



## CLIENT MEMO: HOW DART OPTIMIZES LIST SELECTION

**DART**'s unique **LIST GROUP** forecasting analysis ranks list groups in your historical database according to projected performance goals important to your program - highest gross or net response, most revenues, lowest acquisition costs, maximum profitability, etc. It does this by applying a set of statistical tools to rank lists by historical response and income performance. Decision rules based on prior mailing uses, mail quantities and response trends are used to forecast future results and optimize list selection for future campaigns. The proprietary formula applies:

- Time weights assigned to prior usage for each list group
- Prior mail quantities
- Regression analysis of historical response performance
- Expected response attrition risk as mailing quantities increase
- Stability of past list performance
- Statistical confidence ranges

The **LIST GROUP** analysis produces a ranking file that is used for building a prospective list portfolio for a new campaign. After adjustments are made to the basic list portfolio **DART**'s **PROMOTION OPTIMIZER** then selects the best lists and mail quantities that will achieve promotion goals.

To show how **DART** forecasts future results and optimizes list selection for future campaigns the following case history using real data is presented for your review and can be used as a model for conducting backtest studies on your direct mail database.

### A Case Study

A client (whose product is renamed "**DEMO**" for this report) mailed 1.1 million names using 58 continuation lists in the December campaign. The final results:

| <u>Net Mails</u> | <u>Gross Response</u> | <u>Net Response</u> | <u>Loaded Prf/Ord</u> |
|------------------|-----------------------|---------------------|-----------------------|
| 1116M            | 3.29%                 | 1.18%               | (\$13.07)             |

To test **DART**'s list forecasting accuracy using the **LIST GROUP** ranking analysis, a backtest was set up using the following methodology:

1. Fifteen (15) prior campaigns were selected for a **LIST GROUP** ranking analysis.
2. Time weights were assigned according to campaign recency, seasonality, and mail volumes.
3. A 99% statistical confidence level was applied to expand projected response ranges.
4. The ranking file generated by the **LIST GROUP** analysis was used to generate a planning portfolio for all lists mailed in the December campaign including projected response.
5. List and mailing costs, as well as names input and mailed, were adjusted to reflect the actual mailing economics for the December campaign.
6. The **PROMOTION OPTIMIZER** was run with gross response adjusted conservatively to reflect the lower end of the projected response curve.
7. All results reflect performance through the initial marketing cycle.

The results of the backtest (see *Exhibit A/B*) were on target and provided the correct **LIST GROUP** weighting and confidence levels for optimizing list portfolio selections for this product:

## Actual vs. Backtest

|                      | <b>Net Mails (000s)</b> | <b>Gross %</b> | <b>Net %</b> | <b>Loaded Prf/Ord</b> |
|----------------------|-------------------------|----------------|--------------|-----------------------|
| Actual Results       | 1116.0                  | 3.29%          | 1.18%        | (\$13.07)             |
| <b>DART</b> Backtest | 1116.0                  | 3.32           | 1.20         | (\$12.70)             |

Exhibit B graphs the actual gross and net response relative to the **LIST GROUP** forecasting analysis. The Actual to Budget report format show variances between projected and actual performance by list (Exhibit B).

Next, the **LIST GROUP** program ranked all qualified list groups from the historical database for potential use in a simulated campaign with a targeted mail volume of 1116M names. The **PROMOTION OPTIMIZER** was run according to two “what-if” ranking scenarios. The first projection ranked lists according to loaded profit per order. The second optimization used projected net response as the primary ranking criteria. Others rules for the simulation test were:

1. A total of 241 lists previously mailed in all campaigns (except for the September 1999 campaign) were considered candidates for inclusion in the final portfolio.
2. The maximum names allowed for any one list to contribute to the optimized portfolio was limited to 7x previous names mailed.
3. Identical statistical confidence levels (99%) and the low end of the projected response range used in the confirmation backtest analysis were used.
4. The promotion target in both simulations was 1.1 million net names mailed to equal the mail volume for the December 1999 campaign.
5. Backend response information for generating lifetime value (LTV) by list such as renewal/reorders was not available and therefore not included.

### **SIMULATION RESULTS**

| <b>Portfolio</b>    | <b>Net Orders</b> | <b>Index</b> | <b>Loaded Pft/Order</b> | <b>Total Loaded Profit Variance</b> |
|---------------------|-------------------|--------------|-------------------------|-------------------------------------|
| Control – Actual    | 13220             | 100          | -\$13.07                | NA                                  |
| Control - Backtest  | 13347             | 101          | -\$12.70                | \$3156                              |
| <b>Optimized</b>    |                   |              |                         |                                     |
| 1 - Opt-P: Profit   | 14330             | 108          | -\$8.69                 | \$48240                             |
| 2 - Opt-R: Response | 15557             | 118          | -\$11.94                | -\$17225                            |

### **FINDINGS (Exhibit C):**

1 – Optimizing list selection by expected loaded profit per order (Opt-P) for a given mail quantity would have improved profitability by \$48240 and increased net orders by 8% (1110 orders over the actual production).

2 – Optimizing list selection by expected net response% by list (Opt-R) for a given mail quantity would have increased net orders by 18% (2337 orders over the actual production) and increased profitability on a per order basis but depressed overall profitability for the initial marketing cycle by \$17.2M.

### **CONCLUSIONS:**

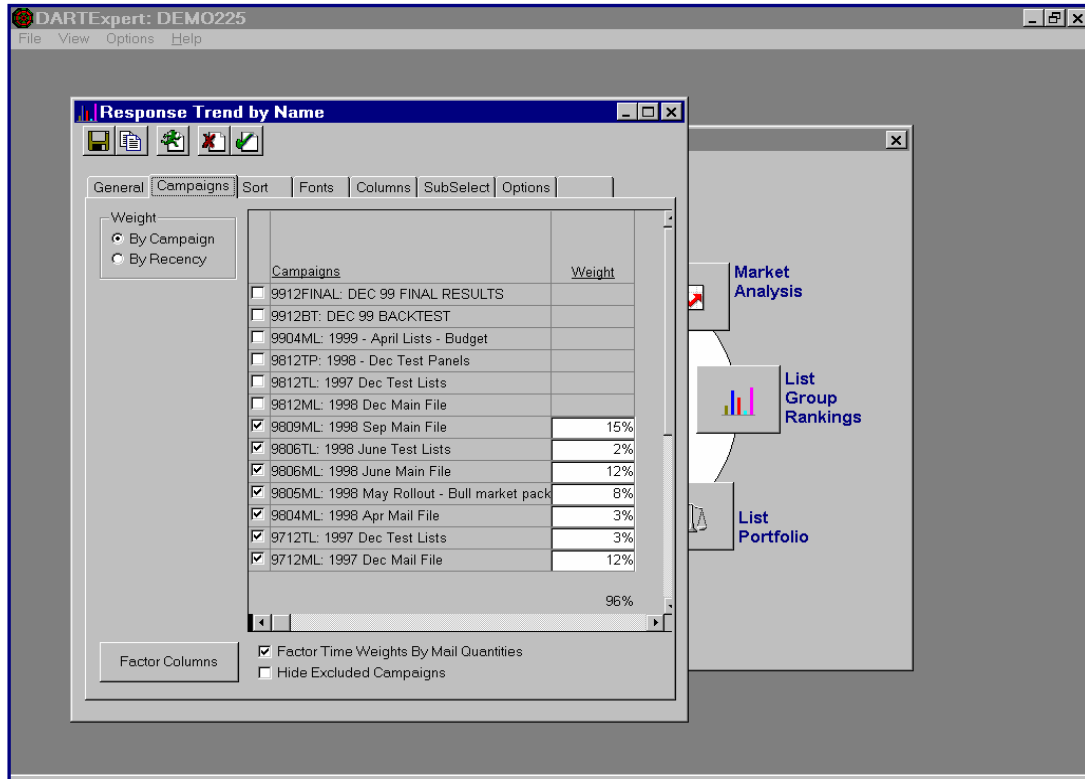
1 – Both simulation studies suggest possible mailing strategies with short and long term implications.

2 – Historical list results, properly segmented using **DART** classifiers and with assigned timing and mail volume weights, can be ranked by the **LIST GROUP** program to provide a statistically sound basis for making profitable list selections for future campaigns.

3 – The **DART Campaign Planner** can optimize future campaign list selection according to specific promotion goals and ranking criteria.

For more information about how **DARTexpert** can make your next direct mail campaign more profitable and produce more orders contact your Ladd Associates, Inc. consultant by phone or email 1-415-921-1001 or [info@laddassociates.com](mailto:info@laddassociates.com)

# LIST GROUP RANKING - BACKTEST SIMULATION-EXHIBIT A



## SIMULATION RESULTS USING DART'S FORECASTING MODEL

|   | 6.926         | 3.34%        | 231        | 87              | 31%        | 72                   | 1.04%        | 76          | \$36.02          |             |         |
|---|---------------|--------------|------------|-----------------|------------|----------------------|--------------|-------------|------------------|-------------|---------|
| <b>Projected Gross:</b>                       | 3.34% (Lo/Hi  | 2.78% /      | 3.90%)     | <b>Falloff:</b> | 16.7%      | <b>REV/PO - LTO:</b> | \$17.06      | <b>AVG:</b> | \$17.06          | <b>WFA:</b> | \$17.06 |
| <b>Net:</b>                                   | 1.04% (Lo/Hi  | 0.73% /      | 1.36%)     |                 |            | <b>UPO - LTO:</b>    | 7            | <b>AVG:</b> | 7                | <b>WFA:</b> | 7       |
| <u>List Group 27: COMM FOR DEMO CONSENSUS</u> |               |              |            |                 |            |                      |              |             |                  |             |         |
| 40 9612ML DONORS                              | 6.468         | 0.97%        | 63         | 25              | 35%        | 22                   | 0.34%        | 25          | \$-111.86        |             |         |
|   | <b>6.468</b>  | <b>0.97%</b> | <b>63</b>  | <b>25</b>       | <b>35%</b> | <b>22</b>            | <b>0.34%</b> | <b>25</b>   | <b>\$-111.86</b> |             |         |
| <b>Projected Gross:</b>                       | 0.97% (Lo/Hi  | 0.66% /      | 1.28%)     | <b>Falloff:</b> | 32.4%      | <b>REV/PO - LTO:</b> | \$16.18      | <b>AVG:</b> | \$16.18          | <b>WFA:</b> | \$16.18 |
| <b>Net:</b>                                   | 0.34% (Lo/Hi  | 0.15% /      | 0.53%)     |                 |            | <b>UPO - LTO:</b>    | 7            | <b>AVG:</b> | 7                | <b>WFA:</b> | 7       |
| <u>List Group 28: COMMON BOUNDARY</u>         |               |              |            |                 |            |                      |              |             |                  |             |         |
| 41 9606ML SUBS                                | 8.623         | 3.00%        | 259        | 84              | 44%        | 113                  | 1.31%        | 122         | \$-28.38         |             |         |
| 42 9706ML SUBS                                | 10.002        | 3.03%        | 303        | 82              | 47%        | 141                  | 1.41%        | 117         | \$-36.99         |             |         |
| 43 9712ML ACTIVE SUBS                         | 2.713         | 5.34%        | 145        | 161             | 54%        | 79                   | 2.91%        | 224         | \$-0.27          |             |         |
| 44 9905ML ACTIVE SUBS                         | 3.439         | 2.24%        | 77         | 59              | 57%        | 44                   | 1.28%        | 109         | \$-21.18         |             |         |
| 45 9906ML ACTIVE SUBS                         | 3.153         | 2.22%        | 70         | 74              | 66%        | 46                   | 1.46%        | 140         | \$-20.24         |             |         |
|   | <b>27.930</b> | <b>3.06%</b> | <b>854</b> | <b>92</b>       | <b>50%</b> | <b>423</b>           | <b>1.51%</b> | <b>142</b>  | <b>\$-24.36</b>  |             |         |
| <b>Projected Gross:</b>                       | 3.12% (Lo/Hi  | 2.48% /      | 3.77%)     | <b>Falloff:</b> | 28.9%      | <b>REV/PO - LTO:</b> | \$14.35      | <b>AVG:</b> | \$17.58          | <b>WFA:</b> | \$17.46 |
| <b>Net:</b>                                   | 1.60% (Lo/Hi  | 1.12% /      | 2.08%)     |                 |            | <b>UPO - LTO:</b>    | 6            | <b>AVG:</b> | 6                | <b>WFA:</b> | 6       |
| <u>List Group 29: COMMON READER/AKADINE</u>   |               |              |            |                 |            |                      |              |             |                  |             |         |
| 46 9512ML ESSAYS/LIT                          | 3.491         | 1.58%        | 55         | 47              | 42%        | 23                   | 0.66%        | 48          | \$-50.26         |             |         |
| 47 9512ML WORDS/REF                           | 3.509         | 2.17%        | 76         | 65              | 46%        | 35                   | 1.00%        | 73          | \$-29.11         |             |         |
|   | <b>7.000</b>  | <b>1.87%</b> | <b>131</b> | <b>56</b>       | <b>44%</b> | <b>58</b>            | <b>0.83%</b> | <b>61</b>   | <b>\$-37.50</b>  |             |         |

ACTUAL TO BACKTEST REPORT – EXHIBIT B

| MOONWATCH                     |                               |                       | MEMBERS        | 0.001         | -111          | -0.03%      | -4%           | -53           | -0.33% |
|-------------------------------|-------------------------------|-----------------------|----------------|---------------|---------------|-------------|---------------|---------------|--------|
| 9912FINAL                     | EUROPE TODAY                  | ATTENDEES/BYRS        | 9,809          | 210           | 2.14%         | 31%         | 66            | 0.67%         |        |
| 9912BT                        | EUROPE TODAY                  | ATTENDEES/BYRS        | 9,809          | 239           | 2.44%         | 46%         | 110           | 1.12%         |        |
|                               | <b>EUROPE TODAY</b>           | <b>ATTENDEES/BYRS</b> | <b>0.000</b>   | <b>-29</b>    | <b>-0.30%</b> | <b>-15%</b> | <b>-44</b>    | <b>-0.45%</b> |        |
| 9912FINAL                     | METROPOLIS                    | ACTIVE SUBS           | 21,737         | 578           | 2.66%         | 39%         | 223           | 1.03%         |        |
| 9912BT                        | METROPOLIS                    | PRIOR MAIL MATCHES    | 21,736         | 825           | 3.80%         | 36%         | 300           | 1.38%         |        |
|                               | <b>METROPOLIS</b>             | <b>ACTIVE SUBS</b>    | <b>0.001</b>   | <b>-247</b>   | <b>-1.14%</b> | <b>2%</b>   | <b>-77</b>    | <b>-0.35%</b> |        |
| 9912FINAL                     | SOUNDS TRUE                   | 12 MO BYRS            | 25,881         | 741           | 2.86%         | 41%         | 300           | 1.16%         |        |
| 9912BT                        | SOUNDS TRUE                   | 12 MO BYRS            | 25,879         | 722           | 2.79%         | 48%         | 345           | 1.33%         |        |
|                               | <b>SOUNDS TRUE</b>            | <b>12 MO BYRS</b>     | <b>0.002</b>   | <b>19</b>     | <b>0.07%</b>  | <b>-7%</b>  | <b>-45</b>    | <b>-0.17%</b> |        |
| 9912FINAL                     | COUCH POTATOES JOURNAL        | SUBS                  | 18,496         | 449           | 2.43%         | 32%         | 146           | 0.79%         |        |
| 9912BT                        | COUCH POTATOES JOURNAL        | SUBS                  | 18,496         | 620           | 3.35%         | 37%         | 231           | 1.25%         |        |
|                               | <b>COUCH POTATOES JOURNAL</b> | <b>SUBS</b>           | <b>0.000</b>   | <b>-171</b>   | <b>-0.92%</b> | <b>-5%</b>  | <b>-85</b>    | <b>-0.46%</b> |        |
| 9912FINAL                     | QETWO                         | 12 MO BYRS            | 251,785        | 8,997         | 3.57%         | 31%         | 2,830         | 1.12%         |        |
| 9912BT                        | QETWO                         | MEMBERS               | 251,773        | 9,328         | 3.70%         | 32%         | 2,993         | 1.19%         |        |
|                               | <b>QETWO</b>                  | <b>12 MO BYRS</b>     | <b>0.012</b>   | <b>-331</b>   | <b>-0.13%</b> | <b>-1%</b>  | <b>-163</b>   | <b>-0.07%</b> |        |
| <b>Grand Totals:9912FINAL</b> |                               |                       | <b>116,263</b> | <b>36,722</b> | <b>3.29%</b>  | <b>36%</b>  | <b>13,220</b> | <b>1.18%</b>  |        |
| <b>Grand Totals:9912BT</b>    |                               |                       | <b>116,237</b> | <b>37,018</b> | <b>3.32%</b>  | <b>36%</b>  | <b>13,347</b> | <b>1.20%</b>  |        |
| <b>Total Variance</b>         |                               |                       | <b>0.026</b>   | <b>-296</b>   | <b>-0.03%</b> | <b>-0%</b>  | <b>-127</b>   | <b>-0.02%</b> |        |

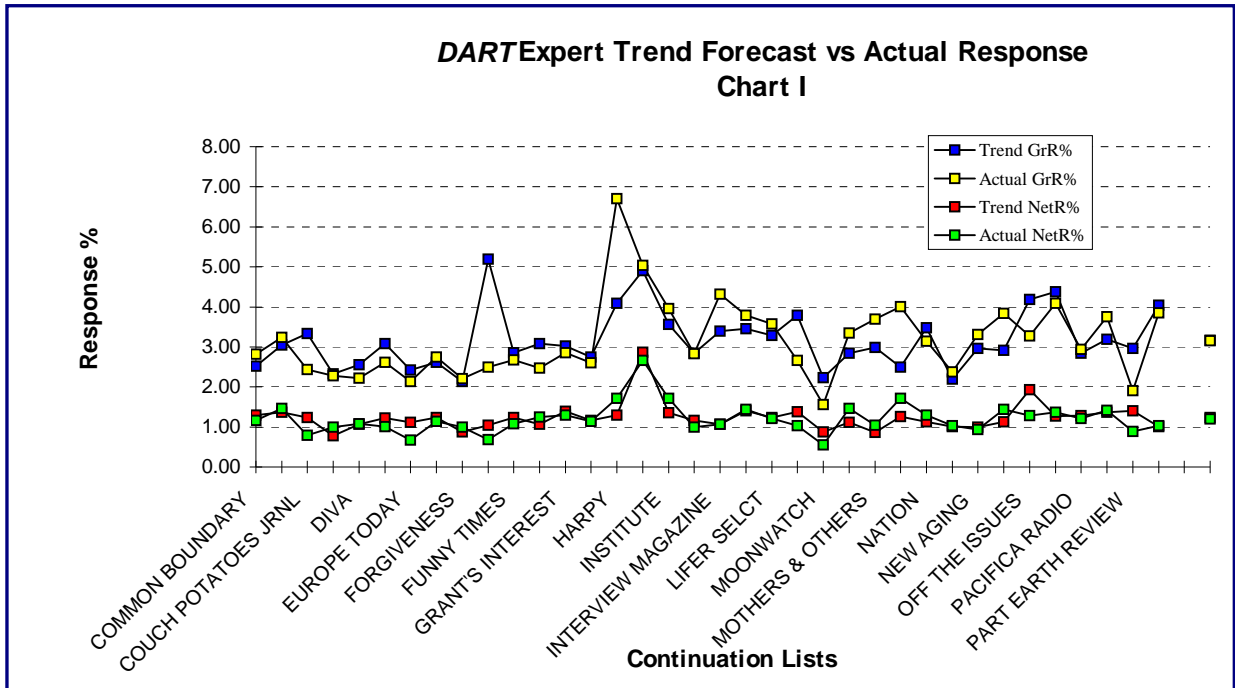


EXHIBIT C

## OPTIMIZATION RESULTS-"WHAT-IF" REPORT

| <b>OPTIMIZATION TEST: Profit vs. Net% vs. Actual</b> |                             |                             |                             |
|--|-----------------------------|-----------------------------|-----------------------------|
| Database: DEMO225                                    |                             | Date: 04/06/2000            |                             |
| Report Name: * Back Test Report                      |                             | Time: 12:45:49              |                             |
| PROJECTION   | Optimized by Net%           | Optimized by Profit/Ord     | Dec98 Actual Results        |
| <b>GOAL</b>  |                             |                             |                             |
| Marketing Cycles:                                    | Initial                     | Initial                     | Initial                     |
| Ranking  | Net Response %              | Loaded Profit/Ord           | Loaded Profit/Ord           |
| Target   | Names Mailed (M) = 1116.263 | Names Mailed (M) = 1116.263 | Names Mailed (M) = 1116.263 |
| While  |                             |                             |                             |
| <b>SETTINGS</b>                                      |                             |                             |                             |
| Contribution Max                                     | 100.0%                      | 100.0%                      | 100.0%                      |
| Initial RAF Size                                     | 10.000                      | 10.000                      | 10.000                      |
| Incremental RAF Size                                 | 5.000                       | 5.000                       | 5.000                       |
| ADJUSTMENTS  | Gross Response % X 0.930    | Gross Response % X 0.930    | Falloff % = 0.000           |
| <b>RESPONSE</b>                                      |                             |                             |                             |
| Total Lists Available                                | 241                         | 241                         | 58                          |
| Lists Used   | 50                          | 38                          | 58                          |
| Universe (M)   | 8025.921                    | 8025.921                    | 2381.696                    |
| Maximum Input  | 12963.505                   | 12963.505                   | 2007.565                    |
| Names Input (M)                                      | 1777.006                    | 1671.238                    | 2007.565                    |
| Merge Purge %  | 63.44%                      | 67.02%                      | 55.60%                      |
| Names Mailed (M)                                     | 1127.383                    | 1120.056                    | 1016.239                    |
| Gross Response %                                     | 3.63%                       | 3.17%                       | 3.29%                       |
| Gross Orders   | 40,878                      | 35,556                      | 33,426                      |

|                       |                          |                          |                   |
|-----------------------|--------------------------|--------------------------|-------------------|
| ADJUSTMENTS           | Gross Response % X 0.930 | Gross Response % X 0.930 | Falloff % = 0.000 |
| <b>RESPONSE</b>       |                          |                          |                   |
| Total Lists Available | 241                      | 241                      | 58                |
| Lists Used            | 50                       | 38                       | 58                |
| Universe (M)          | 8025.921                 | 8025.921                 | 2381.696          |
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| Names Input (M)       | 1777.006                 | 1671.238                 | 2007.565          |
| Merge Purge %         | 63.44%                   | 67.02%                   | 55.60%            |
| Names Mailed (M)      | 1127.383                 | 1120.056                 | 1016.239          |
| Gross Response %      | 3.63%                    | 3.17%                    | 3.29%             |
| Gross Orders          | 40,878                   | 35,556                   | 33,426            |
| Payup/Credit Order    | 36%                      | 39%                      | 35%               |
| Net Orders            | 15,557                   | 14,330                   | 12,031            |
| Net Response %        | 1.38%                    | 1.26%                    | 1.18%             |
| Mailable Balance      | 6248.915                 | 6354.683                 | 374.131           |
| <b>FINANCIALS</b>     |                          |                          |                   |
| Total Revenue         | \$310,362                | \$285,884                | \$240,018         |
| Loaded Cost           | \$496,078                | \$410,386                | \$397,346         |
| Loaded Profit         | (\$185,716)              | (\$124,502)              | (\$157,328)       |
| Loaded ROI            | 0.626                    | 0.697                    | 0.604             |
| Revenue/Order         | \$19.95                  | \$19.95                  | \$19.95           |
| Loaded Cost/Order     | \$31.888                 | \$28.638                 | \$33.027          |
| Loaded Profit/Ord     | \$-11.94                 | \$-8.69                  | \$-13.08          |