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Bancaja: Developing Customer Intelligence (B)

In early 1997, José Manuel Narciso and the rest of Bancaja's CRM team were putting the finishing touches on the bank's first customer intelligence project. Charged with uncovering new insights about the bank's credit card customers, the team had originally considered two options: a traditional conjoint analysis, or the implementation of actual mini-campaigns. Though the latter would be harder to put into practice, several aspects of the credit card project had convinced Narciso that campaigns were the way to go.

The team wanted to measure the value of various attributes for Bancaja's clients and hoped to identify the elusive "optimal" credit card—one that was most attractive to customers and most profitable for the bank. In a traditional conjoint analysis, every subject rated every attribute combination, so that the bank could evaluate cards in order of their relative scores. "But we wanted to gauge the reactions of actual customers, not the survey responses of research subjects," recalled Narciso. "In the end, a real-world choice to buy the card was the one that mattered—and that could only be measured in a real campaign." In a campaign, the single card offered to each client prevented feedback on any other combination. In fact, the only indication of a customer's approval would be his or her choice to buy the card he/she had been offered. The CRM team wanted to reap the benefits of a real campaign launch *and* conjoint analysis. To do this, they planned to use the campaigns as the basis for a new kind of conjoint analysis, treating each campaign's overall efficacy as its "score."

The Eight Mini-Campaigns in Albacete

Of the many attributes the CRM team had discussed with Mercedes Pérez, Bancaja's credit card product manager, six were selected for the final project. These six were the signing fee, the annual fee, the annual interest rate, the style of mailing, the presence (or absence) of the plastic card, and the channel (**Exhibit 1**). The first three attributes, all pricing aspects, were chosen because they had a high impact on revenue—and, the team guessed, on a client's purchase decision. The remaining attributes were major variables in credit card commercialization.

CMO Ruiz had been quick to remind the team of the expenses involved in a real-world campaign, and they knew that their budgetary allocation was limited. To keep the project on a manageable scale, the team decided to narrow the range of testable options for each attribute down to two. Then, with

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Professor F. Asís Martínez-Jerez and Research Associate Katherine Miller prepared this case. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

Pérez's help, they singled out eight of the 64 possible[1] combinations of attributes to test with real customers. These eight were carefully chosen so that the team could infer as much as possible about customer preferences for the combinations left untested.[2] Each of the eight combinations would lead to an actual card, and each card would be at the center of a separate campaign (**Exhibit 2**). The aim was to launch only these campaigns but to compile the results as if the whole set of 64 had been launched.

To control the pilot, the CRM team planned to test these combinations in a zone, a group of 20 to 30 branches in close geographic proximity supervised by a zone manager. The project zone had to have three conditions: a sufficient, but not overly large, population; low risk of contaminating clients from other zones; and a population that resembled Bancaja's average customers in terms of socio-demographic characteristics, credit card ownership, and card usage. Bancaja's branches were heavily concentrated in the Valencian region, so its options for zone selection were limited. The sole geographic match for all of the necessary qualities was Albacete, an inland province just west of Bancaja's home territory (**Exhibit 3**).

Bancaja's presence in Albacete, while less strong than in the Valencian provinces, was still significant. Albacete shared many cultural links with its neighboring region, and transfers between the two for school or work were not uncommon. At the same time, it was naturally and politically separated from the Valencian community. Bancaja's management was especially worried about potential contamination. As Narciso noted, "It would have been much easier—and more likely—for a customer from Torrent[3] to tell a friend in Valencia that we had given him a 'free' credit card. The chance that someone from Albacete would speak to customers in Valencia or Alicante was fairly low."

To select each campaign's target population, the CRM team at first considered using insights from the Valencian ownership model. The model was designed to estimate the probability—or propensity—of each customer to buy a credit card given his or her socio-demographic characteristics. If they chose campaign targets according to a minimum propensity indicated by the model, they could increase the odds of campaign success while simultaneously testing the model's validity. While the idea was tempting, team members feared the population in Albacete was not large enough to support it. According to the team's analyses, a minimum population of 2,000 was needed for each of the eight campaigns to achieve an acceptable margin of error. The available population in Albacete, however, was not more than 17,000—not large enough to make distinctions based on propensity, but just large enough to allow implementation of all the campaigns at once.

With the decision to use the entire available population in Albacete as the target, a new problem arose: to evaluate the campaigns using conjoint, the CRM team had to assume that each campaign's efficacy was equivalent to a subject's "score" of its attributes. If there were any discrepancies in propensity among the eight populations, the bank's conclusions about customer preference would be unreliable. The team divided the population into eight randomly selected groups and afterwards assessed their propensity to buy. When the results showed that the propensity in each population was nearly identical, the team knew their conjoint results would be reliable.

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[1] The combination of 2 levels for each of the six attributes yield 2^6 or 64 combinations.

[2] In making its eight selections, the CRM team used conjoint analysis to identify combinations that were orthogonal, or linearly independent in mathematical terms.

[3] Torrent was another zone Bancaja had considered for the project. The lead office of that zone was located in the city of Torrent, nine kilometers southeast of Valencia proper.

The team planned to use the campaigns not only to identify the ideal credit card design but also to validate the ownership model. After all, one of Bancaja's objectives was to see if predictive modeling could be used to identify better targets. The validation would be simple: the team had to verify that customers indicated by the model to have a greater propensity to buy actually responded at higher rates than those indicated by the model to have a lesser propensity. Finally, they would have to confirm that these results held true regardless of the campaign in which the customer was included.

In February 1997, García Checa gave his approval for implementation of the eight mini-campaigns.

Campaign Results

Four months later, Narciso stepped into his office, fresh from a weekend with his family at the nearby Malvarrosa beach. On his desk, with a note from Ruiz, were the results from the eight campaigns. He hoped Narciso would have a chance to analyze them soon, Ruiz wrote, as García Checa himself was anxious to see a report.

As Narciso scanned the results, two developments immediately stood out. First, he found that the success ratios of the eight campaigns were widely different, ranging from 1.1% (combination 7) to 13.1% (combination 1) (see **Exhibits 2** and **4**).[4] The results of the campaigns also validated the CRM team's ownership model, proving that predictive modeling could improve Bancaja's future campaign targets (**Exhibits 5** and **6**).

Narciso flipped through the data for the rest of the morning, thinking about how he would organize the report for García Checa. He wanted to include a summary of the campaign results, and planned to emphasize the attributes most valued by customers in Albacete. He also wanted to suggest some steps for the future, including how to use the results to launch another round of campaigns—this time, in Valencia.

[4] The success ratio was calculated as the number of clients who bought the card divided by the total number of clients who received an offer.

Exhibit 1 Credit Card Mini-Campaigns: Attributes and Level Selections

Attributes	Levels
1. Signing fee	- 2,000 Pesetas (Pts.) - none
2. Annual fee	- 2,000 Pts. - 2,000 Pts. or waive if annual use >= 240,000 Pts.
3. Annual interest rate	- 12% - 15%
4. Mailing / Communication	- Simple: include only basic information - Detailed: describe associated insurance products
5. Send the card	- Yes - No
6. Channel	- Branch - Mail-in response

Source: Company documents.

Note: 1€ = 166.386 Pts.

Exhibit 2 Credit Card Mini-Campaigns: Attribute Combinations Tested in Each Campaign

Attribute	C1	C2	C3	C4	C5	C6	C7	C8
Waive signing fee	Yes	Yes	Yes	Yes	No	No	No	No
Annual fee (in Pts.)	2,000	2,000	2,000 or waive if annual use >= 240,000	2,000 or waive if annual use >= 240,000	2,000	2,000	2,000 or waive if annual use >= 240,000	2,000 or waive if annual use >= 240,000
Annual interest rate	15%	12%	15%	12%	15%	12%	15%	12%
Mailing	Simple	Detailed	Detailed	Simple	Detailed	Simple	Simple	Detailed
Send card	Yes	No	Yes	Yes	Yes	Yes	No	Yes
Channel	Branch	Branch	Mail	Mail	Mail	Mail	Branch	Branch

Source: Company documents.

Exhibit 3 Albacete Client Profiles vs. Bancaja Overall

		Albacete (%)	Bancaja (%)
Segment	High Income	4	6
	Middle Income	26	26
	Mass Market	56	51
	Youth	14	17
Depth of Relationship[a]	Level 4	38	38
	Level 3	18	20
	Level 2	16	16
	Level 1	28	26
Product Profile	Deposits + Mutual Funds > 75%	68	69
	Credit > 75%	14	15
	Other	18	16
Age	>65	9	13
	45 – 65	19	18
	30 – 45	29	25
	20 – 30	25	25
	0 – 20	18	19
Address	Urban	44	41
	Rural	56	59
Sex	Male	50	50
	Female	50	50

		Albacete	Bancaja
Credit Use	% clients with card	5.9	6.0
	% active cards over total cards	59.0	64.0
	Number of transactions per active card[b]	6.0	6.9
	Average amount per transaction (in euros)	11,550	10,400

Source: Company documents.

[a]Calculated with a formula that factored in the number and diversity of products held by each client, plus the balance in each account.

[b]December 1996/January 1997.

Exhibit 4 Credit Card Mini-Campaign Results

Campaign	Waive Signing Fee	Contingent Annual Fee	Interest Rate	Detailed Mailing	Send Plastic Card	Channel	Response Rate (% bought)
1	Yes	No	15%	No	Yes	Branch	13.1
3	Yes	Yes	15%	Yes	Yes	Mail	9.9
8	No	Yes	12%	Yes	Yes	Branch	9.4
4	Yes	Yes	12%	No	Yes	Mail	8.2
5	No	No	15%	Yes	Yes	Mail	7.9
6	No	No	12%	No	Yes	Mail	6.5
2	Yes	No	12%	Yes	No	Branch	4.2
7	No	Yes	15%	No	No	Branch	1.1
						Average	7.6

Source: Company documents.

Exhibit 5 Model Validation—Propensity vs. Efficacy

Clients with Propensity to Buy (%)	Success Ratio 8 Mini-Campaigns (%)
0–10	3.1
10–20	4.7
20–30	8.1
30–40	9.8
40–50	11.4
50–60	12.0
60–70	14.8
70–80	15.4
80–90	18.4
90–100	20.0

Source: Company documents.

Exhibit 6 Model Validation—Independence from Campaigns

Mini-Campaign	Success Ratio of Mini-Campaigns			Success Ratio Improvement When Selecting Target as a Function of the Propensity to Buy	
	Success Ratio in 100% of Target Population	Success Ratio in the 75% of the Population with Highest Propensity	Success Ratio in the 50% of the Population with Highest Propensity	In the 75% of the Population with Highest Propensity	in the 50% of the Population with Highest Propensity
1	13%	21%	24%	61%	86%
3	10%	16%	20%	64%	103%
8	9%	15%	19%	56%	105%
4	8%	14%	19%	70%	134%
5	8%	12%	14%	59%	74%
6	7%	11%	13%	67%	98%
2	4%	7%	9%	70%	115%
7	1%	2%	2.5%	80%	125%
Average	**8%**	**13%**	**16%**	**62%**	**103%**

Source: Company documents.