Marketing Engineering for Excel is a Microsoft Excel add-in. The software runs from within Microsoft Excel and only with data contained in an Excel spreadsheet.

After installing the software, simply open Microsoft Excel. A new menu appears, called "ME > XL." This tutorial refers to the "ME > XL/Conjoint" submenu.

Overview

Conjoint analysis measures customers' preferences; it also analyzes and predicts customers' responses to new products and new features of existing products. With conjoint analysis, companies can decompose customers’ preferences for products and services (provided as descriptions, visual images, or product samples) into the "partworth" utilities associated with each option of each attribute or feature of the product category. By recombining these partworths, companies can predict customers' preferences for any combination of attribute options, determine the optimal product concept, and identify market segments that value a particular product concept highly.

Conjoint analysis also helps firms answer such questions as:

- How much are our customers willing to pay for an extended warranty?
- What drives purchase choices?
- If we must choose between two different features to introduce in the next generation of products, which one would have the most impact on customers’ satisfaction?
- In our market, how many customers are overly price sensitive? How many are mostly quality driven in their purchase decisions?
Getting Started

Many Marketing Engineering for Excel models allow you to use the interactive assistant, which prompts you for the parameters required by the model and builds a template spreadsheet into which you can enter the required data. This generated template includes pre-selected cell ranges that correspond to the parameters you enter. These recommended Marketing Engineering for Excel templates facilitate subsequent analyses.

Expert users who are familiar with Marketing Engineering for Excel models and data requirements may prefer to input data directly in an unformatted spreadsheet. Such users should begin with the interactive assistant to become familiar with the data format that Marketing Engineering for Excel expects.

The next section explains how to create an easy-to-use template to collect and enter your own data.

If you want to run a conjoint analysis immediately, open the example file “OfficeStar Data (Conjoint, Part 1).xls” and jump to “Step 4: Estimating Preference Part Worths” (p.8). By default, the example files install in “My Documents/My Marketing Engineering/.”

If you want to see conjoint analysis in action, open the example file “OfficeStar Data (Conjoint, Part 2) and jump to “Step 7: Running analyses” (p. 14). You should not change the analysis parameters manually (they were established in Step 5) but you will see how a conjoint process works.

Step 1 Creating a study design template

A conjoint study involves a complex, multi-step analysis. The first step requires designing the study itself: By which features and characteristics are the products under study described?

In Excel, if you click on ME → XL → CONJOINT → CREATE STUDY DESIGN TEMPLATE, a dialog box appears. The first dialog box prompts you to use an interactive assistant.

 Unless you are already familiar with the methodology, you should select “yes.”
Using the interactive assistant

The first step of the study design template generation process requires you to label and list the attributes you want to use.

An attribute is a general category that you can use to build and describe alternative products or services, such as “color,” “price,” or “quality.” The attributes listed in the dialog box below come from the *OfficeStar* example.

After you have described the attributes, you must enter levels for each in the next step. An attribute is a general category description, such as color, price, or warranty, whereas the levels are the particular values that an attribute can take, such as red, $20, or 1-year warranty.

Each attribute requires at least two levels.
After entering the attributes and levels for each attribute, you will be prompted with the following dialog box:

If you click “no”, a generated conjoint study design immediately appears in a new Excel workbook, as shown below. Clicking "yes" is equivalent to selecting ME → XL → CONJOINT → CREATE DATA COLLECTION TEMPLATE in the Excel menu.

Not using the interactive assistant
If you decide not to use the interactive assistant, the following dialog box will appear, asking you to specify the:

- **Number of attributes.** The *OfficeStar* example uses four attributes to describe a store: location, assortment of office supplies, whether it sells furniture, and whether it offers computer supplies and software packages.

- **Maximum number of levels.** The *OfficeStar* example uses two to three levels per attribute, so the maximum number of levels is 3.
Step 2 Creating a data collection template

The first step, generating the study design, is necessary to describe the attributes and levels used in your conjoint study. After you have developed this basic study structure, you must generate a template to collect or enter customer data. These data will elicit customers’ preferences for the different attribute levels and thus clarify the kind of trade-offs consumers are willing to make.

To create a data collection template, select ME \(\rightarrow\) XL \(\rightarrow\) CONJOINT \(\rightarrow\) CREATE DATA COLLECTION TEMPLATE in the Excel menu. Alternatively, after creating the study design template using the interactive assistant, you may simply confirm that you want the data collection template generated immediately.

The following dialog box appears:

Click OK to generate a new blank spreadsheet. You must enter all attributes and levels manually in the spreadsheet.
Many techniques can elicit customers’ preferences, including choice-based conjoint, partial profile ratings, full profile ratings, and adaptive conjoint. Marketing Engineering for Excel offers two methods to elicit customers’ preferences:

- **Self-explicated** is the most straightforward. Respondents distribute 100 points among the different attributes (more points represent more important attributes in the choice process) and rank the different levels for each attribute in their order of preference. For example, a respondent might allocate 8 points out of 100 to the attribute “color” (color is not a very important factor in his or her choice), and then assign ranks of 1 to the color “blue” and 2 to the color “red” (prefers blue to red).

- **Ratings** require a more involved and complex but usually more reliable method to elicit respondents’ preferences. The ratings method creates a list of hypothetical products (or bundles of attributes) and asks respondents to assign a score (say, between 0 and 100) to each bundle, such that more points represent higher preferences. Marketing Engineering for Excel can infer from these ratings which attributes (and levels) drive consumer preferences, and hence their choices.

The dialog box also asks you to specify the number of respondents for whom you want to create a data collection template.

When you click Next, the software will ask you to select the range of cells for the study design.

If you have selected Ratings, the software automatically generates a list of bundles for your respondents to rate. The exact number of bundles depends on the complexity of your study design. The more attributes and levels you
have, the more bundles your respondents will need to rate to provide an estimate of their preferences.

If you select **Self-explicated**, the software generates the template below, in which the first columns refer to ranking of the levels and the last columns indicate the distribution of points to the different attributes.
Step 3  Entering your data

In this tutorial, we use the example file “OfficeStar (Conjoint Data, Part 1).xls,” which uses the ratings method. In the default condition, that file appears in “My Documents/My Marketing Engineering/.”

To view a proper data format, open that spreadsheet in Excel. A snapshot is reproduced below.

Step 4  Estimating preference partworths

When you have entered your respondents’ answers (ratings or self-explicated data), you must proceed to the next step of conjoint analysis: estimating your respondents’ preferences for each attribute and level, or preference partworths.

To estimate preference partworths from a set of ratings (note that the same logic applies to self-explicated data), select ME+XL → CONJOINT → ESTIMATE PREFERENCE PARTWORTHS in the Excel menu. The following dialog box appears:
You must specify (1) what type of method (self-explicated or ratings) you used to collect data and (2) whether your data contain identifiers for each respondent that need to be carried into the next steps of the analysis.

If you used Marketing Engineering for Excel to generate the data collection template, these options already will be populated with the correct choices, and you should not change them.

You then must select various cell ranges in the Excel workbook, namely:

- **Study design template** (attributes and levels).
- **Bundles** used to collect data.
- **Ratings** entered by your respondents.
The newly generated spreadsheet contains respondents’ estimated preference partworths.

To interpret the results, note that

- As a convention, the least preferred level of each attribute gets set to 0 for all respondents.
- As another convention, if you take the most preferred levels of all attributes and sum them, the total will equal 100. This rule ensures the consistency of respondents’ scales.
- The importance of an attribute equals the value of the most preferred level for that attribute. The first respondent in the OfficeStar example considers a store within two miles worth 25 points and a store that offers a very large assortment of office supplies worth 50 points. Therefore, for this respondent, office supply assortment is twice as important as store location.

A very important application of conjoint analysis segments customers' needs and preferences. You can use estimated preference partworths to identify segments of customers who share similar likes and dislikes and value certain attributes to approximately the same extent.

To run a segmentation analysis, refer to the segmentation/targeting software of the Marketing Engineering for Excel suite and apply the segmentation software to respondents’ preference partworths.
Step 5  Creating analysis template

If you want to skip this section and run a conjoint analysis immediately, open "OfficeStar (Conjoint Data, Part 2).xls". In the default condition, that file appears in "My Documents/My Marketing Engineering/.

This file contains respondents’ preference partworths, as well as an analysis template already filled in.

Respondents’ preference partworths can be interesting to analyze in and of themselves: What are the most important attributes (or features), what are the most preferred levels (or options), and so forth?

To exploit the potential of conjoint analysis fully for applications such as market simulations, new product design optimization, or full-blown trade-off analyses, you need to create a template in which you specify the type of analysis you plan to run, as well as the data needed to run it.

Select ME › XL › CONJOINT › CREATE ANALYSIS TEMPLATE in the Excel menu. The following dialog box appears:

- **Existing Product Profiles** (or existing bundles). Some options currently exist in the market, such as products or services offered by competitors or your company. You must describe these existing products if you plan to study the market potential of new offerings, which are gauged in reference to what already exists in the market, or analyze cannibalization effects.

- **...With Market Share Information.** If you know the current market shares of existing products, you can infer a more precise relationship between preferences (preference partworths) and choices (market shares), which enhances the predictive value of your simulations. Of course, you must also know exactly what alternatives already exist.

- **New Product Profiles** (or new bundles). Check this option if you have a predefined list of potential candidate products that you contemplate
introducing in the market. If you do not, the software will test all possible combinations and identify those with the highest market share potentials.

- **Incremental Revenue Potentials.** Conjoint simulations find the products that optimize potential market shares. However, because of cost considerations, the customer's "ideal" bundle is not always the choice that results in the highest profits for the firm. Therefore, check this option only if you can allocate a specific price (or revenue potential) to each level, which will enable you to run simulations based on revenue rather than market share optimization.

- **Respondents’ Weights.** Some categories of customers might be overrepresented in your sample. Check this option if you have enough data to correct for these biases by weighting some respondents more heavily. For instance, if 50% of the market consists of men but your sample is only 33% men, you can give a weight of 2.0 to all the men and a default weight of 1.0 to all women. That is, men in the sample count twice as much as women in the simulation, which better balances the sample. If in doubt, do not check this option; the software then gives a weight of 1.0 to all respondents in your sample.

Click Next, then select the various cell ranges in the Excel workbook.

If you checked the "Existing Product Profiles" option, you now need to create those profiles using the following dialog box. If you checked the "New Product Profiles" option, the same procedure will apply subsequently.
These steps lead to the generation of a workbook similar to the following (in this example, only the "Existing Product Profiles" and "Incremental Revenue Potentials" were checked):
Step 6  **Entering analysis data**

Some cells in the data analysis template need to be filled in before proceeding, including:

- **Market Share Information** about existing product profiles.
- **Incremental Revenue Potentials** of all levels.
- **Respondents’ Weights**.

In the preceding example, moving the store 5–10 miles away would increase revenues by +30% (compared with a base level of a store within 2 miles, perhaps due to higher rent costs); offering software and computers in the...
store would decrease revenues by –25% (due to higher operational costs, maintenance, and stock obsolescence). Although customers clearly prefer a closer store to a distant one, conjoint analysis indicates—on the basis of a preference analysis, market share simulations, and revenue potential—whether building a new store within two miles is worth the extra cost.

Step 7  **Running analyses**

After you enter your data in the Excel spreadsheet using the appropriate format, click on **ME > XL > CONJOINT > RUN ANALYSIS**. The dialog box that appears indicates the next steps required to perform a conjoint analysis of your data.

**Existing product profiles**

In this area, specify whether you want to perform market share simulations:

- **On existing product profiles** only, which simply simulates the actual market.
- **...With new product profiles** you have defined by taking into account existing product profiles and simulating the introduction of your manually specified new product profiles.
- **...With optimal product profiles**, which tests all possible combinations of new product introductions and keeps those that lead to the highest market shares (or revenues, if you have checked that option), after taking into account existing product profiles in the current market and thus identifying new opportunities, or “holes,” in the market.

**Options**

These options reflect and confirm the choices you made when you created the data analysis template. Please refer to the previous section for explanations.

**Choice rule**

You can use several methods to translate preferences into choices, depending on the product category and information available.
Maximum utility rule: Each respondent selects the product that provides the highest utility among competing products and a specific new product concept being evaluated. If customers buy products in the product category infrequently and/or are highly involved in the purchase decision (e.g., house, car, expensive computer), the maximum utility rule is preferable.

Share of utility rule: Each respondent’s share of purchases of a particular product is a function of his or her utility for that product, compared with the total utility for all products in the competitive set. This analysis option is most suitable for products that customers buy frequently and/or for which they are less involved in the purchase decision (e.g., a meal).

Logit choice rule: The share of each product for each respondent is a function of the weighted utility for that product, compared with the total weighted utility for all products in the competitive set. The weighting uses an exponential function. This analysis option provides an alternative to the share of utility model.

Alpha rule: A weighted combination of the maximum utility rule and the share of utility rule, this method chooses a weight (alpha) that ensures the market shares computed in the simulation are as close as possible to the actual market shares of the existing products in the market. This option is available only if you can to provide information about the market shares of existing products in the segment to which you are targeting the new product.

Next steps
When you click Next, you are prompted to select data ranges to run the conjoint analysis. If you followed the previous steps, all your data should be contained in the last workbook generated by Marketing Engineering for Excel, and all cell ranges should be properly pre-selected, depending on the options you selected.

The new generated workbook offers the results of your conjoint analysis.

Step 8 Interpreting the results
For illustration, the following workbook was generated using the following options:

- Five optimal product profiles.
- No revenue potentials.
- Logit choice rule.

Main results
The first sheet of the newly generated workbook reports the results of the conjoint analysis, including the market share simulations:

- With the existing product profiles only.
- By simulating the introduction of the generated new product profiles, one at a time (optional).
- By simulating the introduction of as many optimal product profiles as requested, one at a time, beginning with the one that leads to the highest market shares or revenues (optional).
In the following chart, notwithstanding new product introductions, conjoint analysis predicts that Office Equipment captures 68% of the market (according to the logit rule).

The introduction of a new, optimal product (see the description of "Optimal Product 1" in the first sheet) could capture 63% of the market, and Office Equipment’s market shares would drop from 68% to 25%.
...with Optimal Product 1

- Office Equipment: 20%
- Optimal Product Profile: 60%
- Department Store: 12%