SECOND EDITION

THE BOMBARDIER STORY

From Snowmobiles to Global Transportation Powerhouse

LARRY MacDONALD

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WILEY

John Wiley & Sons Canada, Ltd.

Library and Archives Canada Cataloguing in Publication Data
MacDonald, Larry
The Bombardier story : from snowmobiles to global transportation powerhouse / Larry MacDonald. — 2nd ed.
Includes bibliographical references and index.
Issued also in electronic formats.
ISBN 978-1-118-48294-0
1. Bombardier Inc.—History. I. Title.
HD9709.C34B65 2012a 338.7'629046 C2012-906901-9

Production Credits
Cover design: Adrian So
Typesetting: Thomson Digital
Cover images: Bombardier Inc. or its subsidiaries
Printer: Friesens

Editorial Credits
Executive editor: Don Loney
Managing editor: Alison Maclean
Production editor: Pamela Vokey

John Wiley & Sons Canada, Limited.
6045 Freemont Blvd.
Mississauga, Ontario
L5R 4J3

Printed in Canada

1 2 3 4 5 FP 16 15 14 13 12

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Acknowledgments

I would like to thank editor Karen Milner for recommending the topic of this book. As well, editors Ron Edwards and Elizabeth McCurdy deserve special thanks for helping to get the manuscript into shape.

I am grateful to Bombardier Inc. for granting permission to interview staff. The interviews included: Laurent Beaudoin (Chairman), Robert Brown (President and Chief Executive Officer), Yvan Allaire (Executive Vice President and Chairman of Bombardier Capital), Jeremy Lee Jonas (Vice President, Strategic Initiatives), and John Holding (Executive Vice President, Engineering and Product Development). Michel Lord, Vice President, Communications and Public Relations, cordially handled the arrangements.

A number of persons outside of Bombardier agreed to interviews, and I would like to express appreciation for their time and comments. They include: Eric McConachie (Chairman of the Montreal-based aviation consulting firm AvPlan Inc.), John Hethrington (former Bombardier executive), and Ed Lumley (former Liberal Cabinet minister, now Vice Chairman and Director of BMO Nesbitt Burns). There were also interesting communications with other persons, such as former employee Wanda Pokrykus, aerospace MBA graduate René Armando Armas, and McKinsey & Company consultants Luc Sirois and Hugo Sarrazin.

For material on Joseph-Armand Bombardier and the early years of Bombardier, I am indebted to Roger Lacasse's *Joseph-Armand Bombardier: An Inventor's Dream Come True* (1988) and Carole Precious's *J. Armand Bombardier* (1984). Historical material was also obtained from portions of Matthew Fraser's *Quebec Inc: French-Canadian Entrepreneurs and the New Business*

Elite (1987) and David Olive's *No Guts, No Glory: How Canada's Greatest CEOs Built their Empires* (2000).

David and Diana Nicholson of Westmount made me feel at home in Montreal, providing not only accommodations, but also admission into their lively Wednesday Night Salon, a weekly discussion group in which estimable Montreal citizens have exchanged ideas for over two decades. David and Diana also put me in touch with people connected with Bombardier and turned over some Wednesday Night Salons to discussions on Bombardier.

A Brief History of Bombardier Inc.

1937

- Joseph-Armand Bombardier awarded patent for the sprocket device that makes the B7 snowmobile possible.

1942

- Joseph-Armand Bombardier incorporates his firm, L'Auto-Neige Bombardier Limitée, which is based in Valcourt, Quebec.
- Participates in the manufacture of tracked military vehicles.

1945

- Begins production of C18 snowmobile (for taking children to school).
- Ramps up manufacturing of the B12 snowmobile (for public transport, freight transport, mail delivery, and ambulance services).

1948

- Quebec government passes legislation requiring all highways and local roads to be cleared of snow; L'Auto-Neige Bombardier's sales fall by nearly half in one year.

1953

- Diversification drive capped by introduction of the Muskeg Tractor, an all-terrain vehicle used in the resource and construction industries to transport heavy loads over swamp and snow.

1959

- Ski-Doo snowmobile introduced; Bombardier becomes number one producer, and still is.

1964

- Joseph-Armand Bombardier dies and leaves company in hands of his son, Germain.

1966

- Following Germain's resignation, Laurent Beaudoin becomes the chief executive, a position he will retain until 2008.

1967

- L'Auto-Neige Bombardier Limitée renamed Bombardier Ltd.

1968

- Launch of Sea-Doo watercraft.

1969

- Listing of Bombardier shares on the Montreal and Toronto Stock Exchanges.

1970

- Acquisition program highlighted by takeover of Austrian Lohnerwerke GmbH, streetcar manufacturer and maker of the Rotax engines used in Bombardier's snowmobiles (and later in its all-terrain vehicles and watercraft).

1971

- Acquisition of Moto-Ski.

1972

- Annual sales of Ski-Doos peak at 210,000 units.
- Creation of a financing subsidiary to provide inventory financing for Ski-Doo dealers (later extended to other products, railcar leasing, and commercial lending): Crédit Bombardier Ltd. in Canada, and Credit Inc. in the United States.

1973

- Launch of Can-Am motorbike.

1974

- Soaring energy prices and economic recession decimate the snowmobile industry, prompting Bombardier to diversify into the mass transit industry starting with a contract to build over 423 cars for the Montreal subway system.

1975

- Headquarters moved from Valcourt to Montreal.
- Integration of Bombardier's rail transit operations with MLW-Worthington Ltd., a manufacturer of locomotives and the LRC (Light, Rapid, Comfortable) railcar; company name changed to Bombardier-MLW Ltd., which becomes Bombardier Inc. in 1978.

1976

- Wins first US transit equipment order (for commuter cars in the Chicago South Suburban Mass Transit District).
- Delivery of first subway cars in Montreal.

1981

- Lands an order for 180 subway cars from transit authorities in Mexico City.

1982

- Wins $1 billion megadeal to make subway cars for New York City, transforming company into the largest North American maker of rail transit equipment.

1984

- Licenses the monorail design from Disneyland.

1986

- Commences diversification into aerospace manufacturing with the acquisition of Canadair, maker of the Challenger business jet.
- Launches expansion into European rail industry with the purchase of a 45 percent interest in BN Constructions Ferroviaires et Métalliques S.A.

1987

- Acquires the railcar designs of US companies Budd and Pullman.
- Signs commercial agreement with Alstom (then called GEC-Alsthom) for the marketing of a high-speed train in North America.

1988

- Launches the second generation of Sea-Doo.

1989

- Increases critical mass in aerospace with acquisition of Short Brothers.
- Also buys ANF Industrie (France), the second maker of railway rolling stock in France.
- Obtains a contract to design and manufacture 252 railcars for transporting automobiles and buses through the English Channel Tunnel.

1990

- Becomes a provider of a family of business jets with the acquisition of Learjet Corp.

1991

- Test flight of the 50-seat Canadair Regional Jet, the first commercial jet dedicated to regional transportation.
- Initiates development of Global Express business jet.

1992

- Acquires automated subway maker, Urban Transport Development Corp. (UDTC).
- Gains control of de Havilland, maker of Dash 8 turboprop aircraft.
- Acquires the assets of Constructora Nacional de Carros de Ferrocarril, a Mexican manufacturer of railway rolling stock.

1994

- Wins contract to supply metro cars to the city of Kuala Lumpur in Malaysia.

1995

- Acquires German maker of rail transportation material, Waggonfabrik Talbot GmbH & Co. KG.
- Introduces Flexjet, a fractional ownership program for business jets.
- Line of Dash 8 turboprops expanded with launch of 70-passenger version; inaugural flight of the Learjet 45 business aircraft; becomes third-largest manufacturer in the civil aerospace industry after Boeing and the Airbus consortium.
- Annual sales of the Sea-Doo peak at 110,000 units.

1996

- Pierre Beaudoin is appointed CEO of the Motorized Consumer Products Group.
- Amtrak chooses the Bombardier/Alstom consortium to supply train sets for its high-speed service on the Washington/New York/Boston route.
- Unveiling of the Neighborhood Electric Vehicle.

1997

- Delivers 200th Canadair Regional Jet, 500th Dash 8 turboprop, and 400th Challenger business jet.
- Bombardier Aerospace launches a new version of the Canadair Regional Jet, the 70-seat Canadair Regional Jet 700.
- New York City awards Bombardier a $1.3 billion contract to build 680 subway cars.
- Awarded $2.85 billion multiyear contract for the training of NATO pilots in Canada.

1998

- Acquires German maker of rail transportation material, in Berlin, Deutsche Waggonbau AG.
- Creates another operating group, Bombardier International, to pursue growth opportunities in foreign markets outside of North America and Europe.
- Bombardier wins $2.6 billion order from the British Virgin Rail Group for equipment and maintenance services.
- Bombardier unveils the Traxter, an all-terrain vehicle.

1999

- Robert E. Brown is appointed president and chief executive officer of Bombardier; Laurent Beaudoin remains chairman.

- Bombardier Transportation awarded a contract from the Chinese Ministry of Railways to supply 300 intercity passenger vehicles.
- The Long Island Railroad requests up to 1,000 commuter cars—contract worth as much as $2.7 billion.

2000

- Bombardier signs with Delta Connection carriers to provide 94 Canadair Regional Jet aircraft, an order worth nearly $3 billion.
- Announces development of 90-seat Canadair Regional Jet, CRJ 900.

2001

- Bombardier completes the purchase of Berlin-based Adtranz, catapulting Bombardier Transportation to the top of the global rail transportation industry.
- Acquires Johnson and Evinrude engine divisions of Outboard Marine Corp.
- Bombardier wins a contract from SNCF in France for the delivery of 500 Autorails Grande Capacité (AGC), a quantity increased later to 700 cars, which makes it the biggest series in the modern railway industry.

2002

- Launch of the Millennium SkyTrain in Vancouver, the longest fully automated metro system in the world.
- Bombardier Recreational Products revolutionizes the snowmobile industry with the new Ski-Doo REV.
- Appointment of Paul M. Tellier as president and CEO of Bombardier (December 2002 to December 2004).

2003

- Sale of the Recreational Products Division to a group comprising members of the Bombardier family, Bain Capital, and the Caisse de dépôt et placement du Québec. The new entity is renamed BRP.

2004

- In December, Laurent Beaudoin comes back as president and CEO of Bombardier.

2006

- Bombardier wins an iconic contract from Francilien (NAT), which focuses on 372 commuter trains for the Île-de-France region, including 172 firm orders for 1.3 billion euros.

2007

- Bombardier wins a contract from the Delhi Metro Rail Corporation Ltd. (DMRC) in India, a historic contract for rail signaling equipment worth $43 million USD.
- Major penetration of the Chinese market with three successive contracts worth about $760 million USD awarded to Bombardier, for the manufacture of high-speed trains, shuttles, and automated railway signaling equipment.

2008

- Maiden flight of the CRJ1000 for 100 passengers.
- Pierre Beaudoin becomes president and CEO of Bombardier Inc.
- Bombardier gives the green light to the development of the CSeries aircraft, a new generation of commercial aircraft optimized for the 110- and 130-seat market.

Preface

While gathering information for this book, I was frequently reminded of the parable of the elephant and the six blind men. One blind man felt the trunk and declared it was like a snake; a second felt the tail and said it was like a piece of rope; a third felt the leg and thought it was like a tree trunk; a fourth felt the side and argued it was like a wall; a fifth felt the ear and proclaimed it was like a fan; a sixth felt the tusk and pronounced it was like a spear.

Bombardier Inc. is certainly of a size to suggest an elephant. Just consider the range of its products. In North America, for example, there are the rail transportation products, which include the Acela high-speed train and thousands of subway cars in Montreal, Toronto, Vancouver, New York City, and several other metropolitan areas around the world. Then there are the aerospace products, which include Canadair Regional Jet, Dash 8 turboprop, and the Global Express business jet. Until 2003, there were the recreational products, which include the Ski-Doo snowmobile, Sea-Doo personal watercraft, and Traxter all-terrain vehicle. Not surprisingly, a variety of reports emanate from the field. Some staff at Bombardier, for example, confirm the existence of Bombardier's legendary family environment—they feel the company will take care of them if they take care of it. But others speak of a sink-or-swim environment arising from the dictates of rapid growth in their areas. Outside the company, there is a diversity of viewpoints as well: constantly in the headlines, Bombardier invariably attracts favorable and unfavorable commentary. Supporters think it is a company for the twenty-first century; detractors think otherwise.

In this book, I have attempted to provide a fair representation of the different viewpoints. And I wanted to do so without

creating a compendium of coffee-break tidbits or blood-on-the-boardroom-floor scenes. I believe the story of Bombardier deserves a more elevated treatment because of its accomplishments and spin-off benefits in the socioeconomic realm. Even the critics admit the stellar track record—their contention is with other matters.

This book is both a corporate history and business case study. The corporate history portion provides a sequence of events that lays out the rise of Bombardier from its birth to the present, explaining how the company emerged as a commercial success. The business case study, interwoven into the corporate history, offers lessons and insights into the Bombardier formula.

As such, this book should be of interest to businesspersons, consultants, economists, journalists, policy makers, and commerce students at the undergraduate and graduate levels. It should also be of interest to future, present, and past employees (and their families), staff in companies that deal or compete with Bombardier, users of Bombardier's products, and existing or prospective investors in Bombardier's shares (as well as those investors wishing to obtain a better understanding of the circumstances that can generate long-term growth companies).

John Kay, a British professor who writes a column on management issues for the *Financial Times of London*, speaks often of the subtleties of corporate histories and business case studies. Because of the elephant and blind men problem, as well as the ingrained biases of any given chronicler, he believes such case studies can offer little more than an interpretation. They can only hope to illuminate aspects of the reality; they are necessarily incomplete in their portrayals.

As an example, Kay cites accounts of the Japanese penetration of the North American motorcycle market in the 1960s.[1] One study said Honda and other Japanese manufacturers enjoyed economies of scale in their home market and used this

as a springboard for expansion into the United States. Interviews with Honda managers reveal a different story. Hearing there was limited public transportation in California, they brought some of their motorcycles over for their own use. But after discovering the reliability problems of domestic motorbikes and being constantly quizzed on the street about their smaller bikes, they set up a marketing campaign.

Which explanation is right? Kay says neither is true, just as neither is wrong. They are just different ways of looking at the situation, and both can add to our understanding. A story from the inside, for example, is useful for providing detail from the front lines; a story from the outside has the benefit of including a broader list of variables. I tried to keep such subtleties in mind during the writing of this book. Business outcomes are often a mixture of design and accident, of planning and serendipity. They reflect the interaction of internal and external variables—the interplay of the strategies formulated within the company and forces outside the company.

I had completely free reign with this portrayal of Bombardier. Although the topic was suggested by my publisher (the kind of invitation I like to get), they did not specify what the angle should be. And although Bombardier kindly cooperated by allowing senior executives to be interviewed, it was without any strings attached.

In this book, I referred to persons by their last names except for three main characters, Joseph-Armand Bombardier, Laurent Beaudoin, and Pierre Beaudoin. I referred to Joseph-Armand by his first name to avoid possible confusion with the company named after him; I referred to Laurent and Pierre by their first names to avoid possible confusion between father and son.

They say where you stand depends on where you sit. So perhaps I should mention my background as an individual born and raised in Ottawa, who went to work for a dozen years

as an economist before turning to business journalism. As such, my rendition of the Bombardier story may have emphasized different aspects than if it were told by a businessperson from Alberta, a social worker in Toronto, or a Quebec employee of the aerospace industry. But I would like to repeat that I have tried to offer a balanced presentation of the perspectives and events. And hopefully, this portrait of the elephant will show more verisimilitude than a beast comprised of snakes, ropes, tree trunks, walls, fans, and spears.

Note: All dollar figures in this book are in Canadian currency unless otherwise noted.

Introduction: The Rise of a Corporation

A Meteoric Rise

Bombardier was under attack again. This time, the flack was coming from the president of Berlin-based Adtranz, the rail equipment subsidiary of DaimlerChrysler AG. In 1999, he traveled to Toronto and made a speech in which he warned that Adtranz was coming to challenge Montreal-based Bombardier on its home turf of North America. His motive was retaliation: he did not like Bombardier's invasion of Adtranz's European markets. So he was going to put the upstart from the hinterlands in its place. "The major player in the United States of the future will be, I believe, Adtranz," he predicted.[1]

In the spring of 2001, Bombardier acquired Adtranz: so much for the taunts of rival executives. The parent corporation, wishing to focus on reviving its main business of automobile manufacturing, accepted Bombardier's takeover offer. The purchase more than doubled annual revenues at Bombardier's rail equipment division to $8 billion and created an integrated producer with expertise in both rolling stock and propulsion systems. It also catapulted Bombardier into the number one spot in the railway equipment industry, ahead of the rail divisions of Franco-British conglomerate Alstom and German industrial giant Siemens.

Bombardier's rise to the top began in 1974 with a contract to build several hundred cars for the subway system of Montreal, Quebec. The expertise gained on this project allowed it to win some big contracts in the United States, notably a $1 billion deal in 1982 to supply subway cars to the New York City Transit Authority. Meanwhile, North American rail equipment

manufacturers were falling by the wayside. The industry was in a long-term decline after World War II because of the growing popularity of airplane and automobile travel.

By the early 1990s, former greats of US rail manufacturing, such as Pullman Co. (whose assets had been bought back by Bombardier in 1988, who had also bought Budd's assets in 1987), had disappeared. Only one major domestic producer was still around: construction giant Morrison-Knudsen Company, Inc., builder of such technological wonders as the Hoover Dam and San Francisco Bay Bridge. Under a dynamic new chief executive, William Agee (the corporate star from Bendix Corporation), Morrison-Knudsen had launched an aggressive foray into railway equipment manufacturing.

For a time, it looked as if the Boise, Idaho–based conglomerate was going to give Bombardier some serious opposition. Undercutting closest competitors by an average 7 percent, the company won six of the eight contracts on which it bid between 1990 and 1992, winning orders to make more than 500 railcars with options on another 1,000. Bombardier's success rate on bids, meanwhile, was going in the other direction, from two-thirds in 1988 to one-third in 1992.

Aiding Morrison-Knudsen's cause was an increased requirement to buy from domestic sources as set out in the *Buy American Act*, and a shift of funding to state and local authorities that resulted in a greater emphasis on local production. In one case, Morrison-Knudsen won an order by pledging to make at least 80 percent of each car in the United States, only later to be granted a waiver from a major technical requirement for which two competitors had previously been disqualified. In another case, Morrison-Knudsen won a lucrative railcar contract from a northern Illinois commuter agency after receiving bonus points for promising to do more of the work locally. These bonus points, which reputedly were not fully disclosed

during the call for tenders, offset Bombardier's higher marks in the price and technology categories.

What undid Bombardier's competitor was a failure to execute on its aggressive marketing. The sudden volume of orders overwhelmed its engineering and resource base, leading to misses on deadlines and quality standards. And not enough economies were found in operations to offset the aggressive bidding for contracts, resulting in cost overruns. These overruns were largely responsible for the catastrophic loss of $310 million USD incurred by Morrison-Knudsen in 1994, a loss the company could ill afford since it was still burdened with massive debt as a result of past troubles in its construction product lines.

Faced with the prospect of having to cover an ongoing shortfall between cost and revenues on its rail contracts, the company was in danger of going out of business. Agee was dismissed by the board of directors, a retreat from rail manufacturing ensued, and the remaining parts of the company were rescued through merger with another construction company.

That left Bombardier as the only substantial North American player. It was not only surviving but thriving, enjoying rising profits from several large and lucrative contracts. In the mid-1980s, a decision was taken to put these profits to work in a strategy to penetrate the European rail market. Just over a dozen years later, Bombardier emerged on top, a feat somewhat analogous to a soccer player from North America rising to star status in the European leagues.

All the know-how and skills were supposedly in Europe, not in the snowbound Canadian province of Quebec. The rail equipment market in Europe was over four times the size of the one in North America, and it was dominated by firms that had been around for over a century. Some were world leaders in research and development, while others had solid business

relationships with state-owned railway operators. And nearly all were favored by greater government support and cooperation.

What made Bombardier's progression in rail equipment all the more remarkable is that it occurred while yet another progression was under way at Bombardier's aerospace group. In 1986, the company decided to enter the aerospace sector by acquiring business-jet maker Canadair Ltd. of Montreal. This was followed by acquisitions of several other ailing aerospace companies, including world-renowned Learjet. Turning around these floundering assets, Bombardier came out of nowhere to become, in a little more than a dozen years, the third-largest member of the civil aerospace manufacturing industry. Only US giant Boeing and European colossus Airbus are larger.

As in the upward climb of the rail equipment operations, the aerospace operations of Bombardier surged ahead while other players faded. For example, Fokker of the Netherlands, a stalwart in the regional airplane sector, collapsed in 1997 under the weight of a massive debt load and outmoded processes. In Canada, ailing de Havilland was rescued by Boeing, but when the latter threw in the towel on its turnaround efforts in 1992, Bombardier stepped in and transformed de Havilland into a productive member of its aerospace operations.

Rising to top positions in the rail and aerospace industries are laudable achievements in themselves. What makes them more remarkable is that they occurred while Bombardier was defending a dominant position in a third industry: motorized recreational products. In the early 1960s, following three decades of developing and manufacturing tracked vehicles for travel over snow and muskeg, Bombardier entered the market for recreational snowmobiles and quickly claimed the top spot in a rapidly growing industry.

It held the top position until 1990 when Polaris Industries of Minnesota overtook Bombardier (if US antitrust authorities had allowed Bombardier to acquire Polaris in 1980, it

would likely have remained on top). Bombardier countered by upgrading its Ski-Doo line and developing new products such as the Neighborhood Electrical Vehicle and the Traxter, an all-terrain vehicle. Bombardier also diversified very successfully into personal watercraft under the Sea-Doo brand, ending up with a market share of 50 percent by the mid-1990s. The upgrades and new products were enough to allow Bombardier Recreational Products to catch up to Polaris in 2003 in motorized recreational products, including all-terrain vehicles.

Bombardier threw more resources to another flank in early 2001 by acquiring the Johnson and Evinrude engine assets of bankrupt Outboard Marine Corporation (a company that had made a bid to acquire Bombardier in the 1960s). The chairman and chief executive officer of Brunswick Corp., the dominant player in leisure boat manufacturing, had a few choice words for its new competitor. Bombardier is "a very capable company ...," he said. But, in taking on Brunswick, "the world's best engine manufacturer," it would "take an act of God for Bombardier to succeed."[2] Another rival executive was laying down the gauntlet.

Finally, it is worth mentioning that Bombardier was expanding into a fourth industry while the other initiatives in rail, aerospace, and recreational products were unfolding. Filling a void the banks were not ready to enter, Bombardier created a capital group in the early 1970s to provide inventory financing to Ski-Doo dealers. Later, consumer financing was added for Ski-Doo consumers. As new recreational watercraft and all-terrain products rolled off the assembly line, financing was extended to dealers and end users in those niches. There was also an expansion into commercial lending, leasing, and asset management in areas related to core competencies, particularly business jets and railcars. By 2001, Bombardier had $13 billion in assets under management and was the third-largest provider of inventory financing in North America.

Then, the September 11 terrorist attacks had a major impact on Bombardier. The crisis in the airplane business and the difficult integration of Adtranz weakened the company. A change in management and restructuration led to the sale of recreational products in 2003 and gradual liquidation of Bombardier Capital products. From 2005 to 2008, Laurent Beaudoin came back at the helm of the company to ensure its survival and the health of the business.

The Architects of Success

Training for his pilot's license on a sunny summer day in 1970, Laurent Beaudoin jumped into the cockpit of a small airplane for a practice run. As the wheels were lifting off the tarmac, Laurent reached down to adjust his seat to a more comfortable position: he found a lever and pressed. To his horror, the seat snapped backward. Firmly strapped in, Laurent strained forward to reach the control panel. He was barely able to get his fingertips on the instruments and bring the plane back to earth. "I was just high enough off the ground to kill myself,"[3] he sheepishly laughed about the incident some years later.

It was a good thing that the aircraft did not crash. Otherwise, Bombardier might never have become one of the more remarkable cases of sustained growth in the corporate world. As the chief executive in charge during the years from 1966 to 1999, then from 2004 to 2008, and afterward as the chairman, Laurent is primarily responsible for the corporation's stellar success. Without him, the story might never have emerged. Instead of becoming a global powerhouse, Bombardier might have ended up as a lesser light in Quebec. Or it might have disappeared altogether in a takeover or through insolvency during the vicious downturns of the 1970s.

Laurent has been described as a physically impressive man with Bonaparte-like features and a courtly manner. His "eyes