



ICAO | UNITING AVIATION



Current and Future Aircraft Technologies

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BOMBARDIER
the evolution of mobility

ICAO HQ, Montréal, Canada

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FORWARD-LOOKING STATEMENTS

This presentation includes forward-looking statements, which may involve, but are not limited to: statements with respect to our objectives, guidance, targets, goals, priorities, markets and strategies, financial position, beliefs, prospects, plans, expectations, anticipations, estimates and intentions; general economic and business outlook, prospects and trends of an industry; expected growth in demand for products and services; product development, including projected design, characteristics, capacity or performance; expected or scheduled entry into service of products and services, orders, deliveries, testing, lead times, certifications and project execution in general; our competitive position; and the expected impact of the legislative and regulatory environment and legal proceedings on our business and operations. Forward-looking statements generally can be identified by the use of forward-looking terminology such as “may”, “will”, “expect”, “intend”, “anticipate”, “plan”, “foresee”, “believe”, “continue” or “maintain”, the negative of these terms, variations of them or similar terminology. By their nature, forward-looking statements require us to make assumptions and are subject to important known and unknown risks and uncertainties, which may cause our actual results in future periods to differ materially from forecasted results. While we consider our assumptions to be reasonable and appropriate based on information currently available, there is a risk that they may not be accurate. For additional information with respect to the assumptions underlying the forward-looking statements made in this presentation, refer to the respective Guidance and forward-looking statements sections in Overview, Bombardier Aerospace and Bombardier Transportation sections in the Management’s Discussion and Analysis (“MD&A”) in the Corporation’s annual report for the fiscal year ended December 31, 2011.

Certain factors that could cause actual results to differ materially from those anticipated in the forward-looking statements include risks associated with general economic conditions, risks associated with our business environment (such as risks associated with the financial condition of the airline industry and major rail operators), operational risks (such as risks related to developing new products and services; doing business with partners; product performance warranty and casualty claim losses; regulatory and legal proceedings; to the environment; dependence on certain customers and suppliers; human resources; fixed-price commitments and production and project execution), financing risks (such as risks related to liquidity and access to capital markets, exposure to credit risk, certain restrictive debt covenants, financing support provided for the benefit of certain customers and reliance on government support) and market risks (such as risks related to foreign currency fluctuations, changing interest rates, decreases in residual value and increases in commodity prices). For more details, see the Risks and uncertainties section in Other. Readers are cautioned that the foregoing list of factors that may affect future growth, results and performance is not exhaustive and undue reliance should not be placed on forward-looking statements. The forward-looking statements set forth herein reflect our expectations as at the date of the Corporation’s MD&A and are subject to change after such date. Unless otherwise required by applicable securities laws, we expressly disclaim any intention, and assume no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. The forward-looking statements contained in this presentation are expressly qualified by this cautionary statement.

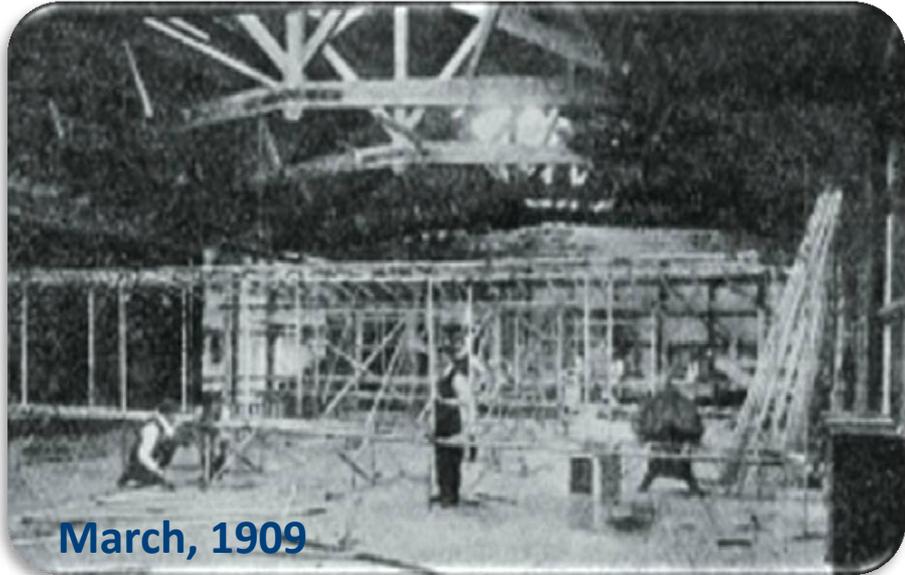
CAUTION REGARDING NON-GAAP EARNINGS MEASURES

This presentation is based on reported earnings in accordance with International Financial Reporting Standards (IFRS) generally accepted accounting principles (GAAP)). It is also based on EBITDA and Free Cash Flow. These non-GAAP measures are directly derived from the Consolidated Financial Statements, but do not have a standardized meaning prescribed by IFRS; therefore, others using these terms may calculate them differently. Management believes that a significant number of the users of its MD&A analyze the Corporation’s results based on these performance measures and that this presentation is consistent with industry practice.



Over 100 years ago...

Bombardier's Shorts Brothers led the world in aircraft manufacturing



What the product lacked in comfort, it made up for in efficiency and ease of production



“...Yesterday’s achievements...
are no guarantee of tomorrow’s success.

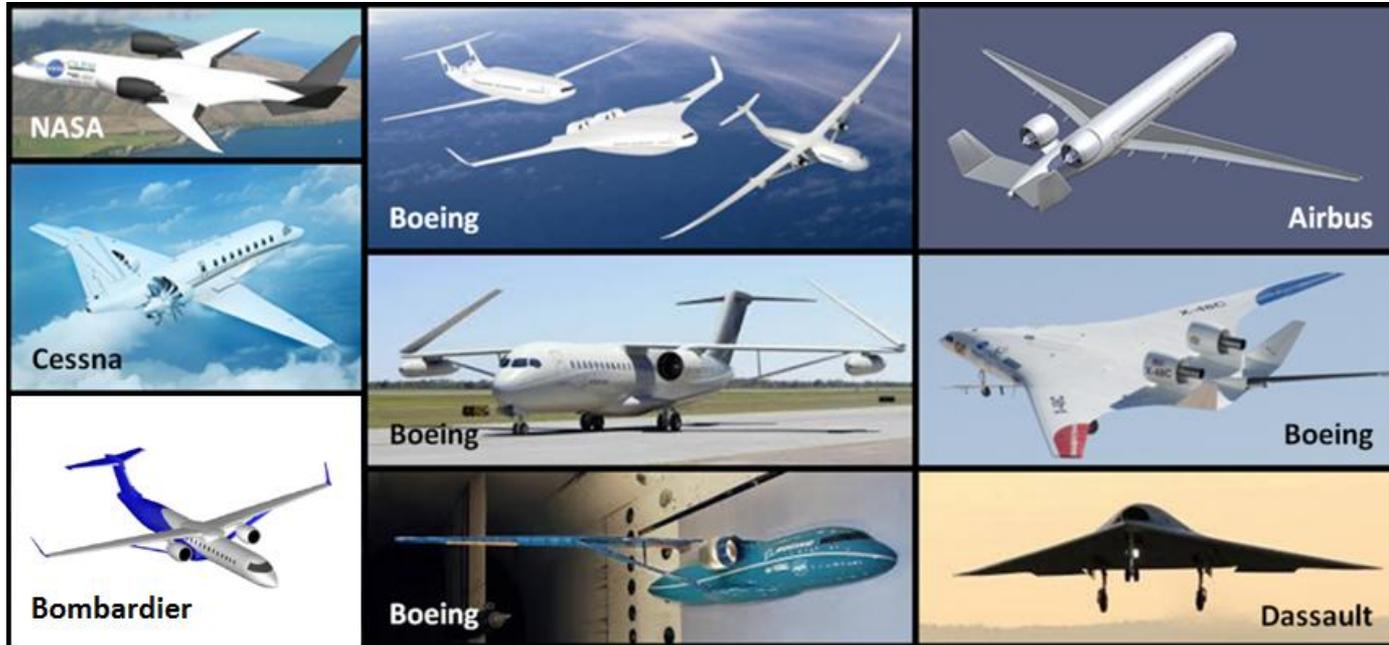
The conditions that prevailed over the last several decades are being replaced by new and fundamentally different global trends that are dramatically changing the competitive landscape.”

– Emerson Report; *Beyond the Horizon* (2012)





Companies worldwide are responding to our changing context:
New configurations will become a necessity





What Drives Technology Innovation at Bombardier?

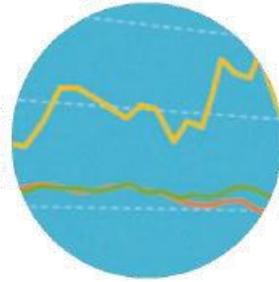
Performance / Economics

E.g. Operational capabilities, availability



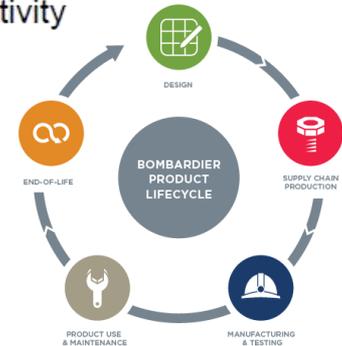
Environmental concerns

E.g. Hazardous materials, Emissions (Noise, CO₂, NO_x), Lifecycle assessment



Passenger requirements

E.g. Comfort, Connectivity





Technology Development at Bombardier: complete spectrum – driven by economics/environment/comfort

Multi-Disciplinary Optimization (MDO)

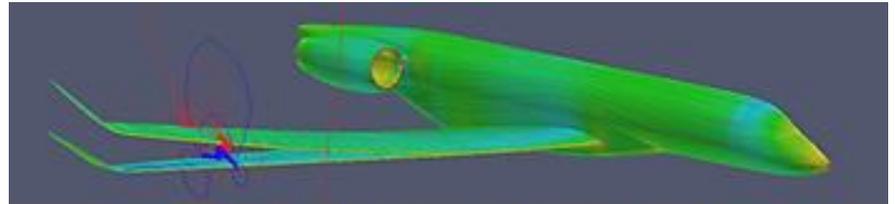
Unconventional Aircraft Configurations / EFA

Aerodynamics

- Variable Camber Wing
- Laminar Flow
- Next Generation Wingtip devices
- Alternative Quiet High-Lift Systems

Materials

- Advanced Metallics
- Advanced Composites
- Advanced Manufacturing



Aerodynamic Analysis of a Flexible Wing



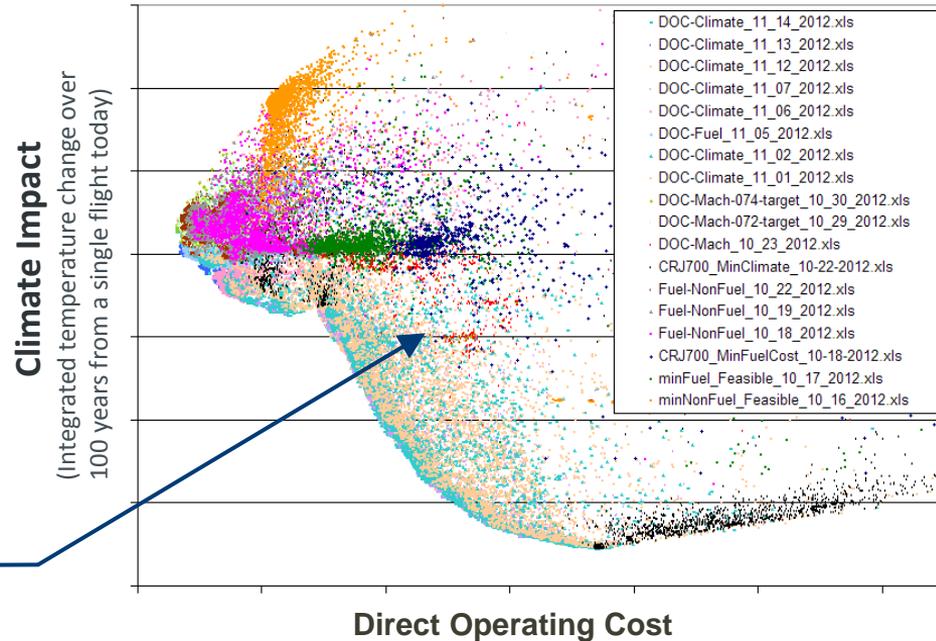
Carbon Fiber Wing



MDO tools explore tradeoffs of impact reduction with cost and other performance attributes

Design exploration using evolutionary Multi-Objective Optimization

Each dot represents a feasible aircraft configuration

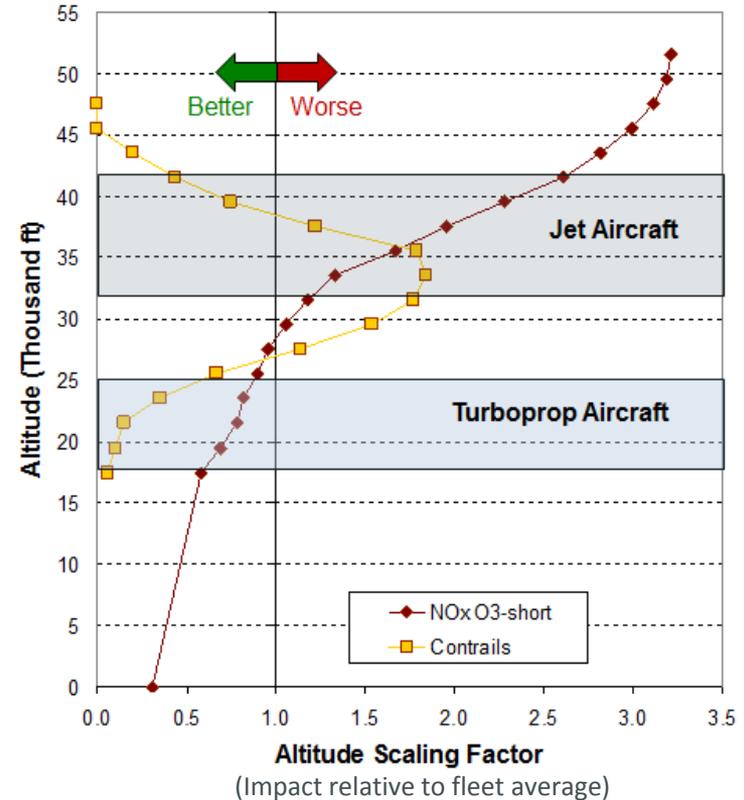




Climate physics are integrated into our design processes and toolset to identify both risks and opportunities

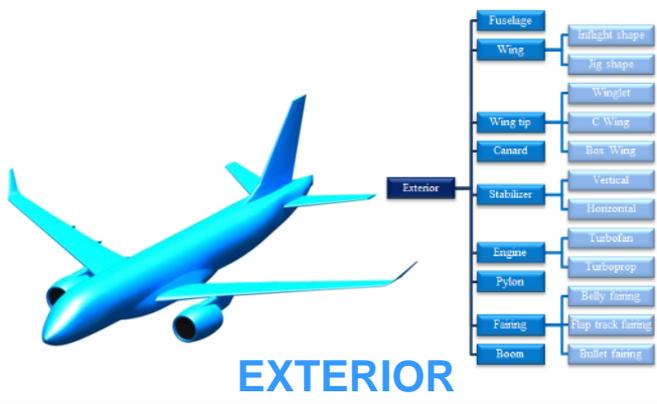
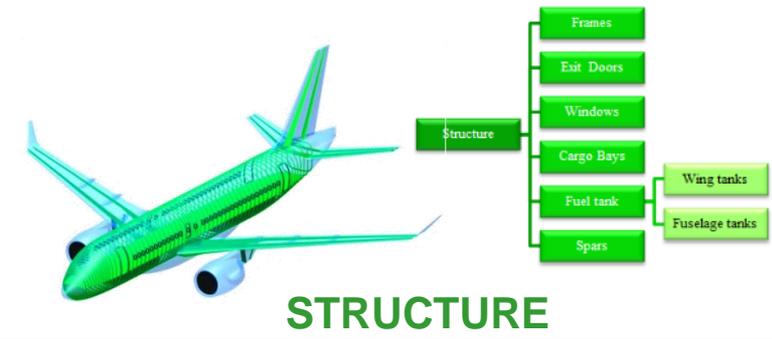
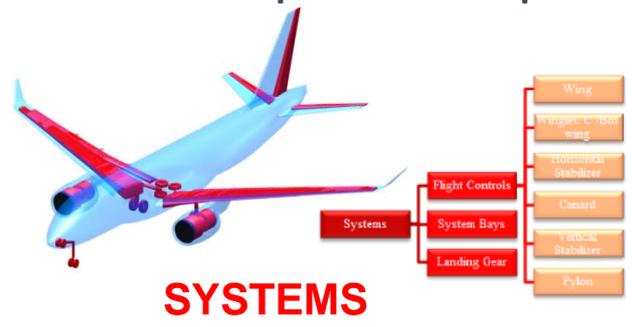
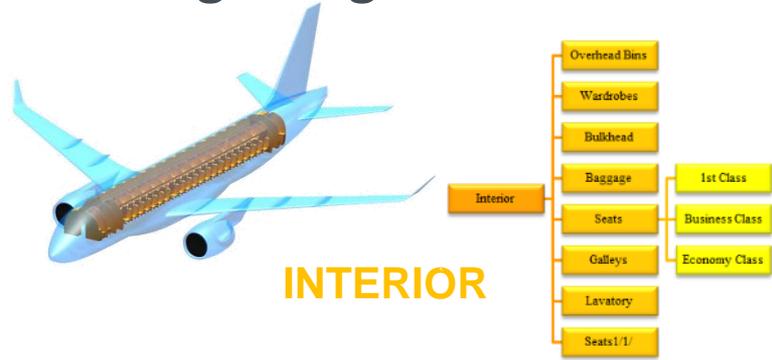
E.g. Altitude dependencies of contrail and NOx effects

- Link between mission profile and climate impact





Integrating our drivers into our concept development



CATALIST - Aircraft Parametric Modeler

Rapid Parametric modeling using CATIA Automation

Complete Aircraft can be modeled in < 1-2 days



INTEGRATED AIRCRAFT



CSeries RTI wing production:

- Reduction in parts, material costs, cycle times, waste during production
- Weight reduction leading to reduced fuel burn and smaller environmental footprint
- Reduced inspection and maintenance activities

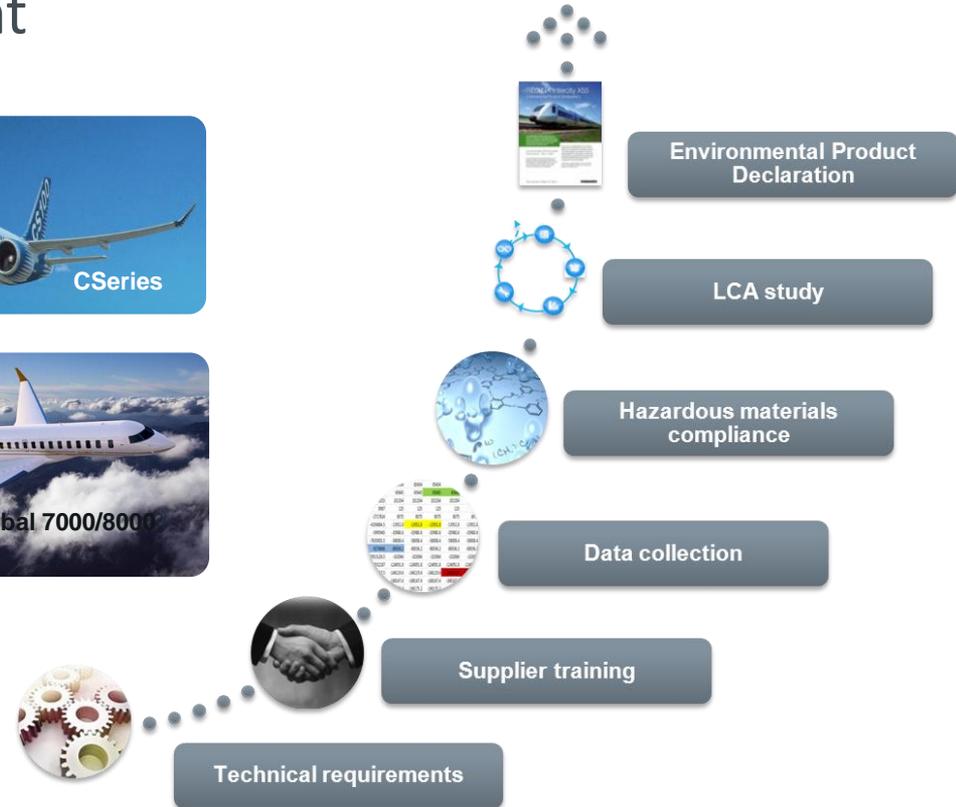




Full Product Lifecycle Assessment



Life Cycle Analysis (LCA)





Conclusion:

Economics, comfort and environment are shaping our products today and helping us prepare for the needs of future customers worldwide

