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Air Canada: Flying High with Information Technology

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> We are in a customer service industry. In this line of business, the differentiators are service level, identification and innovation, but innovation is key. And innovating means staying on top of things, knowing your business in order to understand what could make a difference. We are constantly searching for new ways to use information technology. I have one person whose sole job is to look at what's out there from an innovation standpoint, what would be good for Air Canada. He's looking at what's coming, and he shares. Also, in our outsourcing contract with IBM, there is a clause by which they have to organize innovation sessions for us. And although our contract with Operation SYS does not have a specific clause on innovation, they know that we like to innovate, and they're coming to show us a new system that they have developed that could help us cut costs. (Senior Vice-President, E-Commerce and Chief Information Officer, Air Canada)

Managing the information resource of a firm that is focused both on "engaging with customers"[3] and competing "more effectively on multiple levels against the low-pricing structures offered by low-cost carriers"[4] entailed many challenges, which the Air Canada CIO and her team had been addressing in multiple ways.

Air Canada – The Company

Founded in 1937, Air Canada was Canada's largest airline in 2011, serving over 32 million customers annually. In 1989, Air Canada was privatized. The first years after privatization were challenging. After four years of net losses (from 1990 to 1993), 1994 marked the return to profitability.[5] Air Canada acquired its main rival, Canadian Airlines, in 2001. As of 2011, it had more than 170 destinations and was the world's 15th largest commercial airline. In 1997, Air Canada was a founding member of Star Alliance. Fourteen years later, the strategic partnership had 27 partners, making it the world's most inclusive air transportation network. Headquartered in Montreal, Air Canada had hubs in Toronto, Montreal, Vancouver and Calgary

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[3] Air Canada, *Annual Report 2010*, p. 8.

[4] Air Canada, *Annual Information Form 2009*, p. 18.

[5] Air Canada, *Rapport annuel 1994*, p. 42.

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Its shares were listed on the Toronto Stock Exchange (TSX) under the symbol AC-B.TO. In the 2010s, Air Canada's mission was "connecting Canada and the world."[1] To accomplish this mission, and because of the ethnic diversity of Canada, which contributed to the high and growing demand for international travel, Air Canada pursued an international growth strategy. In 2010, the company entered major partnerships with Lufthansa and United/Continental, which significantly helped its growth strategy and connection mission. However, Air Canada had to compete with strong and growing airlines in the domestic market (e.g., WestJet), the U.S. market (e.g., Delta) and the international market (e.g., Air France-KLM and British Airways).

Air Canada's vision was to build loyalty through passion and innovation.[2] Hence, the company followed a differentiation strategy that involved "engaging with customers, with a focus on premium passengers and premium products."[3] However, cost reduction was still a very important issue for the firm. Indeed, because the number one cost at Air Canada was fuel, and because the company had no control over fuel costs, cost reduction in other parts of the business was crucial. To this end, Air Canada initiated a Cost Transformation Program (CTP) in 2010 to modify its cost structure and reduce costs across the company. The CTP allowed Air Canada "to compete more effectively on multiple levels against the low-pricing structures offered by low-cost carriers."[4] It focused on three main areas: operational process improvements, supplier contract renegotiations and revenue productivity gains.[5]

Information Technology Use at Air Canada

Major airlines in general, and Air Canada in particular, depend heavily on information technology (IT) for almost all their activities, ranging from booking passengers to balancing the weight of an aircraft before flying. Air Canada also used IT to optimize its processes, such as the bidding processes through which pilots and attendants choose their flights. This significantly reduced operating costs.

The IT applications portfolio at Air Canada comprised both recent applications (front-end) and legacy systems (back-end). For example, the passenger processing system was part of Air Canada's legacy systems and was maintained as a very solid platform. The new technologies and interfaces (e.g., web check-in, iPhone and Blackberry applications) were built around the legacy systems. The IT department was responsible for making sure that the modern interfaces and the legacy back-end systems could co-exist and work together.

Three of Air Canada's business branches were the main consumers of IT services: Customer Service, Commercials, and Operations. Each branch had several departments. For instance, Customer Service included airports, call-centres, in-flight services and customer relations. The Commercials branch included, among other departments, marketing and product distribution. And Operations comprised flight planning and aircraft maintenance.

[1] From Air Canada's website: http://www.aircanada.com/en/about/index.html.

[2] From Air Canada's website: http://www.aircanada.com/en/about/index.html.

[3] Air Canada, *Annual Report 2010*, p. 8.

[4] Air Canada, *Annual Information Form 2009*, p. 18.

[5] Air Canada, *Annual Report 2010*, p. 5.

In addition to being essential for running the company's business and reducing its operating costs, IT was considered an important tool for innovation. Over the years, Air Canada pioneered the development of several innovations that were later used by other airlines. Kiosks, i.e., interactive computer terminals at airports that allow customers to check-in, print their boarding passes and their baggage tags, change their seat selection and check their flight information for instance, were one of the very first innovations introduced by Air Canada in 1998.

In 2007, Air Canada was the first carrier in the world to introduce Electronic Boarding Passes using a 2D barcode technology.[1] Using the Electronic Boarding Pass service, passengers checked in either online, at a kiosk or on a mobile device, and then received the boarding pass by SMS or e-mail. The 2D image sent to the passenger held all the information needed to pass through security and boarding.

In 2009, Air Canada was the first North American carrier to develop iPhone® and Blackberry® applications to allow passengers to find and track flights, check in and receive messages on their devices (iPhone or Blackberry). In the same year, Air Canada also launched a self-service rebooking tool for customers (linked to the passenger rebooking system), which allowed passengers to rebook flights in case of a cancellation, without the help of an agent. The system was used more than ever by customers when many flights were cancelled during the Icelandic volcano eruption in April 2010.

Information Technology Outsourcing

In 1994, Air Canada signed a seven-year contract with IBM, under which IBM bought Air Canada's systems and applications, certain equipment and computer assets and began running them on Air Canada's behalf. The main motivation behind this decision was to reduce costs and allow the airline to focus on its core business. A small management group (including a Sourcing group and Business Analysts) and IT architects were retained in-house to set company-wide IT standards and policies.

In 2000, one year before the end of the contract, Air Canada prepared a request for proposals (RFP) to find a tier-one IT vendor with which to develop a partnership for innovation. This was not done because Air Canada was dissatisfied with IBM's services, but rather because corporate policy did not allow for contract renewal without going to the market and trying to find a better deal. In addition, Air Canada had a policy of sending RFPs out early enough (12-18 months before the end of a contract, which in this case was in 2000) to signal to the market (i.e., potential IT suppliers) that it was considering a change of vendor. An RFP was not launched simply to get a better price from an existing vendor. Following this RFP, Air Canada received proposals from several potential suppliers. IBM's proposal was selected.

At this time, Air Canada's motivation for outsourcing was more than cost reduction or a focus on core competencies. The focus and objective were clearly innovation: "And in fact, some of the words we put in the contract spoke to acting as if you [IBM] are Air Canada's IT group, so you

[1] http://www.cnw.ca/fr/releases/archive/October2009/15/c6801.html

are bringing the innovation to Air Canada, just as if you were Air Canada employees" (Senior Director, IT Sourcing). As a result, Air Canada partnered with IBM to include the innovation concept. This would establish governance around innovation which went beyond IBM's borders when IBM itself did not have products ready for Air Canada.

In addition, in 2000, Air Canada realized that it needed a vendor specialized in telecommunications: "we wanted a true network provider to provide that service for us" (Senior Director, IT Sourcing). Air Canada chose Telecom as its telecommunications provider.

In 2001, Air Canada was still pursuing a single-vendor sourcing strategy for acquisition of its systems and applications. Later, in 2003, the firm began to change to a multiple-vendor strategy in order to benefit from specialized, best-of-breed airline products available in the market more quickly and less expensively:

> We've recognized that we're not that special, and for running an airline, there are many things that every airline has to do. You need a departure control system, you need an inventory management system, and you can buy that. There are very smart companies that have invested a lot of money in developing such applications, and they will serve our purpose very well. (Senior Director, IT Sourcing)

Air Canada needed a capable supplier that knew how to deal with large airlines. It did not want to choose a vendor it would have to "educate" about the demands of managing and running a large air carrier. Finally it selected Operation SYS, a company that offered several applications that suited its needs:

> Operation SYS wasn't the only choice, but it was a big vendor proven in the marketplace, a lot of money, a very healthy company, a company that continued to invest in their products through research and development. (Senior Director, IT Sourcing)

While close to 95% of Air Canada's IT services were outsourced to multiple suppliers, a small but critical team was brought back in-house in 2001. This team's activities were related to the customer experience (i.e., content management, design of screens and navigation flow on Air Canada's website, receiving and analyzing customer feedback, and sending emails to customers). Why did Air Canada bring these activities back in-house?

> For some activities, especially on the web where you need to be able to react very quickly, having one less intermediary is much better. If, for example, [the Commercials branch] wants to make a special offer to match a competitor's price – if a competitor just announced a low price on a particular route and we want to match it – between the time that Marketing decides to make the offer and the time it goes live, there's a very short time span. If you do it in-house, it can be done very quickly. […] If you outsource, there are additional steps, additional layers, and it could take longer, so it's less attractive. So for the web [or] I think for anything that you have to do extremely quickly, it's more cost efficient to do it in-house. (Director, Marketing and Customer Experience)

In 2011, Air Canada was pursuing a multiple-vendor sourcing strategy. Because dealing with multiple vendors brings unique challenges, Air Canada assigned its IT partner, IBM, to act as the integrator. New applications offered by any existing or new vendor needed to be integrated with what was already in place, and that was IBM's role. To be able to integrate the newly acquired systems with the existing ones, IBM needed to know Air Canada's IT policies and standards. Therefore, IBM acted as keeper and guardian of Air Canada's corporate IT standards. Being the

integrator, it had a view of the systems and their operations; it had a problem management team and a process to identify the problem areas/vendors:

> When you have a major incident (MI), a problem, something breaks, depending on how many vendors have a piece of it, it becomes very complicated to know what has broken. It could be the network, it could be an application server, it could be the application and sometimes that's three or four vendors who need to be on the phone saying okay, my network looks good. Okay who's the server person? Okay, my server is up. Okay, application person, what do you see? Or is it the person's workstation? (Senior Director, IT Sourcing)

To manage its outsourcing contracts with multiple vendors, Air Canada used a relational approach:

> […] right now, I have a project that's not working well, and personally, I'm convinced it's because the team is not building their relationship with the supplier. I'll give an example: Operation Sys [the supplier]. At one point, it really got tense. It was huge, what we were trying to do. And then the project leader built a very close relationship with his counterpart. Things were difficult but we could sit down, have a discussion, and get things moving. It is important to have a good relationship with your supplier and to have the tough discussions with them. (Senior Vice-President, E-Commerce and Chief Information Officer, Air Canada)

For Air Canada's CIO, having a successful IT outsourcing contract meant being accountable for the problems that arise and taking a collaborative approach with vendors to solve problems:

> Recently, a supplier has been making a lot of human errors. I'm not happy with that. But you know, what I always say is you can't say because you're outsourced, it's the outsourcers' fault. No. We made the decision to outsource, we selected the outsourcer, we are accountable. We have to make it work. (Senior Vice-President, E-Commerce and Chief Information Officer, Air Canada)

The Information Technology Department at Air Canada

In 2011, Air Canada's IT department comprised seven functional units supported by a project management office (PMO). Each unit was managed by a senior director who reported to the CIO (see Appendix 1). This structure, however, was relatively new, as the department had gone through many changes over the years.

Prior to 2003, a centralized IT department was responsible for providing IT services via its suppliers to all the business branches. Each business department had a representative in the IT department. In total, approximately 50 business analysts were responsible for collecting information on the IT needs of the business lines, evaluating and coordinating them, and passing them along to the IT vendor for implementation. The same procedure was required regardless of whether the IT requirements (e.g., the development of a new system) were local (small, system-specific requirements for the needs of a department) or spanned different branches (e.g., an email system for all branches). Therefore, IT was perceived as a bottleneck that was working too slowly and not responding to real business needs.

In 2003, the IT department was decentralized in an attempt to resolve this issue. Business representatives were transferred from the IT department to the business departments in order to be closer to the business and more aware of departmental needs. Moreover, these representatives

were allowed to deal directly with the vendors. However, the infrastructure and reservation system and any other system that spanned the branches remained under the Corporate IT department's control, since they were core elements that affected all business branches. Corporate IT also remained responsible for IT policies and standards.

This decentralized IT structure brought new challenges though. Depending on the representative responsible for a department's IT needs, the department could either be very well served or dissatisfied with its IT services. Some departments did not even know their in-department representatives and would send their requests directly to the IT department. Each department tended to develop applications that satisfied its local needs overlooking the fact that other units could potentially benefit from the same application. What's more, many departments would initiate applications that would affect other departments. The lack of communication between department representatives led to suboptimal prioritization and coordination, which resulted in inefficiencies.

Moreover, since every new IT initiative had to be checked against corporate policies and standards, departments had to confirm with Corporate IT that their developments met corporate guidelines. However, some departments were approaching Corporate IT very late in the development process. By that time, if they were violating IT standards, they had to either redesign or adjust their project, potentially impacting implementation dates, or justify their project and obtain an exception.

In 2010, the IT department was re-organized once again. In the new structure, instead of having an IT representative for each business department, an IT representative was assigned to each of the three main branches: Customer Service, Commercials and Operations. Hence, instead of having a representative for each Customer Service Department (e.g., call-centre, airports, etc.), all the departments within the unit now had a single representative, the IT Customer Service unit. The head of the unit was a senior director (see Appendix 1).

The difference between the new structure and the centralized structure was that the representatives (business analysts and the senior director leading them) resided in the business branches they represented, reporting both to the CIO and their respective business vice-presidents. In this new structure all the departments in one branch had a single senior representative supported by the business analysts (one unit), whereas, in the previous decentralized structure, each department had its own representative.[1]

Although each of the three units had separate responsibilities, they had one common goal: to link the business side and IT. The three units also worked closely together to coordinate requests from the business branches. They were responsible for developing a comprehensive view of business needs and requirements, translating the needs into IT solutions (with the help of the other four IT units) and passing them along to the vendors for implementation. The solutions had to add value to the business, be in line with corporate IT standards, and potentially contribute to overall cost savings. All three units sought to employ people who could speak the languages of both business and technology.

[1] Appendix 2 illustrates how the three structures – centralized, decentralized and hybrid – differ.

The CIO's office and the offices of IT Sourcing, Transformation IT, Customer Solutions and Innovations, and Marketing and Customer Experience were all on the same floor of a building at corporate headquarters. The offices of the three new units – IT Customer Service, IT Commercials and IT Operations – were located within their respective business branch.

IT Sourcing

IT Sourcing was a group of six people responsible for the formulation and ongoing management of contracts between Air Canada and its major IT suppliers. One of the group's main responsibilities was vendor selection. The unit, along with the Strategic Procurement Group, decided who received RFPs. IT Sourcing was also aware of whether the company had a master level agreement[1] with any of the vendors.

IT Sourcing was responsible for ensuring that capable vendors were selected. Selection criteria included knowledge of and experience with the airline industry and 24/7 support for key applications and services. It was expected that chosen vendors would not be learning their trade on Air Canada's account. They should need only minimal coaching – or, ideally, no coaching at all – to work with a large organization such as Air Canada. "So again, they're not going to be surprised by us wanting the help desk to always be open. If it was a vendor who was just starting out, there might be a lot of surprises, a lot of education required" (Senior Director, IT Sourcing).

IT Sourcing also supported business by evaluating needs and choosing between onshore and offshore services. For example, applications that involved an agile development methodology (i.e., little need for thorough analysis and deep testing; "they are coding while you are talking," as the Senior Director, IT Sourcing, put it), such as e-commerce applications, were suitable for an onshore model because business people needed to be right there with the programmers. On the other hand, for complicated systems (e.g., a reservation system) requiring thorough analysis and extensive testing, an off-shore model was more suitable because development could not be done in a day.

IT contracts were drafted by Legal, Strategic Procurement, and IT Sourcing. The ongoing management of the larger IT contracts was handled by IT Sourcing. Some of the key components of the contracts included developing the right service level agreements (SLAs)[2] for each vendor, enforcing the SLAs and managing the contracts. IT Sourcing also designed the governance structure for each supplier, which included the frequency of meetings between the parties, the frequency of performance reports and reviews of SLAs, identification of key players and identification of contact people in the supplier organization. The governance structures used for the three main critical vendors were similar. In these cases, governance was intense: "You know, there are executive reviews or direct reviews at the director level. There are quarterly meetings,

[1] A master level agreement between Air Canada and a supplier entails that Air Canada and the supplier have agreed on many items that the lawyers have spent a lot of time reviewing (e.g., liability insurance, loss compensation). When a master level agreement is in place, it is easier for the parties (Air Canada and the supplier) to add a new function to the existing contract.

[2] "Service level agreement" refers to the contractual obligations of the vendor to provide a certain level of service to the client firm (in this case, Air Canada). For example, for the help desks, IBM agreed to provide 24/7 service. Therefore, anytime a customer calls the help desk, a representative must be available to take the call.

monthly meetings, and day-to-day meetings, again because they are our IT system. It's almost as if they were Air Canada personnel" (Senior Director, IT Sourcing).

Transformation IT

The Information Technology-Transformation Solutions (Transformation IT) unit comprised 16 people distributed in five teams. The two main teams were Architecture and Operations. The other smaller teams were Employee Innovation, Business Intelligence and Data Warehouse, and Security. All the team leaders reported to the senior director.

The Architecture team was in charge of maintaining a solid and robust IT infrastructure for Air Canada and of modernizing the front-end applications (i.e., new technologies or interfaces). The team's main challenge was to ensure that the two sides – the modern front end and the legacy back end – worked well together. The Architecture team was responsible for preparing an IT roadmap for Air Canada, which included the company's long-term strategies and vision of IT. This roadmap covered all the strategic IT initiatives for the next five years. It did not include small and local applications in each business department. Rather, it focused on the types of technologies that could transform the company's business processes:

> We're not sitting here with our little team trying to understand all the 400 or 500 specific applications. The big stuff, yes. So there is a roadmap that incorporates the big transformational projects, like bringing the [Boeing] 787 in, our whole big maintenance system, replacing that, upgrading our reservation/departure [system], […] what I'd call strategic initiatives, strategic applications. For business unit applications, like single business-unit type applications, we support the integration of the application, but we're not telling them when they should be in or out of that application. (Senior Director, Information Technology, Transformation Solutions)

The Operations team was in charge of evaluating vendor performance, which was quite a challenge in a multi-sourced environment. The team worked with IT Sourcing to prepare and implement the right SLA for each vendor so as to ensure smooth and seamless service. The Operations team also ran the operational excellence program, under which the team constantly evaluated and improved the performance of the three main critical vendors and others as warranted.

Transformation IT also set corporate IT policies and standards (e.g., personal credit card information standards from the Security team) and then communicated these standards to both IBM (because of its role as integrator) and the business branches: "So they [the business branches] really look at IBM as an extension of our standards and policies, and they're their custodian of the standards" (Lead Architect). For example, if a business unit was planning something that might not comply with standards and policies, IBM would contact Transformation IT: "Hey, this business unit is trying to do something we don't think fits the standards. What do you think?" (Lead Architect). Transformation IT would then decide how to resolve the issue.

The Employee Innovation team's mission was to bring innovation to Air Canada. A typical example was a new tool and application for the people working "below the wing," placing a new, real-time technology into the hands of the people who load the luggage onto the aircraft.

The unit was interested in employing people who were able to talk both languages: business and IT. People in the unit needed to have a background in either the airline industry or the retail industry.[1] Since the airline in general, and the IT department and its units in particular, were dynamic and agile, survivability, flexibility and adaptability were crucial for people in Transformation IT. People on the Employee Innovation team needed to be IT enthusiasts. They were expected to constantly challenge the status quo.

> […] that inquisitiveness, that passion to improve things have to be part of it, but this needs to be balanced with some level of business acumen that understands the risks, the financial aspects. (Senior Director, Information Technology, Transformation Solutions)

Customer Solutions and Innovations

The Customer Solutions and Innovations unit employed 54 people who managed 20 applications. The main applications were aircanada.com, the check-in system, the reservation system, and all of the self-service suites such as kiosks, web and mobile check-in. Twelve people in the unit were responsible for innovation, which was mostly related to customers (i.e., external or above-the-wing innovation).

The unit was responsible for "generating innovation, but at the same time making sure that the products are reliable, robust, and will compete" (Director, Customer Solutions and Innovations). The unit was therefore in constant interaction with the business branches, especially Customer Service and Commercials. The unit employed an IT business analyst who worked closely with the business side to create "business technology" (i.e., technology that actually supported the business). Most often, the innovation process would start with a requirement from the business side. Then IT business analysts would help the business to translate its needs into IT solutions and add features to the solutions. Innovation was thus pursued jointly by IT and the business. Sometimes, however, the innovation process started on the IT side, as the business believed that there was no solution available to meet its requirements:

> We know about what platforms are out there, what systems are out there, and we like to think that we can… maybe when they think there's no hope, they should come to us and we'll find them an idea. I think now that the technology is there, it's rare that we don't have technologies to carry out an idea. It's more, how will they change or transform their business processes, and this is where we have to help them out as well. (Customer Solutions and Innovations)

The Customer Innovation team was responsible for technology watch. Its members attended industry meetings. They were knowledgeable about the business and passionate about IT, and this allowed them to create business technology. The team had to be responsive to external changes, such as regulatory changes, and to internal changes, such as changes in business requirements: "We have to be on our toes, we have to be able to come up with new concepts" (Director, Customer Solutions and Innovations). Moreover, in order to ensure that new products were robust, reliable and flexible, the Customer Solutions and Innovations unit was in constant interaction with the Transformation IT unit and, especially, its Architecture team. The two units worked closely together to improve the design of technology products, choose the right platform

[1] The airline industry is similar to the retail industry inasmuch as airlines are also selling products.

for the new products, and make the new products (i.e., applications) as flexible as possible for future changes.

Marketing and Customer Experience

As the name implies, this unit was responsible for tracking and facilitating the customer's experience on the Air Canada website. Three teams worked in this unit: 1) the customer experience team, including a web writer and two customer experience experts; 2) a three-person web team; and 3) the Electronic Customer Relationship Management (e-CRM) team. The customer experience team was responsible for website page design, the site navigation experience and booking flow (e.g., figuring out why customers stopped at certain pages and did not complete their purchase). It also provided the text and information on each web page to make the experience as user-friendly as possible. Moreover, the team was responsible for receiving customer feedback and acting on it. The team also performed "usability tests" to evaluate the design of new websites or new functions. The second team, the web team, was responsible for maintaining web content (e.g., special offers or changes in policy due to regulatory changes). The last team, e-CRM, managed email communications with customers.

The sources of changes to Air Canada's website were diverse. Some were internal (e.g., the Commercials branch), others were external (e.g., customers). Marketing and Customer Experience were responsible for gathering all the input from the different sources, prioritizing it and taking action (e.g., changing the website accordingly). The Commercials branch was an important internal source of changes, as it came up with revenue-generating ideas for the website. Customers were an important source because they also shopped and booked in other places (e.g., different travel sites and the sites of other carriers), so they compared Air Canada's website with those of competitors. The Customer Experience team would modify the company's website based on information collected in customer surveys, the terms used by customers in Air Canada's search engine, and customers' comments on the website: "'I'm looking for information on a stroller and I'm not finding it.' So whenever we have these types of comments, we investigate and take action" (Director, Marketing and Customer Experience). The team would also make adjustments based on competitors' websites.

Marketing and Customer Experience was responsible for the front end or the design of the web pages. However, changes to the back end were done by the vendor(s)' programmers:

> I'd say in my department, which mostly takes care of the front end, we do everything in-house. Things that are to be done in the back end… for example, if you introduce preferred seats [e.g., seats with more legroom], you have to design the screens and how it's going to be done, so that we do in-house. But then the programming is done in the back end to make sure the amount associated with a preferred seat gets recorded, and all that's still outsourced. (Director, Marketing and Customer Experience)

IT Operations

IT Operations was in charge of all the systems pertaining to the airline's operations, such as flight operations and aircraft maintenance. In 2010, the unit employed 70 people[1] (i.e., business analysts), including both full-time employees and part-time contractors.

At the time, the unit had just finished transforming the operational systems (i.e., flight planning, the weight and balance of the aircraft, and two systems that allowed pilots and attendants to choose their flights). The main challenge of the transformation was to keep the airline alive during its "heart transplant":

> In the industry, it's pretty much one of the few projects of that magnitude that have been undertaken, and the main challenge of such a project, it's as if I am performing your heart transplant, so the complexity is in the planning around it and all the interfaces with your system. In this case, there were over 250 interfaces with the other system, and obviously what I'm doing in a heart transplant is keeping you alive at the same time; the airline has to continue to run. And this in a sense was probably one of the main challenges. (Senior Director, IT Operations)

Also, in 2010, the unit was in the middle of changing the aircraft maintenance system, which was 25 years old. This system maintained all the data about all the parts of an aircraft. For example, it had data on the age of thousands of parts in each aircraft and the scheduled times for changing each part. As for the introduction of the Boeing 787 – a "computer with wings" – IT Operations along with business departments and IT units were working on its strategic impacts:

> The aircraft has wireless connections. There's going to be more than 500 different pieces of software in the aircraft. So when it arrives at the gate, there's wireless LAN, a wireless connection, a Wi-Fi connection that's going to enter in [to] action to download information from the aircraft to the gate and upload software patches, too.
>
> What are we going to do with this aircraft? We need to have a very good understanding of its maintenance, the flight operation aspect, the technology, understanding what Boeing is going to do with it, understanding what the market, meaning the other carriers, is going to do, and be able to integrate all that to develop a good roadmap. So I would say it [IT Operations] needs a broad understanding of the business in general, of the industry. (Senior Director, IT Operations)

IT Operations worked closely with Transformation IT because all the new systems needed to be supported by the airline's IT infrastructure and to fit into the current architecture. IT Operations and Transformation IT worked closely together to ensure that the best available platform was chosen for each system and that each system complied with corporate standards and policies. When the projects moved out of the implementation/testing mode and into the steady mode, IT Sourcing helped to implement the right SLA with each of the vendors involved and managed the contracts for the remaining contract time.

The IT Operations unit (the newly added unit) was in charge of systems relating to airline and aircraft operations (e.g., the flight planning system and the maintenance system). In contrast, the

[1] The number of employees was relatively high because the unit was in the midst of changing the aircrafts' maintenance system. Also, Air Canada was going to use a new aircraft (i.e., the Boeing 787) in the years to come, which would affect operations and the systems that support operations. The employees of IT Operations were in charge of analyzing these impacts.

Operations team at Transformation IT was in charge of IT operations for all vendors and all systems. It was basically in charge of how vendors operated or worked.

IT Commercials

In 2010, a few months after the creation of the new units, the Senior Director of Commercial Information Systems (IT Commercials) was creating her team of 10 to 15 cross-functional people (from different departments of the Commercials branch) who possessed a solid understanding of both the airline and the business environment.

IT Commercials worked closely with IT Customer Service to ensure that all needs were coordinated between the two branches (since the systems needed by one branch could also be needed by or affect the other). For example, when IT Commercials wanted to add preferred seats to the Air Canada website, IT Customer Service also had to add them to the call centres (for consistency in all service points). IT Commercials also worked closely with Customer Solutions and Innovations to help the business side translate their needs and product definitions into IT solutions. IT Commercials was also an important source of change for Marketing and Customer Experience. For example, when the Commercials branch decided to add an online class upgrade (e.g., from economy to business class for certain flights) to the company website, this branch channelled the request through IT Commercials to Marketing and Customer Experience:

> So where there's a lot of benefit is that now the folks in the commercial branch can actually focus on what sort of product they want, the product definition. And when I say product definition, I mean what it is that they need, whether it's a new product or a product enhancement. So they have defined the specifications, the concept, they're responsible for that, but they're also responsible for vetting it with the other departments so that, if there's a product owner within the commercial branch, then they will come to me and my team and they'll say, "Okay now, I want you to go and make it happen." So our role will be to implement and then support whatever system is put into place. (Senior Director, Commercial Information Systems)

For the Senior Director of IT Commercials, the main challenge lied in bringing the business departments together, since they were accustomed to working independently:

> The main challenge of this new role is really to build relationships within the branches, breaking down the silos between departments, obviously, because these departments have been working in isolation for a long time, doing things their way, which is not necessarily a bad thing, but they've just not necessarily been communicating, even amongst the branches. So I would say the biggest challenge is to build the relationships. I think that's key, and that was my first objective, to start building the relationships and start the communication process across departments. So it's about bringing people to the table. (Senior Director, Commercial Information Systems)

IT Commercials measured its success in terms of customer satisfaction. Since its customers were inside the commercial branch, the success of IT Commercials was determined by the branch's satisfaction with the systems and the solutions that were implemented. IT Commercials also needed to create realistic expectations in business branches (by engaging and motivating different stakeholders) so that they could deliver solutions that met business expectations.

IT Customer Service

The Customer Service Information Systems (IT Customer Service) was a unit of 20 people who coordinated IT needs across call centres, airports, in-flight services and customer relations. The unit was in charge of any system or application (i.e., implementing and providing support) that covered the customer service departments. The unit's main challenge, similar to the other two new units, was to find people who could communicate with both the business side and the IT side:

> I think one of the biggest challenges is having individuals who can speak the languages of both sides of the equation, so that they're able to understand the business impact. Being able to develop business cases, having the knowledge to do so, to understand which projects have merit and which don't. Also, being able to then turn around and translate that into technical documents or technical conversations. So that you can manage the vendors in order to satisfy the end users. (Senior Director, Customer Service Information Systems)

The unit worked closely with Customer Solutions and Innovations in a collaborative approach to source solutions for business requirements. Developing mobile applications is one example of their work:

> Employees [are] dealing with mobile applications, as well as customers. But if a requirement comes to me from my airports branch, that they want a new mobile application and I'm not sure which direction to go in terms of the technology because there are options out there, then I would engage with the Innovations team to get some input on industry trends and the options out there. (Senior Director, Customer Service Information Systems)

IT Customer Service worked closely with Transformation IT to ensure that their initiatives complied with corporate standards and policies. Depending on the type of project (a new initiative or a change/enhancement to an existing system), IT Customer Service either issued an RFP for a competitive bid to find the right vendor or asked an existing vendor to carry out the project. In addition, depending on the dollar value of the new initiatives to be acquired, IT Customer Service might perform the RFP and vendor selection processes with or without help from IT Sourcing. When a new initiative was above a certain expenditure level, IT Sourcing helped IT Customer Service prepare an RFP, determine a list of potential suppliers to receive the RFP and, finally, select the vendor.

IT Customer Service also changed and adjusted its types of projects depending on the economic cycle of the airline. In 2010, in the midst of the introduction of the Cost Transformation Program, IT Customer Service was focused on the type of projects that could contribute to overall savings. Moreover, the unit was flexible in order to accommodate changes in the airline environment:

> From month to month, things can change drastically, and you've got to be able to adapt to that. Dealing with the commercial side of the business, you have to be quite flexible, and it's important to be able to change strategies quite quickly. (Senior Director, Customer Service Information Systems)

The Group of Seven

The four senior directors of the IT units and the three senior directors of the newly added units formed a group whose members communicated intensely with one another, both formally and

informally. The proximity of the senior IT directors' offices facilitated face-to-face, informal communication. "Basically it [a new initiative] starts in the hallway. And then we create a SWOT[1] team" (Senior Director, Information Technology, Transformation Solutions).

The directors called themselves the Group of Seven (G7). In addition to frequent informal communication, they held formal monthly meetings: "The Group of Seven meets every month for us to understand: What are you working on? What's coming up? How can I support you? What are you going to need from me? So we have monthly discussions to just make certain that there's as much synergy as possible" (Senior Director, IT Sourcing).

The G7 also attended a staff meeting every other week with the CIO. The senior directors communicated and coordinated their needs and ideas beforehand, through informal communications and also in their own G7 meetings. Therefore, they spoke with a single voice. Since the CIO attended weekly executive meetings with the CEO and other business vice-presidents, she had firsthand knowledge of the airline's directions and high-level goals and strategies, and she talked about them at her staff meetings. In the following G7 meeting, the senior directors would continue discussing the airline's goals and initiatives mentioned by the CIO at the meeting and how they could support those initiatives.

The G7 and the CIO also held a yearly budget meeting. Each year at the end of summer, the group spent a month working on the budget for the following year. The G7 first prepared a list of all the projects that the business side wanted to work on:

> We ask Business about all the IT projects that they think they're going to be working on, and all of that money will come out of an IT budget. So it is the CIO who has the budget for any IT work. We get an overview formally once a year as to what it is that the business wants to work on. But as far as big projects are concerned, we already know about them. A project that's going to take two or three years, we're either starting it, or we're in year one, two or three. (Senior Director, IT Sourcing)

After learning about the projects, the G7 would prioritize initiatives/projects for the coming year:

> We also reduce the list [of projects] and we speak as a group with the business side and IT to understand their priorities, dependencies. Is it a commercial initiative? Is it a legal initiative? Is it mandated by Transport Canada? We set those priorities and then we agree on the plan for the following year. So again, we have alignment at the director and VP level on what's important to accomplish next year. And by seeing where the business is going, we can determine if we have more infrastructure work to do or if we have to make an environment more robust. This is the opportunity for us to understand as well, not only do I have product development to do but I also have infrastructure development to do to support the business needs. (Senior Director, IT Sourcing)

The budget exercise was not new to the IT department. However, the department's new structure made the exercise easier and facilitated the alignment of IT with business:

> Because I'll be able to speak with these three colleagues and say: "What are you working on? Show me your plan in advance of the budget." So it will be less of a surprise when we actually get to the budget exercise itself. (Senior Director, IT Sourcing)

[1] Strengths, weaknesses, opportunities and threat (SWOT) analysis.

For the G7, being agile and responsive to the business side was the ultimate goal. The Senior Director, IT Sourcing, explained the environment in which Air Canada operated: "Knowing our competitors, that's the easy part; watching WestJet who is a strong competitor or Porter who is successful with their operations at Toronto Island Airport. It is easy for our commercial people to understand this kind of business challenge. But fuel, volcanoes, disease, wars… it's completely outside of our control, but we have to cope." And how can IT help the business side cope? "Well, I think it's by being very nimble," she says. "Putting things in place in advance, so that we don't say 'Oh, what a great idea, it's going to take a year to do.'"

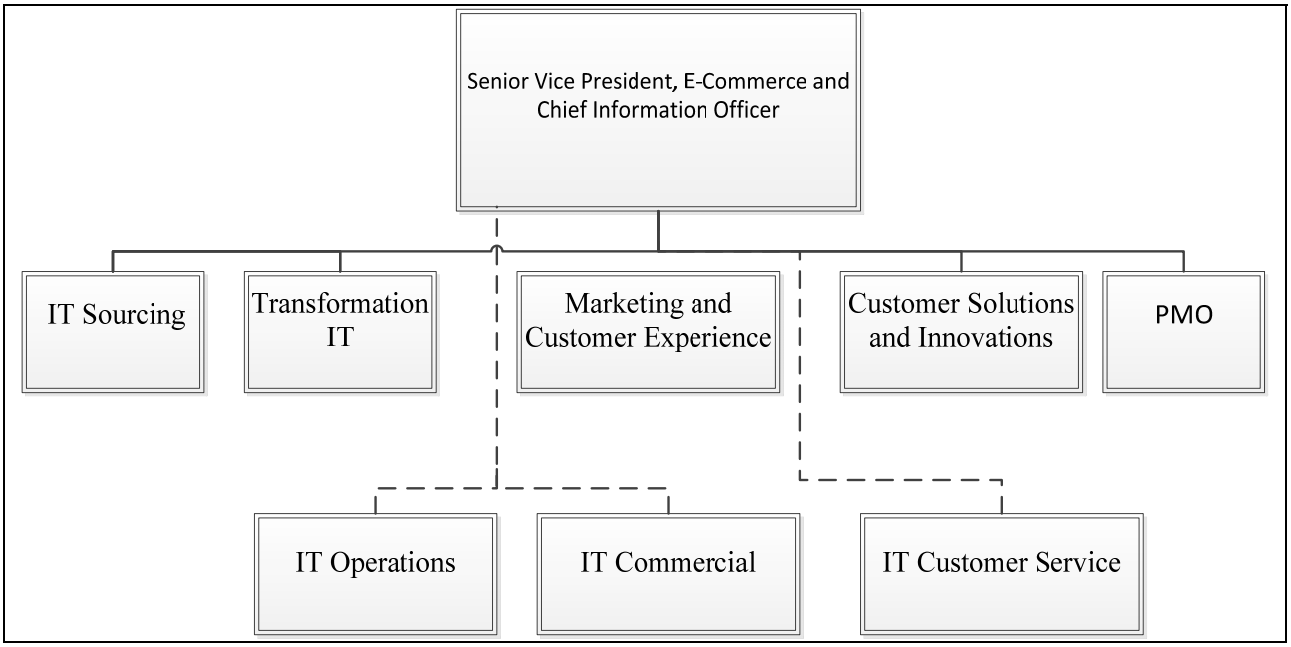
Continue to Innovate, Continue to Learn

Innovation was an imperative for the Air Canada Group: "Knowing your business in order to understand what could make a difference." The CIO believed that in order to innovate, "you have to get away from the day-to-day at times, and think about what could make a difference in the business, because otherwise you'll always be putting out fires instead of thinking." To innovate, she added "you need to think in terms of trends. You know your business, you say, OK, is there something here?"

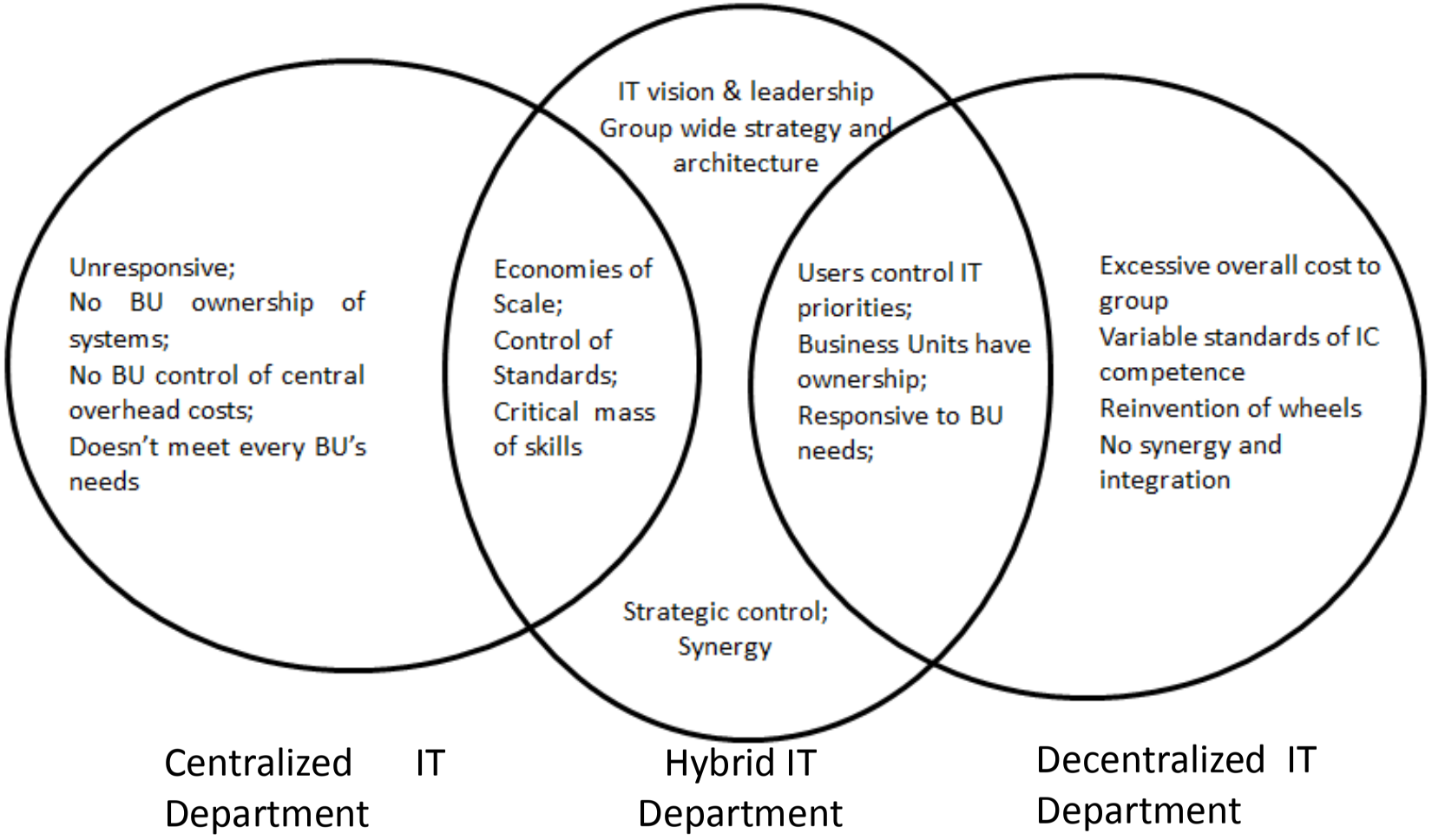
For Air Canada, constant innovation with IT was the key differentiator. It served as a nexus of identity, a point of departure that would allow the company to fly high.

2014-03-24

Appendix 1
Air Canada IT Department – Organizational Chart



Appendix 2
Three Types of IT Department Structure



Adapted from: Rockart, J.F., Earl, M.J., Ross, J.W., "Eight Imperatives for the New IT Organization," *Sloan Management Review,* Fall 1996, p. 52.

Appendix 3
Air Canada's Fleet[1]

The following table provides Air Canada's operating fleet as at December 31, 2011 (excluding aircraft which are leased or subleased to third parties and excluding aircraft operated by Jazz under the Jazz CPA and by other regional airlines operating flights on behalf of Air Canada under commercial agreements with Air Canada).

	Total Seats	Number of Operating Aircraft(1)	Average Age	Owned(1)	Finance Lease(2)	Owned – Special Purpose Entities(2)	Operating Lease
Widebody Aircraft							
Boeing 777-300	349	12	3.8	3	1	–	8
Boeing 777-200	270	6	4.1	4	–	–	2
Boeing 767-300	191-213	30	17.7	5	8	2	15
Airbus A330-300	265	8	11.2	–	–	8	–
Narrowbody Aircraft							
Airbus A321	174	10	9.8	–	–	5	5
Airbus A320	146	41	18.7	–	–	–	41
Airbus A319	120	38	13.8	8	10	14	6
EMBRAER 190	93	45	4.8	45	–	–	–
EMBRAER 175	73	15	6.3	15	–	–	–
Total		**205**	**11.6**	**80**	**19**	**29**	**77**

(1) Excludes aircraft that have been removed from service.

(2) Owned aircraft, aircraft under finance leases, and other aircraft under lease from special purpose entities that are consolidated by Air Canada and are carried on Air Canada's statement of financial position. Owned aircraft include aircraft financed under conditional sales agreements.

[1] Source: Air Canada's Annual Report (2011; p. 34), available at: http://www.aircanada.com/en/about/investor/reports.html (accessed: Dec. 9, 2013).

Appendix 4
Key Financial Figures for Air Canada[1]

(Canadian dollars in millions, except where indicated)	Fourth Quarter			Full Year		
	2011	2010	Change $	2011	2010	Change $
Financial Performance Metrics						
Operating revenues	2,699	2,616	83	11,612	10,786	826
Operating income (loss) before the provision adjustment for cargo investigations, net(1)	(98)	15	(113)	179	232	(53)
Operating income (loss)	(98)	61	(159)	179	278	(99)
Non-operating income (loss)	38	28	10	(429)	(303)	(126)
Income (loss) before income taxes	(60)	89	(149)	(250)	(25)	(225)
Net income (loss) for the period	(60)	89	(149)	(249)	(24)	(225)
Operating margin before the provision adjustment for cargo investigations, net %(1)	(3.6)%	0.6%	(4.2) pp	1.5%	2.2%	(0.6) pp
Operating margin %	(3.6)%	2.3%	(5.9) pp	1.5%	2.6%	(1.0) pp
EBITDAR before the provision adjustment for cargo investigations, net(1) (2)	162	328	(166)	1,242	1,386	(144)
EBITDAR(2)	162	374	(212)	1,242	1,432	(190)
EBITDAR margin before the provision adjustment for cargo investigation, net %(1) (2)	6.0%	12.6%	(6.6) pp	10.7%	12.9%	(2.2) pp
EBITDAR margin %(2)	6.0%	14.3%	(8.3) pp	10.7%	13.3%	(2.6) pp
Cash, cash equivalents and short-term investments	2,099	2,192	(93)	2,099	2,192	(93)
Free cash flow(3)	(69)	122	(191)	366	746	(380)
Adjusted net debt(4)	4,576	4,874	(298)	4,576	4,874	(298)
Net income (loss) per share – Diluted	$ (0.22)	$ 0.27	$ (0.49)	$ (0.92)	$ (0.12)	$ (0.80)
Adjusted net loss per share – Diluted(5)	$ (0.64)	$ (0.17)	$ (0.47)	$ (0.72)	$ (0.58)	$ (0.14)
Operating Statistics			Change %			Change %
Revenue passenger miles (millions) (RPM)	12,065	11,756	2.6	54,223	51,875	4.5
Available seat miles (millions) (ASM)	15,290	14,918	2.5	66,460	63,496	4.7
Passenger load factor %	78.9%	78.8%	0.1 pp	81.6%	81.7%	(0.1) pp
Passenger revenue per RPM ("Yield") (cents)(6)	19.5	19.1	1.9	18.7	18.1	3.3
Passenger revenue per ASM ("RASM") (cents)(6)	15.4	15.1	2.0	15.3	14.8	3.2
Operating revenue per ASM (cents)(6)	17.7	17.3	2.2	17.5	17.0	2.9
Operating expense per ASM ("CASM") (cents)	18.3	17.4	4.9	17.2	16.6	3.5
CASM, excluding fuel expense and excluding the cost of ground packages at Air Canada Vacations (cents)(7)	12.6	12.8	(1.5)	11.7	12.0	(2.9)
Average number of full-time equivalent (FTE) employees (thousands)(8)	23.6	23.3	1.5	23.7	23.2	2.1
Aircraft in operating fleet at period end(9)	331	328	0.9	331	328	0.9
Average fleet utilization (hours per day)(10)	9.4	9.4	(0.3)	10.1	9.8	2.7
Revenue frequencies (thousands)	133	131	1.3	551	537	2.5
Average aircraft flight length (miles)(10)	857	850	0.8	892	868	2.7
Economic fuel price per litre (cents)(11)	88.6	67.5	31.3	85.2	66.4	28.3
Fuel litres (millions)	912	906	0.7	3,937	3,791	3.9

(1) In the first quarter of 2008, Air Canada recorded a provision for cargo investigations of $125 million. In the fourth quarter of 2010, Air Canada recorded a net reduction of $46 million to this provision.

(2) EBITDAR (earnings before interest, taxes, depreciation, amortization and impairment, and aircraft rent) is a non-GAAP financial measure. Refer to section 20 "Non-GAAP Financial Measures" of the MD&A for a reconciliation of EBITDAR before a provision adjustment for cargo investigations to operating income (loss) and EBITDAR to operating income (loss).

(3) Free cash flow (cash flows from operating activities less additions to property, equipment and intangible assets) is a non-GAAP financial measure. Refer to section 9.5 of the MD&A for additional information.

(4) Adjusted net debt (total debt less cash, cash equivalents and short-term investments plus capitalized operating leases) is a non-GAAP financial measure. Refer to section 9.3 of the MD&A for additional information.

(5) Adjusted net income (loss) per share (diluted) is a non-GAAP financial measure. Refer to section 20 of the MD&A for additional information.

(6) A favourable revenue adjustment of $40 million related to Air Canada's transatlantic joint venture with United Airlines and Deutsche Lufthansa AG, which was finalized in December 2010 but with effect as of January 1, 2010, and to other interline agreements was recorded in the fourth quarter of 2010. For comparative purposes, these measures were adjusted to exclude the impact of the $40 million favourable adjustment recorded in the fourth quarter of 2010, which related to activities attributable to the first three quarters of 2010.

(7) Operating expense, excluding fuel expense and excluding the cost of ground packages at Air Canada Vacations, is a non-GAAP financial measure. Refer to section 20 of the MD&A for additional information.

(8) Reflects FTE employees at Air Canada. Excludes FTE employees at third party carriers (such as at Jazz Aviation LP ("Jazz")) operating under capacity purchase agreements with Air Canada.

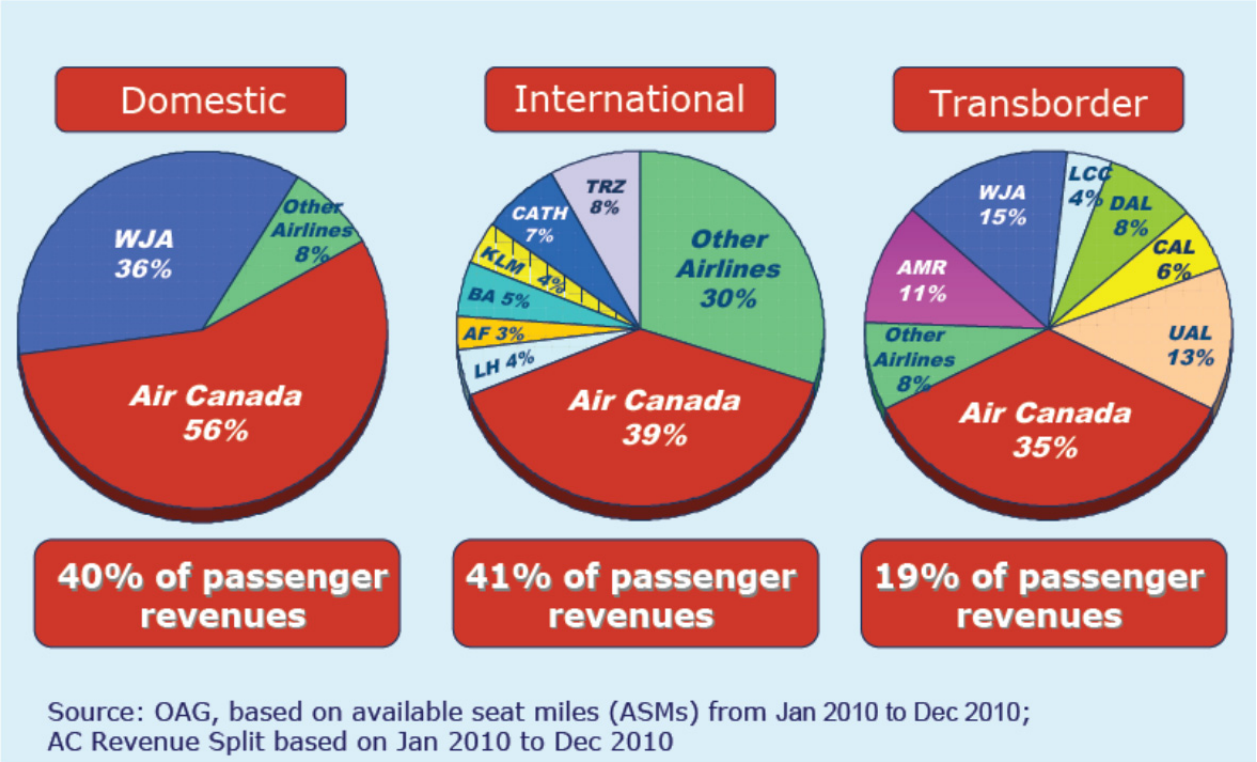
(9) Includes Jazz aircraft covered under a capacity purchase agreement with Jazz (the "Jazz CPA"). Excludes aircraft operated by other third party carriers pursuant to capacity purchase agreements with Air Canada. Refer to section 8 of the MD&A for additional information.

(10) Excludes charter operations. Also excludes third party carriers operating under capacity purchase arrangements, other than Jazz aircraft covered under the capacity purchase agreement with Jazz.

(11) Excludes third party carriers, other than Jazz, operating under capacity purchase agreements. Includes fuel handling and is net of fuel hedging results. Economic fuel price per litre is a non-GAAP financial measure. Refer to sections 6 and 7 of the MD&A for additional information.

[1] Source: Air Canada's Annual Report (2011; p. 2), available at: http://www.aircanada.com/en/about/investor/reports.html (accessed Dec. 9, 2013).

Appendix 5
Air Canada's Market Share[1]



[1] Source: Air Canada website, Investor relations, Speeches and Presentations (Archives: February 2011, p. 4) http://www.aircanada.com/en/about/media/presentations/archive.html#faq:1-* (accessed Dec. 9, 2013).