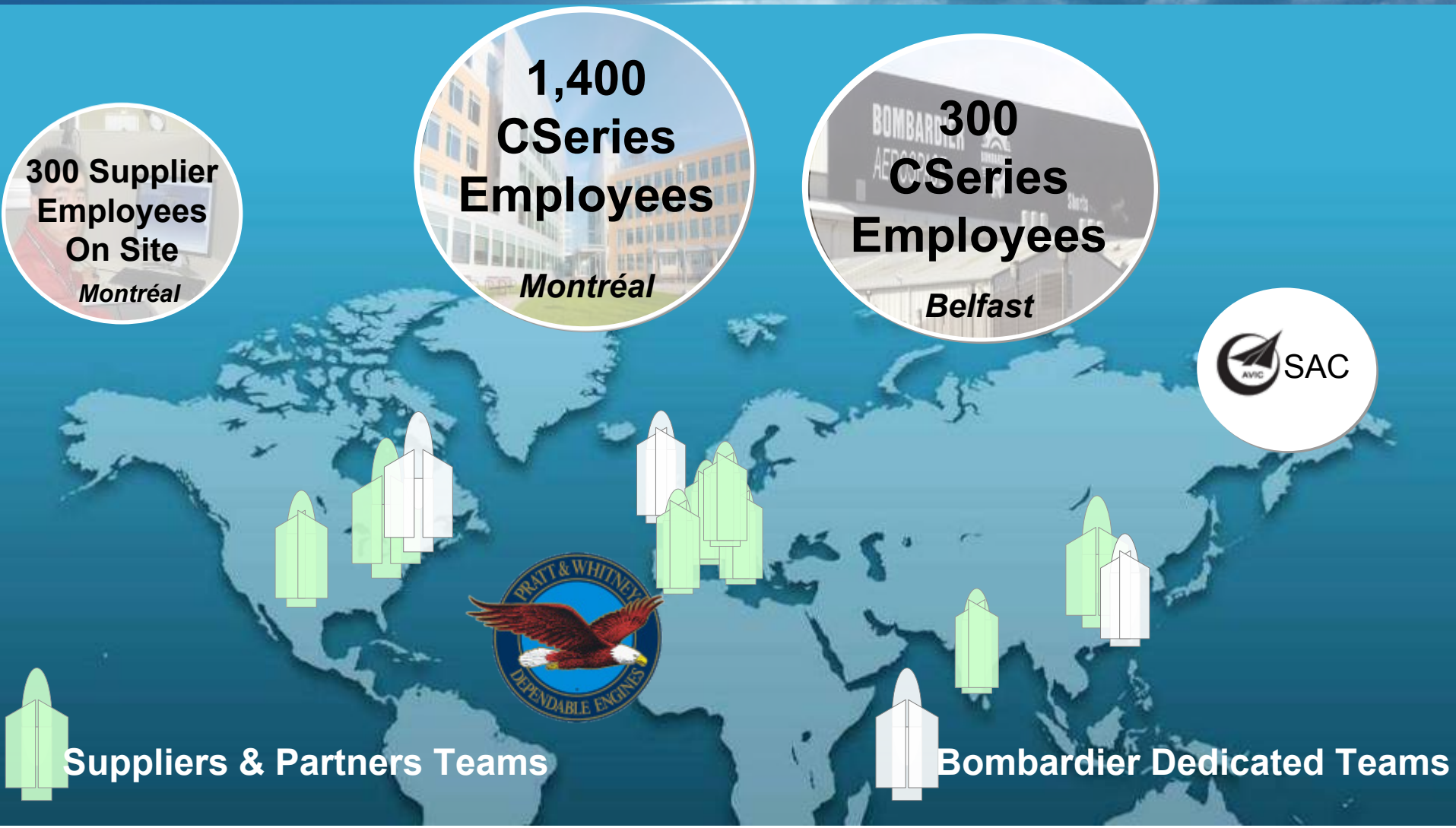
DDP: Detail Design Phase

Fully Engaged in DDP Activities

First Detail Datasets Released

Transition Completed in July 2010

CSERIES • Ramping resources per plan
A Significant Worldwide Resource Effort



CSeries • Our Partners and Suppliers

Propulsion	Pratt & Whitney (A United Technologies Company), LIEBHERR, MPC / WOODWARD MPC, Senior Aerospace, SPIRIT AEROSYSTEMS, Honeywell, Parker, GOODRICH, Kidde Aerospace & Defense (A Hamilton Sundstrand Company), SONACA
Mechanical	Parker, GOODRICH, MEGGITT, Rockwell Collins, MICHELIN, LIEBHERR
Interiors	ZODIAC AEROSPACE, GOODRICH, Panasonic, Panasonic Avionics Corporation
Avionics/ Electrical	Rockwell Collins, GOODRICH, Honeywell, Fokker Elmo, Esterline, Korry Electronics, Hamilton Sundstrand (A United Technologies Company), L3 communications, FALGAYRAS
Structures	中航工业沈阳飞机工业（集团）有限公司 AVIC SHENYANG AIRCRAFT CORPORATION, RioTintoAlcan, AleniaAeronautica, BOMBARDIER
Sim/Test/ Cert	CAE

CSERIES • Bombardier and Partners Investing in New Sites

Mirabel Site (CIASTA & CSeries Assembly)
Additional 860,000 sq.ft

Belfast Site : Composite Wing
Additional 600,000 sq.ft

Renovation to St-Laurent Plant

Shenyang SAC New Facility for CSeries
Additional 226,000 sq.ft

C*SERIES* • Investing in Belfast Facilities

Autoclave Installed

15 000 m^2 Clean Room

14 000 m^2 Autoclave and Production Area

CSERIES • Extensive Technology & Product Validation

Wing Demonstrator Assembly Completed

CSERIES • Extensive Technology & Product Validation
Composite Wing Demonstrator in Testing Rig

CSERIES • Extensive Technology & Product Validation
Structural Testing

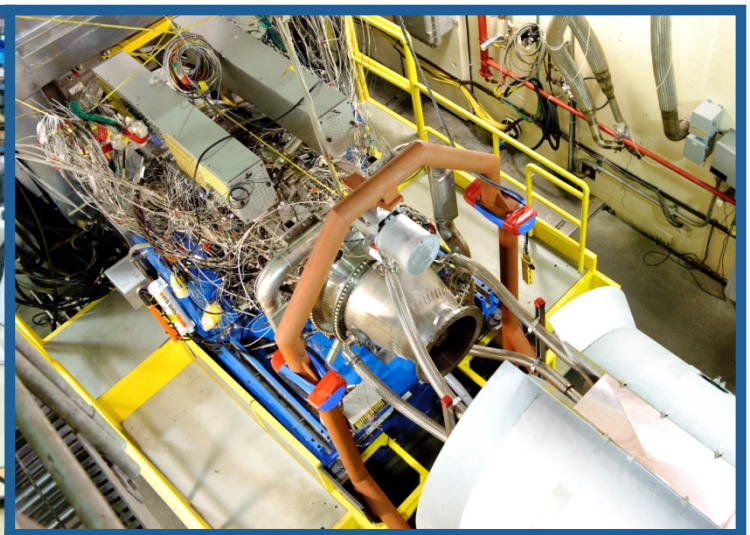
- ☑ Fuselage Barrel Arrived August 2009
- ☑ Testing Started in December 2009
- ☑ First 60,000 Cycles Successfully Completed

CSERIES • Extensive Technology & Product Validation
Systems Testing: Test on the Ground to Validate in the Air

CIASTA: **C**omplete **I**ntegrated **A**ircraft **S**ystem **T**est **A**rea

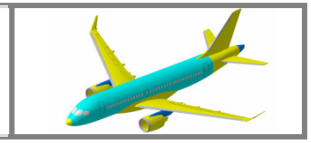
System Ground Test Aircraft On Plan

CSERIES • Engine On plan



Performance and
Development
On-Track For
First Engine To Test

CSERIES • Executing per Plan

2008	Technologies Selection and Program Launched At Farnborough Airshow	
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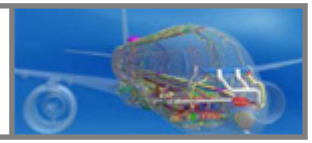
2010	Joint Definition Phase, Detail Design Phase Technologies Demonstrators, Facilities	
2011	Complete Product Definition Release Build & Commission System Test Aircraft	
2012	First Flight	
2013	CS100 Aircraft Entry-Into-Service	
2014	CS300 Aircraft Entry-Into-Service	

Thank you.