



Conjoint Analysis

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Method

CA is a well established, powerful marketing research technique for gaining information for new product development, market share forecasting, market segmentation and pricing decisions. It is based on preference judgements. It does not require data on actual purchase behaviour. Consumer preferences for certain features of new products are evaluated long before the products are actually developed. This makes the technique especially rewarding in the context of concept testing for new products or services.

The method confronts respondents with descriptions or pictorials of products and asks them to rank or rate them according to their preferences. This task comes close to the choice task within an actual buying environment, since it forces respondents to evaluate products en-bloc and to make trade-off's between single features. Thus, one achieves quite realistic estimates for future choice behaviour and reasonable predictions of market shares.

CA is based on sophisticated statistical methods of experimental design and provides a rich set of outcomes. It is a reliable method of predicting how new and even untested products are evaluated by respondents. This technique can be applied either for selected focus groups or for larger groups of consumers via mail surveys.

New applications of CA are computer-assisted. The computer learns interactively about the respondent's preferences, thus one can focus on the questions of greatest interest to the respondent. This reduces the number of irrelevant questions asked and improves prediction in the analysis. Another new approach is CAD-based CA. This is a promising and less costly way to develop prototypes and configure new products.

Results

The immediate outcomes of CA are estimates of individual utility functions. Utility represents the value that consumers place on a feature, i.e. the relative 'worth' of it. A low utility indicates small value and a low impact on the purchasing decision:

- The part-worth of different characteristics of a product feature reveal sensitivities. They help to determine critical levels for product attributes, as for example the minimum required quality.
- The importance of a specific feature is calculated by the maximum difference of its part-worth. This identifies the contributions of each feature to the choice process.

Utility values of products can be calculated and compared by adding up their part-worth values. This enables comparisons between products and even inferences to untested products or attribute levels.

These outcomes provide various clues to questions of product design. Marketer can use the information to understand the market value of the product features of their own products as well as those of competitive products in the market. A variety of further analyses can be performed on issues as:

- the market share potential for a given or new product,
- the willingness-to-pay for additional product features,
- market segmentation,
- the price elasticity of demand and other sensitivity analyses,
- various scenarios of market and competitor behaviour.

Example (caselet)

Company X, a tyre manufacturing company, plans to develop a product with new safety features. Before the start of the actual development work, company X aims to test its initial concept for the new tyre for a large number of potential customers in order to identify which product characteristics are highly demanded by its customers and how much the customers are actually willing to pay for the specific product characteristics. Company X decides to use CA.

Initially, four basic product characteristics are identified: (1) driving in extreme weather conditions, (2) length of driving with a flat tyre, (3) driving characteristics after a sudden pressure failure and (4) price. Furthermore, the company is interested to find out whether a joint effect (5) between the characteristics two and three exist. Each of the four product characteristics has further attributes, eg the potential length of driving can either be 80 or 200 km as opposed to an immediate stop of the car.

Sets of full product profiles combining the varying attributes are constructed and evaluated by each respondents.

Product characteristic	Product A	Product B
(1) Driving under extreme weather conditions	Perfect handling under any weather condition	Regular handling
(2) Length of driving with a flat tyre	200km	80km
(3) Driving characteristics after sudden pressure failure	No change	Moderate adjustment by driver necessary
(4) Price per tyre:	DM 330,-	DM 150,-

Respondents are asked to rank the respective product concepts according to their subjective preference, eg if they preferred product A over product B or vv. Based on their responses, the importance of each product characteristic and the respective part-worth (utility) for the attributes can be calculated. The CA provides valuable information for company X.

Identification of irrelevant product features: Not much R&D effort is needed to improve the driving capacity of the tyre under extreme weather conditions since this would not be adequately valued by the customer.

1. Identification of key features: The driving characteristics with sudden pressure failure is the most important product characteristic for the customers. Here should be the main focus of R&D activities.

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2. Identification of minimal requirements: Driving with a flat tyre for a length of 80 km is sufficient. There is no need to develop a tyre which allows for a length of 200 km. Immediate stop most probably leads to a complete rejection of the new product by the market.
 3. Identification of joint effects: The driving characteristic after pressure failure combined with a certain length of driving with a flat tyre leads to substantial added value to the customer.
 4. Identification of price sensitivity: The respondents are almost very insensitive with respect to price. Obviously, safety consideration are predominant in the preference judgements. This information proves to be very valuable for the company's pricing decisions for the new product and it further, as it is known from target costing, sets certain upper cost limits for new product development.

Summarising it can be said that company X, by means of CA, has gained valuable information which supports various important decisions to be made with respect to the development of its new tyre product.