

## Comparing ANP Market Share Results to Actual Values

Given two sets of priorities, the question is how close are they? In market share estimation exercises, the actual market share is determined by obtaining data, for example, income, for the companies. To convert data in dollars to a relative vector that can be compared to the results from an ANP model, take the sum and divide the income for each company by the sum. This is referred to as *normalizing*.

- 1) Form a matrix from the first set of priorities by taking the ratios of the priority vector elements; form another matrix from the second set of priorities.
- 2) Take the transpose of the second matrix.
- 3) Multiply the two matrices element-wise (known as Hadamard matrix multiplication) forming a third matrix.
- 4) Sum the numbers in all the cells of this matrix and divide the sum by  $n^2$ . This ratio is known as the incompatibility index.

There are templates available for  $n=2$  to  $n=8$  to calculate the incompatibility index. To use a template enter the normalized numbers for actual market share and enter the ANP model synthesized results (use the “normals” column) to have the incompatibility index automatically calculated.

This ratio is always greater than or equal to 1.0. If the two sets of numbers are identical the ratio is one. If they are not identical, the incompatibility index gives a measure of how different are the actual and calculated priorities. Below are some examples of priority vectors and the associated incompatibility index.

### DETERMINING MARKET SHARE OF SPECIALITY RETAILERS

Specialty Retailers	Market Share from Data (2001 Sales Volume)	SuperDecisions Results
American Eagle	40.1	40.3
Abercrombie and Fitch	39.9	36.8
Pacific Sunwear	20.0	22.9

**Compatibility Index: 1.00793**

### DETERMINING MARKET SHARE OF TOP TOY RETAILERS

Toy Retailers	Market Share from Data Results from this link: <a href="http://www.toy-tia.org/industry/statistics/topretailers.html">www.toy-tia.org/industry/statistics/topretailers.html</a>	SuperDecisions Results
Kmart	14.7	15.1

Target	14.4	12.0
Toys 'r Us	32.9	33.0
Walmart	37.9	39.8

**Compatibility Index: 1.008452**

#### **ESTIMATING MARKET SHARE OF FOUR MAJOR HOTEL CHAINS**

<b>Hotel Chains</b>	<b>Market Share from Data (from year 2000)</b>	<b>SuperDecisions Results</b>
Hilton	24.19	22.8
Marriot	36.19	36.0
Holiday Inn	16.23	20.2
Sheraton	23.39	21.0

**Compatibility Index: 1.015726**

#### **RELATIVE MARKET SHARE OF INTERNET ACCESS METHODS IN SOUTH KOREA**

<b>Type of Access</b>	<b>Market Share from Data</b> <a href="http://www.point-topic.com/cgi-bin/download.asp?file=DSLAnalysis\Broadband+market+cou ld+saturate+at+about+60.htm">http://www.point-topic.com/cgi-bin/download.asp?file=DSLAnalysis\Broadband+market+cou ld+saturate+at+about+60.htm</a>	<b>SuperDecisions Results</b>
DSL	33.0	31.5
Cable	21.0	26.6
Dial-up	46.0	41.9

**Compatibility Index: 1.021387**

**ESTIMATING RELATIVE MARKET SHARE FOR SOFT DRINK COMPANIES**

Soft Drink Companies	Market Share from Data (Beverage Digest 2001: <a href="http://www.beverage-digest.com/editorial/020228s.php">http://www.beverage-digest.com/editorial/020228s.php</a> )	SuperDecisions Results
Pepsi	35.0	39.4
Coke	48.0	47.2
Dr. Pepper	17.0	13.3

Compatibility Index: 1.022743

**ESTIMATE SHARE OF MARKET HELD BY FOUR MAJOR CAR RENTAL COMPANIES**

Rental Car Market Share	Market Share from Data (Most Recent Available in 9/2002)	SuperDecisions Results
Avis	12.8	16.1
Budget	17.1	15.3
Enterprise	40.7	43.2
Hertz	29.5	25.4

Compatibility Index: 1.02288

**ESTIMATING MARKET SHARE OF FOUR MAJOR PIZZA CHAINS**

Pizza Chains	Market Share from Data (US Business Reporter year 2000 link: <a href="http://www.activemedia-guide.com/pizzarest_mrkt.htm">http://www.activemedia-guide.com/pizzarest_mrkt.htm</a> ,	SuperDecisions Results
Dominos	20.43	27.98
Little Caesar	13.38	12.85
Papa Johns	9.4	13.01
Pizza Hut	56.8	46.14

Compatibility Index: 1.053772

**ESTIMATE PERCENTAGES OF VEHICLE TYPES OWNED BY HOUSEHOLDS**

Vehicle Type	Market Share from Data (US Dept of Trans 2000)	SuperDecisions Results
Automobiles	62.9	54.6
Sport Utility Vehicles	18.6	14.3
Trucks	10.2	21.5
Vans	8.2	09.6

Compatibility Index: 1.161671