

**Dr. Rosa Project**  
**Final Report**  
By Martha Shaw

Marketing professor Dr. Jose Rosa submitted an original proposal for two online marketing exercises to be accessed by the students in his marketing classes. After discussion, the concept was broadened to include a secondary audience of global participants.

Here was the original proposal:

**THE WEATHERHEAD CONNECTION**  
**FACULTY GRANTS FOR E-LEARNING MODULES**  
**December 2000**

**Principal Faculty:** José Antonio Rosa  
**Department:** Marketing and Policy Studies  
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**Title of Project:** Break Even and Consumer Choice Strategies Modules.

1. **Specific instructional objectives supported by the proposed modules.**

Two web-based learning modules will be developed to illustrate break-even analysis and consumer decision strategies respectively.

**Module 1- Break Even Analysis:** Break-even analysis is a technique used by businesses to evaluate investments. It is used frequently in marketing to evaluate new product initiatives, channel expansion or redesign strategies, and advertising campaigns. The technique takes into account all fixed and variable costs associated with the proposed investment using the following formula:

$$\text{Break-even Volume} = \frac{\text{Fixed Costs}}{\text{Price} - \text{Variable Cost}}$$

The primary objective of break-even analysis is to calculate the volume of sales at which all variable and fixed costs are recovered. It can also be used as a price setting mechanism, to set target variable and fixed costs, and as a quick and dirty way of assessing the attractiveness of different options.

**Application 2 – Consumer Choice Strategies:** When choosing among alternatives, consumers often switch between different strategies, depending on the situation and how much effort they want to expend. In choice situations, the primary objective for consumers is to eliminate alternatives and arrive at a final choice. The criteria used to eliminate alternatives can vary, however, and such

variations can lead to different results. Under some circumstances, for example, consumers may settle for eliminating all alternative that fails to meet a minimum standard on only one attribute and accepting the alternative that remains. This is a low effort strategy. At the other extreme, consumers may choose to take into account the performance of the available alternatives on all relevant attributes and calculate weighted overall scores – clearly a high effort strategy. Other strategies exist that fall between these two extremes in terms of the effort required. The proposed learning module will illustrate a number of consumer choice strategies and the differences in the final choices that they can engender. Understanding the different decision strategies that consumers use is clearly important for business students and managers.

**2. Why are these learning modules important?**

Students often experience difficulty with concepts in both of these areas, and they learn most effectively when the concepts are illustrated by multiple examples. Students differ, however, in how many examples they must work through before grasping them. Regardless of individual differences in learning these concepts, it is important that business students be familiar with the fundamentals of break-even analysis and consumer choice strategies. The proposed modules will help students learn at their own pace and review the material as often as required.

**3. What applications will be developed?**

The proposed modules will have interactive display windows where students can experiment with parameter values and see how strategies and decisions are affected. In the case of break-even analysis, fixed cost, variable cost, total cost, and total revenue curves will be illustrated, and allowed to change as different parameter values change. The interactive window will be embedded in text that explains the concepts involved, and will be accompanied by a series of exercises that ask students to estimate various business relevant variables (target price, target volumes, go-no go decisions, etc.).

In the case of choice strategies, the interactive display will be a grid of product alternatives on the X-axis and product attributes on the Y-axis, with scores for each product on each attributes, and importance weights for each attribute in the grid. Students will be allowed to select a decision style and other parameters as required by the decision strategy chosen, and animation will be used to illustrate how a consumer would use the information provided to make a decision. This display will also be embedded in a series of exercises that help students learn about consumer choice strategies.

**4. Why are such learning modules like these needed?**

The time allotted to MBA core instruction is being reduced, forcing the elimination of topics from the regular classroom. Break-even analysis and consumer decision strategies have been primarily taught in lecture/discussion sessions and reinforced through hands-on exercises. These learning modules will replace the lecture/discussion session. In addition, the web-based approach will allow students who have difficulty with the concepts practice them as needed.

Finally, the modules can conceivably be made available to students in courses other than the MBA core, such as the undergraduate marketing management and executive education general marketing courses.

**5. Where will the modules be used? How many students will be affected?**

Initially the modules will be used in the MBA first year Marketing Management course and available to between 150 and 200 students, depending on school expansion plans. Once the modules have been tested, access can be allowed to other interested faculty for their courses also. If released for use with undergraduate business students, an additional 200 students will be served.

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### **Module 1- Break Even Analysis**

Upon receipt of funds, Dr. Rosa contracted with a programmer to undertake development of Module 1. The tool of choice for development was Java, to make the page most accessible to a global audience. By Spring of 2001, the programmer had delivered the first module for testing.

[http://weatherhead.cwru.edu/faculty\\_research/homes/rosa/breakeven/breakeven.html](http://weatherhead.cwru.edu/faculty_research/homes/rosa/breakeven/breakeven.html)

### **Module 2 – Consumer Choice Strategies**

By the time I began working with Dr. Rosa, Module 1 was completed. Thus, Dr. Rosa and I focused on Module 2. Although Module 1 was done in Java, we as in-house developers were reluctant to use Java as a development tool for Module 2 due to the fact that we were not trained in Java. Thus, there would be a large learning curve for us to come up to speed on the tool, and continue to maintain it, versus a short curve if we could (1) find a comparable tool with which we were already experienced users and (2) that would be adequate to produce the desired result.

Dr. Rosa gave us a sheet of the specifications of the module:

## **Initial Specifications for Internet-based Decision Strategies Teaching Modules**

By Jose Rosa

The decision strategies teaching modules are designed to illustrate interactively or by example four different approaches to consumer choice. It should consist of three interactive modules that can be inserted into a body of html text and illustrations.

The basic layout is as follows:

1. Introductory remarks and illustrations.
2. Positioning of the first decision strategy – compensatory expectancy value strategy.
3. Interactive Module 1 and instructions in a visually separate section.
4. Illustration of additive compensatory model (non-interactive).
5. Positioning of third decision strategy – lexicographic strategy.
6. Interactive Module 2 and instructions in a visually separate section.
7. Illustration of conjunctive model.
8. Instructions and Positioning for self-administered exercises using the student controlled decision matrix.
9. Interactive Module 3 needs to appear in a separate window, allowing the students to read the instructions for the separate exercises and input values.
10. Self-administered decision strategy exercises.
11. Closing remarks.

Tentative descriptions of the three interactive modules are attached.

Module 1 – Compensatory Expectancy Value Strategy

	<b>Quality of Shelves</b>	<b>Energy Saver</b>	<b>Heavy Duty Cooling</b>	<b>Interior Lighting</b>	<b>Exterior Finish</b>	<b>Calculated Overall Score</b>
<b>Sears 4720</b>	4	6	6	7	9	= [xx.x]
<b>Whirlpool 2004</b>	5	7	6	5	9	= [xx.x]
<b>GE FA20</b>	5	9	4	10	4	= [xx.x]
<b>Frigidaire Ultra 20</b>	9	5	5	5	6	= [xx.x]
<b>Amana 8020</b>	7	3	8	6	7	= [xx.x]
<b>Student Input Attribute Weights</b>	[xx]	[xx]	[xx]	[xx]	[xx]	(must add to 100)

1. The student is asked to distribute 100 points among the five attributes, giving the most important attribute the highest point allocation and a decreasing number of points to each additional attribute so that the least important attribute receives the lowest point allocation.
2. The allocated points must add up to 100, and no less than one point may be allocated to any attributes.
3. Allocated points are divided by 100 and used as weights for the attributes scores for each model., multiplying the model’s attribute score by the attribute weights.
4. Weighted overall scores for each model are calculated by adding the weighted attribute scores for all attributes for each model.
5. Provide a “calculate” button that activates an overall score calculation routine after all required information has been input.

Module 2 – Lexicographic Decision Model

	<b>Quality of Shelves</b>	<b>Energy Saver</b>	<b>Heavy Duty Cooling</b>	<b>Interior Lighting</b>	<b>Exterior Finish</b>
<b>Sears 4720</b>	4	6	6	7	9
<b>Whirlpool 2004</b>	5	7	6	5	9
<b>GE FA20</b>	5	9	4	10	4
<b>Frigidaire Ultra 20</b>	9	5	5	5	6
<b>Amana 8020</b>	7	3	8	6	7
<b>Student Input Attribute Ranking</b>	[X]	[X]	[X]	[X]	[X]
<b>Student Input Minimum Value for Attribute</b>	[X]	[X]	[X]	[X]	[X]

1. The student is asked to rank the attributes in order of importance, with 1 = most important and 5 = least important.
2. The student is also asked to decide on a minimum value s/he will accept for each attribute (e.g., will accept no alternative that scores below 6 in exterior finish, etc.)
3. The system calculates the winning alternative by eliminating all alternatives that do not meet the minimum for the dominant attribute, and selecting the winning alternative if only one remains. If more than one alternative meets the minimum for the most important attribute, the system moves to the second attribute and chooses a winner FROM AMONG THE ALTERNATIVES THAT MET THE FIRST ATTRIBUTE'S CRITERIA. If more than one alternative meets the minimum for the second attribute, the system moves to the third, fourth, and fifth attributes until a clear winner emerges.
4. The winner should be bold/highlighted by the display once the decision is made, along with the tie breaking dimension.
5. Provide a "calculate" button that activates the winning alternative determination routine after all required information has been input.

### Module 3 – Student Controlled Decision Matrix

	<b>Attribute A</b>	<b>Attribute B</b>	<b>Attribute C</b>	<b>Attribute D</b>	<b>Calculated Overall Score</b>
<b>Alternative 1</b>	[1A]	[1B]	[1C]	[1D]	Alt 1 Weighted Score
<b>Alternative 2</b>	[2A]	[2B]	[2C]	[2D]	Alt 2 Weighted Score
<b>Alternative 3</b>	[3A]	[3B]	[3C]	[3D]	Alt 3 Weighted Score
<b>Alternative 4</b>	[4A]	[4B]	[4C]	[4D]	Alt 4 Weighted Score
<b>Attribute Weights</b>	[X]	[X]	[X]	[X]	[X]

1. Allow students to input alternative and attribute labels.
2. Allow students to input attribute ratings for each alternative.
3. Allow students to input attribute weights (e.g., importance ratings). Input values must add up to 100 and no less than one point may be allocated to any attributes.
4. Provide a “calculate” button that activates an overall score calculation routine similar to what is used for module 1.

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#### **Determining a Development Tool**

A spreadsheet formula appeared to be dictated by the specifications, and also such a design would be compatible with the first module’s layout and use of graphing, already completed. Therefore we expanded our resources to include javascript and Microsoft Excel, first examining Excel as a vehicle for development.

Eileen Connell created a first-draft spreadsheet in Excel that we could work with.




Then I built on this and created a prototype design in Excel to test such a delivery model and layout, and to see if the design would meet with approval from Dr. Rosa.

Iteration 1:

# Consumer Choice Strategies: Module 1

Module 1: Assigning Weights



PROF. JOSÉ ANTONIO ROSA

Sears Model 4720 refrigerator	Quality of Shelves	Energy Saver	Self-Defrosting	Interior Lighting	Exterior Finish	Total
Assign percentages to these features of a refrigerator, based upon their importance to you as the consumer. Your total percentage should equal 100%.	10%	10%	35%	20%	25%	100%
<p><b>For example:</b> Self-Defrosting is the most important feature to me. I will assign this feature 35%. You should replace the sample values with your own percentages.</p>						

CONSUMER REPORTS-LIKE SCORES	Quality of Shelves	Energy Saver	Self-Defrosting	Interior Lighting	Exterior Finish
Expert consumers rated five refrigerators on the dimensions you prioritized above.					
Sears 4720	4	6	6	7	9
Whirlpool 2004	5	7	6	5	9
GE FA20	5	9	4	10	4
Frigidaire Ultra 20	9	5	5	5	6
Amana 8020	7	3	8	6	7

You can use these expert ratings to develop your own assessment of each model, based on the importance of each attribute. Input your importance from above and see what happens.

Sears Model 4720 refrigerator	Quality of Shelves	Energy Saver	Self-Defrosting	Interior Lighting	Exterior Finish
Number Value of Feature	4	6	6	7	9
Percentage Assigned	10%	10%	35%	20%	25%
Percentage x Number Value = Weight	0.4	0.6	2.1	1.4	2.25
When you add the weights together, you get the weighted average for that Manufacturer's Product....					
Total Weight for Sears Model 4720				6.75	

Once you have assigned a percentage to a feature, and a number value to a feature, you can calculate the percentage value - or weight - of that feature. This calculation is: Percentage x Number Value = Weight.



# Microsoft Business Planner

Go to Article:

[Choosing the Right Marketing Methods](#)

## Rating Marketing Media

Use this worksheet to note relevant comments for each media category you're considering. Rank each factor on a scale of 1 to 5, except for the Market Audience entries, which should be rated on a scale of 1 to 20 since this factor is easily twice as important as the others. Use the totals at the end of the rows to narrow down your options. Adjust this form as necessary to meet the needs of your company.

**Note:** When you save this template as a workbook, note the workbook's file name and location. To edit the workbook next time, you must open it using Excel. Every time you open this template from Microsoft Business Planner, a new workbook is created.

See Also:

[Marketing Methods Pros and Cons](#)

Consumer Choice Strategies						
Product	Attribute1	Attribute2	Attribute3	Attribute4	Attribute5	Total
Product1						0
Product2						0
Product3						0
Product4						0
Product5						0
Student Input Attribute Weights (100)						
Student Input Attribute Ranking (1 - 5)						0
Student Input Minimum Value for Attribute						0

Further discussion and revisiting the issues helped to clarify the question of the final development tool. Using Microsoft Excel would limit us to requiring use of the Internet Explorer browser. The Weatherhead School of Management is basically a Microsoft shop (with aberrations), and thus the Internet Explorer browser would produce minimal compatibility issues for Weatherhead students, who are required to have or use current Windows laptops. But compatibility issues arise when considering the secondary audience of global visitors to the site. For these users, incompatibility can be predicted across a sample.

Aware of the global issue, the developers had researched and created a javascript alternative for the spreadsheets that would be compatible in all browsers. When presented with these choices, Dr. Rosa selected the javascript alternative.

Eileen Connell and Adam Euans, the Dorney programmers, developed the final iteration. The final iteration combined the total design of Module 1 and Module 2 embedded in an interface. Dr. Rosa was given read/write permissions to allow him to edit the explanatory text on the site, as well as the text describing the entities in the tables. Being able to edit the tables ensured that Dr. Rosa would be able to present to the students data concerning subjects that piqued their interest over time. For example, instead of comparing the merits of refrigerators, he could edit the tables to compare types of cars such as the fashionable Chrysler P.T. Cruiser, etc. The final iteration of his entire marketing comparisons site is available at this link:

<http://connection.cwru.edu/mbac424/default.htm>

### **Additional Requests**

Upon reflection, Dr. Rosa had expanded his initial scope of the project to include creating some multimedia modules to use as supplemental learning materials in his course...

"I have expanded my ambitions for the project to include several HotFoot modules for my MBA core course. The core revision required by action learning, along with the proposed marketing electives that run concurrent with the core course, demand that I make substantial changes to my course for next year. My intentions are to have a case study focused course for 10 weeks. Ancillary to the cases, however, I want to create a series of HotFoot presentations that supplement student learning. When coupled with the two modules proposed in the initial grant, we will have an effective combination of theory and practice in the course."

The basic concept of the requested multimedia modules was an audio stream, video, and synchronized Microsoft Powerpoint slides in an automated multimedia slideshow that students could review at their own 24/7 convenience.

Digital Lava, a Chicago-based corporation, owns the Hotfoot product mentioned in the email extract. <http://www.digitallava.com/home.html>

We researched Digital Lava and discovered that although purchasing one application was a minimal cost, the company had no option for us to offer the software on our servers. Instead, the company charged a fee to host the application on their own servers. We considered the fee quite expensive, and our interest in the product cooled. At a later date we revisited the purchase option of this package, and discovered a new pricing policy. Now the company would allow us to host the

software on our own server for a price of \$20,000. This still seems excessive to us, and we continue to debate the merits of developing in-house versus purchasing a packaged solution.

Our own enthusiasm was maintained for an in-house solution we could monitor and control. We continue to compare the options of creating a solution in-house versus purchasing a third-party product. Further search for the "perfect" product to provide our multimedia solution is ongoing. We expect to interview vendors in January 2002. Dr. Rosa has submitted a second grant proposal to cover hardware, software, and production expenditures to create the multimedia modules for his classroom.