CASE STUDY

# Northern Aero Loyalty Program (CLV)

ARNAUD DE BRUYN AND ANTHONY ANZIANI

# Background

In June 2008, 35-year-old Jannick Jörgensten was rehearsing the presentation he was going to make during an Executive Board Meeting, scheduled to take place in just a few hours. He had been hired as the new Northern Aero Chief Marketing Officer (CMO) three years ago, in charge of managing the loyalty program of this modest but profitable and growing airline company established in Scandinavia (Northern Europe).

He could still remember the discussion he had on his first day on the job with David Vlock, former CMO of the company, who was retiring after many years of good and loyal service: "You will have a difficult job, young man," Vlock told him. "Customers are not loyal anymore. They just want more for less and will switch to a better offer in the blink of an eye. The airline industry is in deep trouble. Our company managed to do pretty well so far, but I have no idea where we are going. It just costs too much money to keep customers loyal today."

Vlock was right; loyalty programs were expensive. Coming from a background in the service industry, Jörgensten was amazed to learn that when a customer walked into one of the airline's lounges, it cost the company about $50. Was it worth it? Was the company spending its marketing and loyalty program dollars wisely? And could it do more with less? To find the answer to these questions, he had undertaken a major project during the past few months, aided by a group of customer relationship management (CRM) and information technology (IT) consultants from ZENITH Consulting. Today, he was to deliver the results of his investigations (and his recommendations) to the Board. The results were unexpected, and the recommendations he planned to make definitely would challenge the conventional wisdom. It was going to be a long day.

## The airline industry

In the early and mid-2000s, the airline industry suffered through one of the worst periods of its history.

First, the terrorist attacks on the World Trade Center on September 11, 2001, created huge repercussions for the airline industry. People were afraid to travel; meanwhile, reinforced security procedures made traveling even more of a hassle and generated additional costs that ultimately increased airline fares. Other frightening factors also influenced the airline industry shortly thereafter, including the SARS pandemic (a respiratory disease in humans, with a mortality rate of 9.6%) during 2002 and 2003. As a result, many people simply were too afraid to fly.

Second, the increase in gas prices (mostly due to the war in Iraq and the geopolitical turmoil in that strategic region of the world) and a severe economic slowdown negatively impacted the airline industry. As in any recession, most companies cut expenses, especially traveling costs.

Third, technologies were evolving rapidly. The Internet allowed travelers to search more easily for the lowest fares and made them more price sensitive and more likely to search for deals. Other technologies, such as the increased adoption of videoconferencing and Web conferencing, also represented potential threats to airline revenues and margins.

The situation for business traveler segments was even worse. Traditionally, large companies would cut deals with airline companies to fulfill their traveling needs. But as larger companies implemented Intranet and outsourcing solutions to manage the travel options of their employees, they could select flights from various airline companies, often at lower costs. Major companies such as Dell or Cisco managed to reduce their traveling budgets by 25% by implementing such programs.

Fourth, the deregulation of the airline industry, which began in the early 1980s, had encouraged the emergence of an increasing number of competitors, many of them competing on price across borders.

Together, these factors dramatically squeezed the operational margins of most airline companies, and by the mid-2000s, many of them had filed for bankruptcy, including major players in Europe and the United States. By 2008, companies were struggling with very low margins; many of them still suffered net losses. It was a difficult time for the airline industry.

## Northern Aero

Northern Aero, one of the oldest airline companies in Europe, established in Scandinavia, had finally become profitable again after several tough years. The company owned 75 long-haul planes and was acquiring 25 more to meet increasing demand and, more importantly, to serve additional destinations. In 1999, it joined OneWorld, a major alliance of carriers, which allowed the company to rationalize costs and serve customers better by providing connections (through alliance partners) to destinations it did not serve itself.

Northern Aero embraced new technologies rather quickly compared to its competitors. Beginning in 1997, it opened its first online reservation services. In 2002, it experimented with electronic check-ins and then expanded the service two years later. The company now uses cell phone messages to alert customers in real time about confirmed reservations and upgrades or expected delays.

## The Frequent Flyer Program

During turbulent times in the early and mid-2000s, some airline companies positioned themselves as low-cost operators, competing primarily on prices; others tried to differentiate themselves from the competition and focused on increasing their customer loyalty.

Northern Aero, partly due to its geographical location and loyal customer base, took the latter approach and decided to focus primarily on differentiation and loyalty. Its Frequent Flyer Program, launched in 1992, had become a flagship element of the company's marketing strategy.

Northern Aero grouped its Frequent Flyers into three categories based on the number of miles they accumulated with the company over the preceding 12 months (*In Northern Aero's program, miles accumulate as a function of the number of miles traveled, independent of the price paid for the ticket*):

- Silver Members (more than zero but less than 25,000 miles per year).
- Gold Members (between 25,000 and 100,000 miles per year).
- Platinum Members (> 100,000 miles per year).

The company maintained a list of approximately 58,000 active or recently active members registered in its Frequent Flyer Program, along with a database containing all the transactions these members had engaged in with Northern Aero and its partners since 1992.

Frequent Flyers received rewards for their loyalty through different mechanisms, including:

- Priority access during the boarding process.

- Access to reserved lounges, with a bar, free Internet connections, relaxation areas, and so forth.
- Rewards, such as free upgrades.
- Recognition and special care.

Members also received regular contact from up to 30 targeted marketing campaigns a year, through e-mails, mobile messages, Web-only offers, regular mail, and other printed material. Campaigns included a variety of approaches, such as

- Point accrual campaigns (buy a ticket, get double the points).
- Point and cash campaigns (buy a ticket using half cash and half miles).
- Point redemption campaigns (buy a ticket for fewer miles than the amount usually required).

The program (and the associated marketing campaigns) was very costly for the company. Was it worth it? Could it be improved?

## Customer Lifetime Value Management

During the summer of 2006, Jörgensten organized a business meeting with several top ZENITH Consultants. ZENITH had been working with the company since 2002, mostly to manage and outsource part of the Northern Aero's IT needs. Today, Jörgensten and three collaborators would meet with Mohamed Naabi and Josh Samuelson, two consultants from the ZENITH Research and Development Labs, located in Milan, Italy, which specializes in CRM and quantitative analysis. They met in one of the brightly lit, elegantly furnished conference rooms of Northern Aero's headquarters.

"Gentlemen," Jörgensten said, "I have a very simple question for you. Well, at least, I thought it was a very simple question at first, but clearly, it is not *that* simple. I know the reputation of ZENITH in marketing analytics and CRM solutions, and you probably have the resources and expertise we need to get answers to my questions. Besides, you are already familiar with our information system architecture."

"Anyway, I have a Frequent Flyer Program that costs us a fortune. I know how much it costs me; that figure is right in front of my face every day. And I have to convince the Board (and myself) that all this money is worth it and well spent. But frankly," he said as he stood over the table, leaned forward, and lowered the tone of his voice to a whisper, as if to share a highly guarded secret, "I have no idea myself."

He sat down and continued. "You see, this company is growing and is profitable. And in this business, not that many achieve these results. So, we *must* be doing something right. But I am flying blind here, and for the CMO of an airline company," he smiled, "that is *not* a good idea."

"The Frequent Flyer Program is not about good deals or a promotion-of-the-month. We are building long-term relationships. We are investing in customer loyalty. The benefits will be reaped for years to come, but the costs are endured *today*. And sometimes, I wonder if it is a good investment. It is like putting money in a long-term savings account, not knowing the interest payment you will receive at the end. So, my question is as follows: What is the return on investment of my Frequent Flyer Program? How much additional revenue does it generate? Can you help us get an answer?"

Naabi remained silent for a few seconds, and then began his response: "Mr. Jörgensten, ZENITH would be pleased to work with you to resolve this issue. First, let me rephrase your question and check that we are both on the same page here. You are investing money today in a loyalty program in order to increase your customer base's loyalty and spending levels. By nurturing them, rewarding them, and communicating with them with appropriate offers, you hope they will stay in business with you longer and keep Northern Aero as their preferred choice. In other words, you invest today to maximize the lifetime value of your customers, and you would like to measure that lifetime value, and how it is impacted by your loyalty program."

"That is exactly it," replied Jörgensten.

"OK, then you must realize that your question, which is fundamental, is only the tip of the iceberg," warned Naabi. "Let me predict that, once we have determined how much money your Frequent Flyer Program generates for the company, the next question will be, how can it generate more? *Measuring* customer lifetime value can be hard and challenging, though today we have well-known techniques to measure it; *managing* customer lifetime value is ultimately what really matters. You probably do not invest enough resources in some key customers who, given their profile and potential value, should deserve more of your attention. You may spend too much money to retain others who are not really profitable. The global budget allocated to your loyalty program might be refined. How much to spend on a loyalty program, and how to allocate that budget across customers, or segments of customers, to maximize their lifetime value for the firm -- that's the real question?"

"And you believe you could help us here?" asked Jörgensten.

"Of course," replied Naabi, smiling. "I think you will enjoy the ride."

# Understanding the Model

## Segment definition

The customer lifetime value model is based on eight segments, which can be described as follows:

- Platinum (x2) customers traveled more than 100,000 miles with Northern Aero last year.
- Gold (x2) customers traveled between 25,000 and 100,000 miles within the last 12 months.
- Silver (x2) members traveled less than 25,000 miles last year, but with some activity, even if it is only one flight. Many airline companies define these customers as "regular" members and assign Silver status only after a specific mileage threshold. This segmentation is not what Northern Aero has chosen.
- Inactive members have not traveled with Northern Aero recently but were active members prior to a year ago. Since then, they have not traveled with the company.
- Lost customers are inactive customers that have shown no activity for at least two years. Any inactive member is considered "lost" if no activity is recorded for a second consecutive year.

The Platinum, Gold, and Silver definitions might not be the best ones to define managerially relevant segments. For instance, customers who fly overseas might be of much greater value to Northern Aero than customers who only fly within Scandinavia. Among the Silver members, some might fly only during summer vacations, whereas others may fly occasionally but all year long. In addition, these segments are defined according to the number of miles flown, regardless of the prices paid for these miles. A "bargain hunter" who flies 40,000 miles a year might be worth much less to the company than a businessperson who flies 15,000 miles a year but pays full price every time.

However, the entire company organization is built around these three segments (e.g., customer service, reward bonuses and structure), and it would be extremely disruptive to modify that structure. Consequently, ZENITH decided to keep these simple segment definitions as a foundation but refined the categorization using value segmentation. Within each segment, the assessed monetary value of each member puts them into one of two subcategories:

- Top 20% subcategory represents the 20% most valuable customers of each segment in terms of yearly net contribution (or yield).
- Bottom 80% represents the other 80% of the customers within each segment.

Although not ideal, this approach was not overly disruptive, remained easy to implement, and helped capture some of the heterogeneity in each segment.

## Segment description

Each segment can be described by the following key figures (see Appendix for data):

- Number of customers.
- Gross margins (discussed subsequently).
- Marketing costs for the next period are costs incurred next year based on the segment you belonged to in the prior period. For instance, if you were in the "gold customer segment", you will receive a printed newsletter for the next 12 months no matter what you do next. There are no marketing costs incurred by Northern Aero; however, it can be a placeholder for future analysis.
- Average miles per year.
- Passenger yield per mile, which represents the average gross margin associated with each mile flown by a customer in this segment, after accounting for all costs, except those related to the loyalty program.
- Passenger yield per year, which represents the average miles times passenger yield per mile.
- Loyalty program costs, indicate how much money Northern Aero invests per year in the loyalty program for each customer segment. Only costs that could be cut are accounted for here (other costs have already been subtracted from the yearly yield). For instance, Platinum member exclusive lounges are expensive, but it would be almost impossible for Northern Aero to close them and eliminate the associated costs. Customers have come to expect them, and the company does not really have a choice anymore. The costs listed within this category are those linked to printed catalogues; personalized mailings, e-mails, and phone calls; marketing campaigns; gifts and certificates; and coupons and special rebates. These actions tend to strengthen relationships but are not necessarily expected by customers. As a first step, because Northern Aero had not used a top 20% versus bottom 80% distinction before, the loyalty program costs are identical across both categories; within each member category, both top and bottom customers have been treated identically. Gross margins equal the yield per year minus the loyalty program costs.

## Transition matrix

The transition matrix shows the likelihood that a customer in a particular segment will "migrate" to other segments during the next year. For instance, in the following transition matrix, 39% of the Platinum (top 20%) customers will remain in the same segment next year; 13% will remain Platinum members but fall into a lower margin range; and 31% will become inactive customers.

**Transition matrix (current)**

| | Platinum (top 20%) | Platinum (low 80%) | Gold (top 20%) | Gold (low 80%) | Silver (top 20%) | Silver (low 80%) | Inactive customers | Lost customers |
|---|---|---|---|---|---|---|---|---|
| Platinum (top 20%) | 39 | 13 | 10 | 3 | 2 | 1 | 31 | 0 |
| Platinum (low 80%) | 11 | 33 | 11 | 8 | 3 | 2 | 33 | 0 |
| Gold (top 20%) | 3 | 10 | 31 | 10 | 8 | 3 | 36 | 0 |
| Gold (low 80%) | 1 | 3 | 10 | 30 | 10 | 8 | 38 | 0 |
| Silver (top 20%) | 0 | 1 | 3 | 11 | 34 | 11 | 40 | 0 |
| Silver (low 80%) | 0 | 0 | 1 | 2 | 9 | 28 | 60 | 0 |
| Inactive customers | 0 | 0 | 0 | 1 | 3 | 8 | 0 | 88 |
| Lost customers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 |

Similarly, an inactive customer will become either (a) active again or (b) lost and considered lost forever.

## Data organization

The Enginius data blocks and the tables in the Appendix contain all the data necessary for analysis:

1. **Segment data (current)** shows the current situation in terms of gross margins, with the loyalty program in place.

This first data block has been estimated using observed data. The next two are based on a simulation of customers' reactions to marketing efforts. These figures have been estimated econometrically using response functions and marketing models.

2. **Segment data (no loyalty program)** shows what would happen if Northern Aero stopped all promotional and marketing campaigns. All marketing costs would be cut; the transition matrix would be affected as a result.
3. **Segment data (optimization)** summarizes the results provided by the ZENITH consulting team, including both the optimal spending levels for each segment (estimated with a discount rate of 15%) and the resulting transition matrix. One of the recommendations made by the consulting group was to shift loyalty program spending toward higher-value customers (i.e., distinguishing among customers of the same Frequent Flyer segment) and no longer spending money on the Inactive and the bottom 80% of the Silver member segments.

Each of the above three data blocks has a corresponding Transition Matrix (e.g., **Transition matrix (current)**) that should be used in the analysis.

# Case Study Questions

Question 1
Use the Lifetime Value model in Enginius, and considering a 15% discount rate, compute the following figures as of today ("Current" data block):

- The lifetime value of a typical customer in each segment.
- The "value," in today's dollars, of the existing customer database (after deducting the costs of the loyalty program). In other words, if the existing customers were to be economically valued as an asset of the company, how much would they be worth?

Question 2
Go back to Question 1, but this time use a very severe discount factor of 40%. In other words, answer Question 1 again as if $1 a year from now were worth only 60 cents today, which gives a very short-term focus to all the financial figures and computations. What key differences do you see? Please explain.

Question 3 (advanced)
One of the recurring questions Jörgensten faces is "What is the return on investment of the loyalty program?" Using the data blocks labeled ("No Loyalty Program"), what answer (or answers) would you give to that question? Note that your answer might vary, depending on the time horizon considered. Use a 15% discount rate and explain your choices.

Question 4
The results of the ZENITH consultants' analysis and efforts to optimize customer lifetime value are shown in the Enginius data blocks Segment data (optimization) and Transition matrix (optimization) and Table 3 of the Appendix. What do they recommend, and what are the key insights from their analysis? Are they recommending an increase or a decrease in the overall loyalty program budget? According to their recommendations, how should the budget be allocated?

Question 5 (advanced)
What would you recommend to the Board? Why? How would you justify your strategy? You can follow ZENITH's recommendations, adapt them, or ignore them altogether, but you must make up your mind now and propose a plan for the next year. What would it be?

(Cont.)

Question 6 (advanced)

Managing customer lifetime value is a process, and so is the research program designed to support it. As a way to proceed, reflect on the results of ZENITH's analyses and summarize:

- What has been achieved already, and how has this analysis helped Northern Aero so far?
- What needs to be done to help Northern Aero make even better, more informed decisions in the future? Think in terms of tools, insights, data, simulations, model, and so forth.

# Appendix

| Segment | Number of Customers | Gross Margins | Marketing Costs, next period | Average Miles per Year | Passenger Yield per Mile | Passenger Yield per Year | Loyalty Program Costs |
|---|---|---|---|---|---|---|---|
| Platinum (top 20%) | 200 | $4,410 | $0 | 240,000 | 1.9¢ | $4,560 | $150 |
| Platinum (low 80%) | 800 | $2,145 | $0 | 135,000 | 1.7¢ | $2,295 | $150 |
| Gold (top 20%) | 1,100 | $1,100 | $0 | 75,000 | 1.5¢ | $1,125 | $25 |
| Gold (low 80%) | 4,300 | $430 | $0 | 35,000 | 1.4¢ | $455 | $25 |
| Silver (top 20%) | 6,800 | $86 | $0 | 8,000 | 1.2¢ | $96 | $10 |
| Silver (low 80%) | 26,600 | $16 | $0 | 2,400 | 1.1¢ | $26 | $10 |
| Inactive customers | 18,200 | -$2 | $0 | - | 0.0¢ | $0 | $2 |
| Lost customers | 0 | $0 | $0 | - | 0.0¢ | $0 | $0 |

Table 1: Segment Descriptions (Current)

| Segment | Number of Customers | Gross Margins | Marketing Costs, next period | Average Miles per Year | Passenger Yield per Mile | Passenger Yield per Year | Loyalty Program Costs |
|---|---|---|---|---|---|---|---|
| Platinum (top 20%) | 200 | $4,560 | $0 | 240,000 | 1.9¢ | $4,560 | $0 |
| Platinum (low 80%) | 800 | $2,295 | $0 | 135,000 | 1.7¢ | $2,295 | $0 |
| Gold (top 20%) | 1,100 | $1,125 | $0 | 75,000 | 1.5¢ | $1,125 | $0 |
| Gold (low 80%) | 4,300 | $455 | $0 | 35,000 | 1.4¢ | $455 | $0 |
| Silver (top 20%) | 6,800 | $96 | $0 | 8,000 | 1.2¢ | $96 | $0 |
| Silver (low 80%) | 26,600 | $26 | $0 | 2,400 | 1.1¢ | $26 | $0 |
| Inactive customers | 18,200 | $0 | $0 | - | 0.0¢ | $0 | $0 |
| Lost customers | 0 | $0 | $0 | - | 0.0¢ | $0 | $0 |

Table 2: Segment Descriptions (No Loyalty Program)

| Segment | Number of Customers | Gross Margins | Marketing Costs, next period | Average Miles per Year | Passenger Yield per Mile | Passenger Yield per Year | Loyalty Program Costs |
|---|---|---|---|---|---|---|---|
| Platinum (top 20%) | 200 | $4,200 | $0 | 240,000 | 1.9¢ | $4,560 | $360 |
| Platinum (low 80%) | 800 | $2,070 | $0 | 135,000 | 1.7¢ | $2,295 | $225 |
| Gold (top 20%) | 1,100 | $1,051 | $0 | 75,000 | 1.5¢ | $1,125 | $74 |
| Gold (low 80%) | 4,300 | $426 | $0 | 35,000 | 1.4¢ | $455 | $29 |
| Silver (top 20%) | 6,800 | $81 | $0 | 8,000 | 1.2¢ | $96 | $15 |
| Silver (low 80%) | 26,600 | $26 | $0 | 2,400 | 1.1¢ | $26 | $0 |
| Inactive customers | 18,200 | $0 | $0 | - | 0.0¢ | $0 | $0 |
| Lost customers | 0 | $0 | $0 | - | 0.0¢ | $0 | $0 |

Table 3: Segment Descriptions (Optimized)