

## MindWriter and Simalto+Plus<sup>1</sup>

As part of MindWriter's CompleteCare project, Jason needs to assess customer satisfaction among MindWriter's corporate computer buyers. To identify and prioritize the areas of performance where investment in improvement will have the greatest payoff, Jason decides to use a trade-off technique called **Simalto+Plus**<sup>TM</sup> (Simultaneous Multi-Level Trade-Off).<sup>2</sup>

Simalto+Plus is a conjoint-related technique used to predict consumers' purchasing behavior. It recognizes that since resources are limited, buyers seldom can have all the features they want in a product or service, and satisfying one set of needs is often at the expense of another. Simalto+Plus is distinguished from other conjoint techniques in that, rather than mathematically deriving correlation coefficients, Simalto+Plus is a rule-based expert system that operates similar to neural network analyses.

Neural networks use nodes, modeled after the neurons in the brain, to recognize patterns and linkages by summarizing values in a nonlinear manner, with values being expressed as connection weights. Simalto+Plus uses a pattern-recognition technique called *notice and prefer* which inductively identifies the relationships among the variables. Grid data are used as input, and Simalto+Plus learns from the patterns provided on an individual participant basis and then infers their relevance into a rule base. The approach is similar to that used in optical character reading when a document is scanned.

Instead of relying on a single algorithm, Simalto+Plus customizes its own rule set. This is necessary because participants will have provided only a relatively small number of patterns compared to the billions of possible combinations that could be developed on the grid. The underlying premise for the Simalto+Plus rules is that choice is most likely to occur for the specifications that cause the most individual satisfaction. For example:

- 1 If two service programs differ by only one feature, then the buyer will select the service program with the features that most closely match the buyer's preferences.
- 2 If service program specifications are of equal merit to the buyer, then the buyer will choose the service program that is less expensive.
- 3 If a designed service program becomes more expensive than the buyer's available budget, then the buyer will have a lower probability of purchasing from a given vendor.

While these rules are simple, they, and other rules, form a system for making inferences and applying them as a set of "if . . . then" type of predictions stated as the percentage preference for a specific arrangement of particular product or service features.

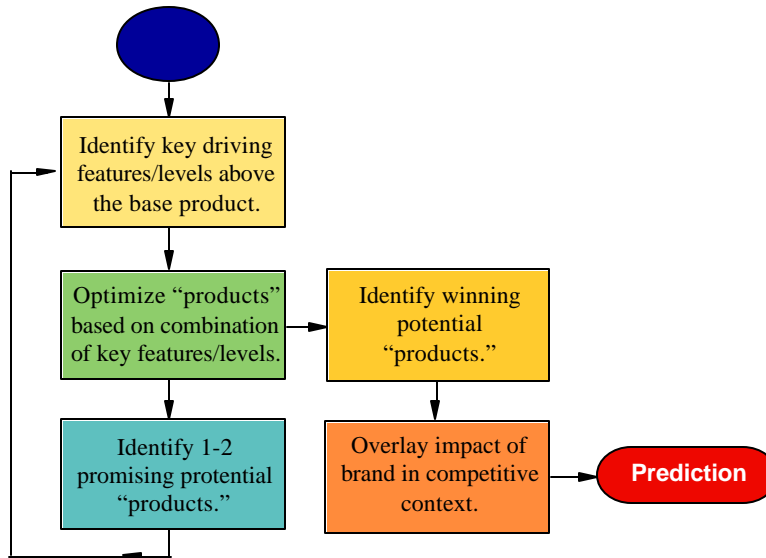
### > A Three-Phase Process

Because of the large range of product or service feature combinations that can be modeled, Simalto+Plus follows an analytic process to determine the product or service feature combinations that best meet consumers' preferences. This process occurs in three phases. Phase 1 involves identifying key driving features and levels above the base product. This phase includes three steps:

- 1 Profiling the current product,
- 2 Identifying the most important features,
- 3 Identifying unacceptable features.

Phase 2 entails identifying winning potential products. This requires (1) reprioritizing the existing products' features; and (2) identifying bonused improvements. Phase 3 involves testing the relative brand value of the product or service (using a questionnaire) and

## Exhibit MW-1 Simalto+Plus Analytic Procedure



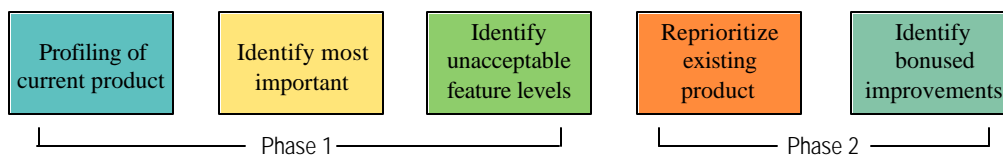
determining the brand image using a brand image/equity grid. The Simalto+Plus analytic process is summarized in Exhibit MW-1.

The core of Jason’s research is a series of grid exercises (Exhibit MW-2) that deconstruct the MindWriter CompleteCare services into 30 separate attributes, each with between three and eight different levels of performance. For example, repair speed after receiving the computer at the CompleteCare facility might have four levels of performance: shipped next day, shipped by third day, shipped within five days, and shipped within seven days. For Jason’s scales, the descriptions are provided in words, rather than numerically. Jason had previously validated the descriptions through focus groups and interviews with both consumers and MindWriter employees involved in different areas of MindWriter product design, service, and support.

Jason conducts telephone interviews with upper-level managers at the client companies. The Simalto+ Plus grid is faxed to participants prior to the interview with a brief description of how it will be used. The participants are asked to complete the grid as the questions are asked, while Jason also completes a copy on his end.

The first step (Phase I) in Jason’s MindWriter Simalto+ Plus research is to establish a benchmark measure of satisfaction among large corporations, MindWriter’s high-end

## Exhibit MW-2 Simalto+Plus Grid Exercises



clients. During the interview, participants are asked to first identify, for each of the 30 attributes in the grid, the performance level that best represents the service they expect to receive from a quality business computer manufacturer. Next, participants are asked to identify, for each of the 30 attributes, the current level of service they obtained both from MindWriter and from the best other business computer vendor with whom they also do business. Using the profile of delivered service provided by MindWriter as a benchmark or starting point, participants are then asked to make a maximum of 10 improvements—shifts from the current service performance to a higher level of performance—based on any selection of product or service attributes and level changes. However, each attribute level is weighted by the approximate investment cost of implementation. Participants are allowed to make more than one improvement for a given product or service attribute, but they are limited to spending a preset number of improvement “points.” Participants selecting more expensive service improvements can make fewer improvements in other areas. This “trade-off” procedure allows MindWriter to identify, through improvement “votes,” each participant’s individual priorities.

Phase 3 of the Simalto+Plus process focuses on the importance of brand value and brand image in consumers’ purchasing decisions. Instead of treating the brand as a product or service feature, Simalto+Plus looks at each brand separately to provide a more comprehensive assessment of both relative brand value and brand image.

Relative brand value is determined through questions that ask how much more or less than the currently owned brand is the participant willing to pay to purchase a product of another brand. Brand image and equity are evaluated using an exercise similar to the Simalto+Plus grids used in Phases 1 and 2. The brand image/equity grid includes 15 to 20 brand image/equity traits, with brands being evaluated on each characteristic using a nonmetric “poor-to-excellent” scale (see Exhibit MW-3). The last stage is a brand improvement exercise in which participants award points to brand improvements to make a particular brand more acceptable. This is typically a two-part process used to generate first- and second-level improvements.

Following the phone interviews, Jason feeds the data from the Simalto+Plus grids into a PC-based expert system, a software program specially designed to translate the raw data into a predictive model. This model quantifies the overall impact of making single or multiple box improvements in any service feature area. In this process, each participant is a separate unit for the purposes of preference allocation. The predictive model involves no averaging. Using the pattern of responses for the expected and current performance levels, Jason is able to demonstrate graphically where MindWriter is falling short of expectation in its current level of service and how MindWriter compares with its competition, the best other business computer vendors.

### Exhibit MW-3 Example Simalto+Plus Brand Image/Equity Grid

	Poor Couldn't be worse				Excellent Couldn't be better			
Treats you like a valued customer								
Provides top-quality customer service								
Offers good value								
Offers durable, reliable products								
Resolves problems quickly								

## Exhibit MW-4 Example Simalto+Plus Gridwith Features and Levels

PC Features		Levels for Each Feature							
<b>Processor Speed</b>	433 MHz \$0 current	600 MHz	800 MHz	1.0 GHz add \$55 reprioritized	1.2 GHz add \$75	1.4 GHz add \$90	1.6 GHz add \$125	1.8 GHz add \$165	2.0 GHz add \$210
<b>Hard Drive</b>	8 GB \$80 current	10 GB add \$20 reprioritized	15 GB add \$40	20 GB add \$50	30 GB add \$65	40 GB add \$80	60 GB add \$100	80 GB add \$140	100 GB add \$180
<b>Memory: RAM</b>	64 GB \$0 current	128 MB add \$20	192 MG add \$40	256MB add \$80 reprioritized	320 MB add \$120	384 MB add \$160	448 MB add \$200	512 MB add \$240	
<b>CD-ROM Drive</b>	None \$0 current	48x Max CD-ROM add \$50	8x/4x/32x CD-RW add \$100	16x/10x/40x CD/CD-RW add \$100	24x/10x/40x CD/CD-RW add \$140	DVD/CD-RW combination drive add \$250 reprioritized			

Through its *notice and prefer* process, Simalto+ Plus allows Jason to build the predictive model to propose specific actions or performance improvements in a rank order of impact for individual improvements, while also demonstrating the closeness/distance between ranked improvements. However, it is important to note that this is not simply a matter of choosing the top-ranked individual improvements, as the selection of these may be closely correlated and would not add dramatically to overall perceptual gain. This is due to the way individual participants are treated as whole units in preference allocation. The optimum combination could well include an improvement outside the individual top 10.

With Simalto+Plus, Jason is able to identify combinations of several improvements that collectively would achieve the greatest impact. Simalto+Plus also illustrates how comparable satisfaction gains can be made with several different combinations of improvements. This is where the weighting points become especially effective in identifying the combination of improvements that will yield the best balance between satisfaction gain and investment cost.

Subsequently, Jason uses Simalto+Plus in association with clustering techniques to compare the optimal improvements appropriate for different groups of consumers, with clusters developed on the basis of distinctive differences in needs, current perceptions, and improvement priorities.

In sum, the Simalto+Plus analysis allows Jason to (1) provide MindWriter with clear guidance on what actions are needed and valued, (2) relate satisfaction to the match between expectation and delivered performance, and (3) demonstrate clearly whether MindWriter is doing better or worse than the best other business computer vendors. Simalto+Plus can be used for researching trade-offs for a variety of products and services. It also can be used to evaluate job design and compensation programs, as well as social service and government programs. In the bonused improvement exercise, dollar budgets can be used as an alternative to bonus points.

Jason's next research assignment has him using Simalto+Plus to assist in the design of the ideal MindWriter laptop. Exhibits MW-4 and MW-5 are drafts of the grids he will use in this next multivariate exercise.

## Exhibit MW-5 Example Simalto+Plus Grid with Features and Levels: Bonused Improvements

PC Features		Levels for Each Feature							
Processor Speed	433 MHz \$0 current	600 MHz	800 MHz	1.0 GHz add \$55 reprioritized	1.2 GHz add \$75	1.4 GHz add \$90	1.6 GHz add \$125	1.8 GHz add \$165	2.0 GHz add \$210
Hard Drive	8 GB \$80 current	10 GB add \$20 reprioritized	15 GB add \$40	20 GB add \$50	30 GB add \$65	40 GB add \$80	60 GB add \$100	80 GB add \$140	100 GB add \$180
Memory: RAM	64 GB \$0 current	128 MB add \$20	192 MB add \$40	256 MB add \$80 reprioritized	320 MB add \$120	384 MB add \$160	448 MB add \$200	512 MB add \$240	
CD-ROM Drive	None \$0 current	48x Max CD-ROM add \$50	8x/4x/32x CD-RW add \$100	16x/10x/40x CD/CD-RW add \$100	24x/10x/40x CD/CD-RW add \$140	DVD/CD-RW combination drive add \$250 reprioritized			

### >Notes

1. The Close-Up was created by Jeff Stevens, School of Public Administration, Florida Atlantic University, and adapted to the MindWriter vignette by the authors. It is based on Sue Coyne, "Optimizing Customer Retention and Loyalty Strategies Through More Effective Research," CLT Research Associates, paper presented April 29, 1998, Distributech Utilities Conference, Tampa, FL. For information on the technique, see J. L. Green, E. Goldsmith, and C. Parish, "The Simalto+Plus™ Approach to Optimal Product Specification," paper presented at 1991 AMA Research Conference, Denver, CO.
2. J. L. Green, E. Goldsmith, and C. Parish, "The Simalto+Plus™ Approach to Optimal Product Specification" (1991), A paper presented at 1991 AMA Research Conference, Denver, CO.