

CHAPTER 8. AN ILLUSTRATION OF COMPARATIVE QUANTITATIVE RESULTS — USING ALTERNATIVE ANALYTICAL TECHNIQUES

Based on TCRP B-11 Field Test Results

CTA — CHICAGO, ILLINOIS RED LINE SERVICE:

8A. CTA Red Line - Computation of Impact Scores

For each transit site, impact scores are calculated from the survey data results, and are as displayed as shown in Tables 8.1 and 8.2 (CTA Red Line), Tables 8.5 and 8.6 (CTA Blue Line), Tables 8.9 and 8.10 (Combined CTA Rail) Tables 8.15 and 8.16 (Sun Tran, Albuquerque), and Tables 8.22 and 8.23 (GLTC, Lynchburg, VA). First, data for whether or not a customer has experienced a problem with each attribute is cross-tabulated with mean overall satisfaction. Thus, for example as shown in Table 8.1, the mean overall satisfaction of those CTA Red Line customers (sample size=300) who have experienced a problem with "trains being overcrowded" within the last 30 days is 6.102; while the mean overall satisfaction of those customers who have not experienced a problem with trains being overcrowded is 7.278. The gap score is the difference between the two means (1.176). The percent of Red Line customers who have experienced a problem with trains being overcrowded within the last 30 days, is 75.3%, as shown in Table 8.2. To combine the effects of these two results we multiply the gap score (1.18) by the problem occurrence rate (.753) to arrive at an overall impact score of 0.886 for the attribute.

Impact scores for each attribute are then placed in descending order (Table 8.1), and the results are a display of the most problematic service attributes, from top to bottom. The logical assumption is that reducing the percent of customers who have a negative experience with the impact or driver attributes will have the greatest possible upward effect on overall satisfaction with the transit system.

However, Table 8.2 shows a more complete picture from the data. The darkly shaded cells show the attributes that are above the median rank for each category. The ranking columns (with ranks of 1 to 10 for importance, 1 to 8 for satisfaction, 1 to 12 for problem occurrence, and 1 to 7 for the overall satisfaction gap value) show the statistically significant placement of each attribute for the measure indicated. These statistical rankings are based on the appropriate *t-test*, *chi-square test*, or *z-test for proportions*. Incorporating this information, we can say that the service attribute of "trains being overcrowded" is of only medium importance to customers (4th in ranking), while satisfaction with the attribute is very low (8th). This disparity is reflected in the impact score calculation for the overall satisfaction gap value (1.176 or 1.2). This value ranks the attribute as only 3rd in its impact on overall satisfaction with service. However, the attribute's reported problem occurrence rate (73.5% of customers) ranks it 1st in this category. On the impact score placement scale, taking into account both the overall satisfaction gap value and rank and the problem occurrence value and rank, this attribute ranks first — as the attribute whose improvement would have the greatest positive impact on overall satisfaction with CTA Red Line service.

The top target area attributes for the CTA Red Line as determined by the impact score approach are as shown below:

CTA Red Line Service
Target Attributes
(N=300)

	Attribute
1	Trains that are not overcrowded
2	Reliable trains that come on schedule
3	Cost effectiveness, affordability, and value
4	Explanations and announcement of delays
5	Frequent service so that wait times are short
6	Cleanliness of the train interior
7	Temperature on the train
8	Absence of offensive odors
9	Freedom from the nuisance behaviors of others
10	Smoothness of the ride and stops
11	Availability of seats on the train

8B. CTA Red Line — Comparison with Quadrant Analysis

As shown in Tables 8.1 and 8.2, when impact score results for the CTA Red Line are compared with Quadrant Analysis results as shown in Chart 8.3, some significant differences appear. The Quadrant Analysis is based upon mean stated attribute rating for importance and satisfaction. An alternative Gap Analysis would derive importance ratings from correlations of attribute satisfaction ratings with overall satisfaction ratings, as described in section 7D.

For the quadrant analysis, it should first be noted that (given the sample size of 300), if the appropriate tests of statistical significance are applied (at the 90% confidence level), many of the service attributes have the exact same positioning on the quadrant analysis chart. Thus, the service attributes of explanations of delays and cleanliness of interiors share the same positioning (1). The positioning is a rank of "3" in importance and a rank of "6" in satisfaction. Likewise, the attributes of physical condition of stations and fairness/consistency of fare share the same positioning on a quadrant analysis chart as indicated (2). These attributes are both ranked "4" in importance and "5" in satisfaction. Ordering service attributes by their quadrant analysis placement becomes a function of statistical significance, influenced highly by completed sample sizes.

Moreover, as previously discussed, importance ratings for attributes, gap analysis of the relationship between attribute satisfaction ratings and overall satisfaction, and gap values as computed for impact scores are likely to remain constant over time. The order of importance of attributes alone, or as calculated by relationship with overall satisfaction, is a structural one not likely to change much when remeasured in future years. Thus, tracking of customer satisfaction, using quadrant analysis or gap analysis, depends mostly on changes in stated satisfaction ratings for attributes, and the differences in these ratings over time is likely to be statistically insignificant for many attributes — particularly if satisfaction with service is generally high.

Differences in Impact Score and Quadrant Analysis results are identified as follows:

In Target Area by Impact Scores, but not by Quadrant Analysis

Cost Efficiently, Value and Smoothness of Ride — The quadrant analysis does not take into account this attribute's high impact on overall satisfaction; any significant rise in problem occurrence for this attribute could have a large impact on overall satisfaction.

Availability of Seats — The quadrant analysis does not take into account the high reported problem occurrence, while the attribute has a moderate impact on overall satisfaction.

In Target Area by Quadrant Analysis, but not by Impact Scores

Frequency of Delays and Fairness/Consistency of Fare — The quadrant analysis does not take into account lower rankings in reported problem occurrence.

Physical Condition of Station — The quadrant analysis does not take into account the attribute's low impact on overall satisfaction.

8C. CTA Red Line - Translation of Impact Scores to a Report Card

Once impact scores are placed in descending order, statistically significant differences in ranking can be calculated using standard tests for statistical significance (Table 8.2). The table can then be simply divided by quadrants (adhering to statistically significant breaks in ranking) to assign report card grades to each individual service attribute.

For the benchmark survey, the top quadrant of impact scores will always be a "D" grade level, the bottom quadrant an "A", and the mean impact score for all 46 attributes will always be a B- to C+. However, in future years, benchmark impact scores can be used to designate absolute ranges for grade levels. (See Table 8.1) For CTA Red Line tracking surveys, a "D" can be assigned to all impact scores above 0.586, a "C" to all impact scores within the range of 0.315 to 0.586, a "B" to impact scores between 0.129 and 0.314, and an "A" to impact scores below 0.129. The overall tracking grade for the Line can be the average of the tracking survey impact scores.

It should be kept in mind that, due to regional bias as discussed in section 4D, comparisons in absolute impact score values among transit agency sites are not valid. Only the order of attributes by impact scores should be related. The purpose of the impact score analysis is to identify ways to improve an agency's customer satisfaction and to measure this progress against the agency's own previous data.

Report card grades for attributes can be presented to customers (with a tracking graph as shown in Chart 6.1), as part of tracking surveys. Research in other industries has shown that customers are more likely to participate in customer satisfaction surveys when they are presented with the results of the benchmark and tracking surveys.

	Table 8.1 Computation of Impact Scores - Red Line (N=300)	Mean Overall Sat. w/ Problem	Mean Overall Sat. w/o Problem	Gap Value	Percent Who Had Problem	Impact Score	Report Card
1	Trains that are not overcrowded	6.10177	7.27778	1.176	0.753	0.886	D
2	Reliable trains that come on schedule	5.62092	7.26207	1.641	0.510	0.837	D
3	Cost effectiveness, affordability, and value	4.30000	7.00000	2.700	0.291	0.786	D
4	Explanations and announcement of delays	5.61224	7.14765	1.535	0.490	0.752	D
5	Frequent service so that wait times are short	5.57746	7.13376	1.556	0.474	0.738	D
6	Cleanliness of the train interior	5.72611	7.12587	1.400	0.523	0.733	D
7	Temperature on the train	5.48062	7.10119	1.621	0.430	0.697	D
8	Absence of offensive odors	5.88824	7.07087	1.183	0.567	0.670	D
9	Freedom from the nuisance behaviors of others	5.91908	7.03937	1.120	0.577	0.646	D
10	Smoothness of the ride and stops	5.54264	7.03509	1.492	0.430	0.642	D
11	Availability of seats on the train	6.00000	7.02609	1.026	0.617	0.633	D
12	Transit personnel who know the system	4.33333	6.84211	2.509	0.240	0.602	C
13	Fairness/consistency of fare structure	4.50000	6.88000	2.380	0.251	0.597	C
14	Frequency of delays for repairs/emergencies	5.38636	6.69643	1.310	0.440	0.576	C
15	Clear and timely announcements of stops	5.35294	6.93878	1.586	0.340	0.539	C
16	Comfort of seats on the train	4.19048	6.69136	2.501	0.206	0.515	C
17	Short wait time for transfers	5.30000	7.00552	1.706	0.300	0.512	C
18	Friendly, courteous, and quick service	5.03704	6.90654	1.870	0.270	0.505	C
19	Ease of paying fare, purchasing tokens	5.72650	6.90588	1.179	0.390	0.460	C
20	Cleanliness of stations	5.70339	6.84066	1.137	0.393	0.447	C
21	Posted minutes to next train at stations	5.25610	6.85354	1.597	0.273	0.437	C
22	Hours of service during weekdays	4.89552	6.83621	1.941	0.223	0.433	C
23	Cost of making transfers	4.00000	6.77027	2.770	0.129	0.357	C
24	Physical condition of stations	6.01471	6.70732	0.693	0.453	0.314	B
25	Displaying of customer service number	5.08929	6.61611	1.527	0.187	0.285	B
26	Connecting bus service to stations	5.63014	6.71345	1.083	0.243	0.264	B
27	Availability of shelter and benches	5.71429	6.64977	0.935	0.257	0.240	B
28	Availability of monthly/discount passes	4.83333	6.38235	1.549	0.150	0.232	B
29	Ease of opening doors of train	5.37037	6.61728	1.247	0.180	0.224	B
30	Safe and competent conductors	4.89744	6.60385	1.706	0.130	0.222	B
31	Availability of schedules/maps at stations	5.49123	6.65297	1.162	0.190	0.221	B
32	Cleanliness of the train exterior	5.00000	6.60078	1.601	0.120	0.192	B
33	Station names visible from train	5.25000	6.51852	1.269	0.129	0.164	B
34	Quietness of the vehicles and system	6.04167	6.50725	0.466	0.258	0.120	A
35	Route/direction visible on trains	5.64103	6.50769	0.867	0.130	0.113	A
36	Accessibility to those with a disability	5.51724	6.65534	1.138	0.097	0.110	A
37	Safety from crime on trains	5.46667	6.50000	1.033	0.100	0.103	A
38	Absence of graffiti	6.08333	6.48571	0.402	0.255	0.103	A
39	Frequency of service on Saturdays and Sundays	6.31169	6.63804	0.326	0.257	0.084	A
40	Number of transfer points outside downtown	6.00000	6.66667	0.667	0.089	0.059	A
41	Safety from crime at stations	5.70833	6.43590	0.728	0.080	0.058	A
42	Availability of information by phone and mail	5.50000	6.62500	1.125	0.043	0.048	A
43	Availability of handrails or grab bars	6.65217	6.61039	-0.042	0.230	-0.010	A
44	Physical condition of vehicles and infrastructure	6.50000	6.37349	-0.127	0.108	-0.014	A
45	Provision of signs and information in Spanish	7.33333	6.65476	-0.679	0.034	-0.023	A
46	Train traveling at a safe speed	6.92857	6.55682	-0.372	0.137	-0.051	A

Table 8.2
Summary of Rankings and Scores - CTA Red Line

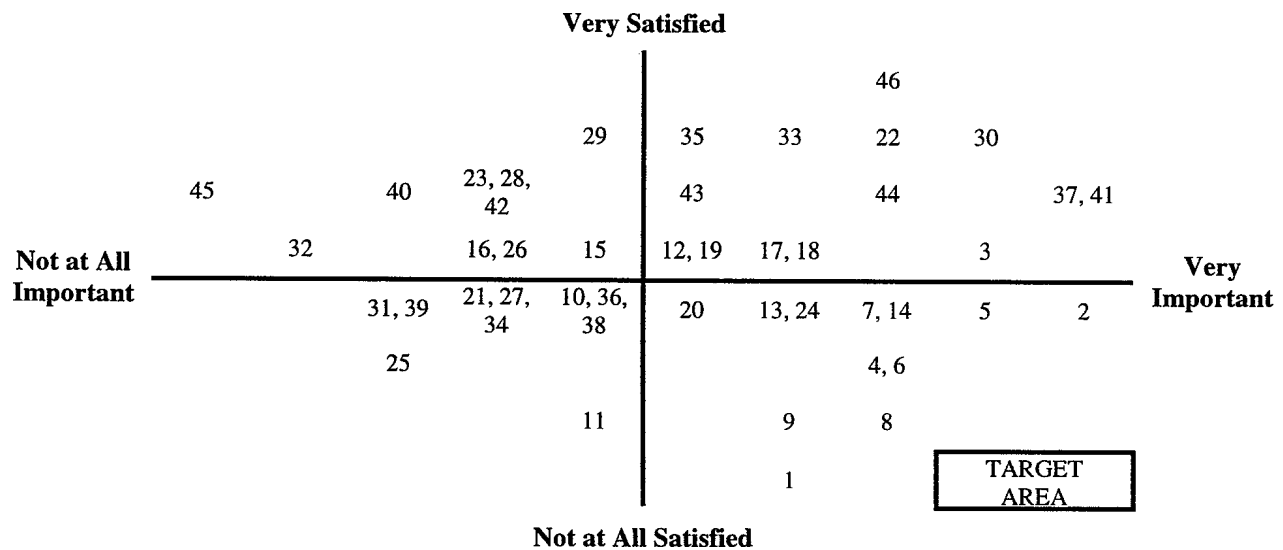
Summary of Rankings and Scores - CTA Red Line									
Attribute	Median Overall Satisfaction Gap Value Rank=3	Importance Ranking	Satisfaction Ranking	Percent Who Experienced Problem		Overall Satisfaction Gap		Impact Score	Report Card
				%	Rank	V	Rank		
(N=300) Median Importance Rank=4 Low Satisfaction >4 Median Problem Experience Rank=8 (25%)									
1	Trains that are not overcrowded	4	8	75.3	1	1.2	3	0.886	(1) D
2	Reliable trains that come on schedule	1	5	51.0	4	1.6	2	0.837	(2) D
3	Cost effectiveness, affordability, and value	2	4	29.1	8	2.7	1	0.786	*(3) D
4	Explanations and announcements of delays	3	6	49.0	4	1.5	3	0.752	(3) D
5	Frequent service so that wait times are short	2	5	47.4	4	1.6	2	0.738	(4) D
6	Cleanliness of the train interior	3	6	52.3	3	1.4	3	0.733	(4) D
7	Temperature on the train	3	5	43.0	5	1.6	2	0.697	(4) D
8	Absence of offensive odors	3	7	56.7	3	1.2	3	0.670	(5) D
9	Freedom from nuisance behaviors of others	4	7	57.7	2	1.1	4	0.646	(5) D
10	Smoothness of ride and stops	6	5	43.0	5	1.5	3	0.642	(5) D
11	Availability of seats on the train	6	7	61.7	2	1.0	4	0.633	(5) D
12	Transit personnel who know the system	5	4	24.0	8	2.5	1	0.602	*(6) C
13	Fairness/consistency of fare structure	4	5	25.1	8	2.4	1	0.597	*(6) C
14	Frequency of delays for repairs/emergencies	3	5	44.0	5	1.3	3	0.576	*(6) C
15	Clear and timely announcements of stops	6	4	34.0	7	1.6	2	0.539	(6) C
16	Comfort of seats on the train	7	4	20.6	9	2.5	1	0.515	*(7) C
17	Short wait time for transfers	4	4	30.0	7	1.7	2	0.512	(7) C
18	Friendly, courteous, and quick service	4	4	27.0	8	1.9	2	0.505	(7) C
19	Ease of paying fare, purchasing tokens	5	4	39.0	6	1.2	3	0.460	(8) C
20	Cleanliness of stations	5	5	39.3	6	1.1	4	0.447	(8) C
21	Posted minutes to next train at stations	7	5	27.3	8	1.6	2	0.437	(8) C
22	Hours of service during weekdays	3	2	22.3	8	1.9	2	0.433	(8) C
23	Cost of making transfers	7	3	12.9	10	2.8	1	0.357	*(9) C
24	Physical condition of stations	4	5	45.3	5	0.7	5	0.314	(9) C
25	Displaying of customer service number	8	6	18.7	9	1.5	3	0.285	(9) C
26	Connecting bus service to stations	7	4	24.3	8	1.1	4	0.264	(10) B
27	Availability of shelter and benches	7	5	25.7	8	0.9	4	0.240	(11) B
28	Availability of monthly/discount passes	7	3	15.0	9	1.5	3	0.232	*(11) B
29	Ease of opening doors of train	6	2	18.0	9	1.2	3	0.224	(11) B
30	Safe and competent conductors	2	2	13.0	10	1.7	2	0.222	(11) B
31	Availability of schedules/maps at stations	8	5	19.0	9	1.2	3	0.221	(11) B
32	Cleanliness of the train exterior	9	4	12.0	10	1.6	2	0.192	(12) B
33	Station names visible from train	4	2	12.9	10	1.3	3	0.164	*(12) B
34	Quietness of the vehicles and system	7	5	25.8	8	0.5	5	0.120	*(13) A
35	Route/direction information visible on train	5	2	13.0	10	0.9	4	0.113	(13) A
36	Accessibility to those with a disability	6	5	9.7	11	1.1	4	0.110	(13) A
37	Safety from crime on trains	1	3	10.0	10	1.0	4	0.103	(13) A
38	Absence of graffiti	6	5	25.5	8	0.4	5	0.103	*(13) A
39	Frequency of service on Saturdays and Sundays	8	5	25.7	8	0.3	6	0.084	(13) A
40	Number of transfer points outside downtown	8	3	8.9	11	0.7	5	0.059	*(14) A
41	Safety from crime at stations	1	3	8.0	11	0.7	5	0.058	(14) A
42	Availability of information by phone and mail	7	3	4.3	12	1.1	4	0.048	*(15) A
43	Availability of handrails or grab bars	5	3	23.0	8	0.0	6	-0.010	*(16) A
44	Physical condition of vehicles and infrastructure	3	3	10.8	10	-0.1	7	-0.014	*(16) A
45	Provision of signs and information in Spanish	10	3	3.4	12	-0.7	7	-0.023	*(16) A
46	Train traveling at a safe speed	3	1	13.7	10	-0.4	7	-0.051	*(17) A

() Numbers indicate statistically significant rank at the 90% confidence interval level

*Split sample size=100

Shaded cells are above median

Chart 8.3
Quadrant Analysis of Performance (*Satisfaction*) vs. Importance
for CTA Red Line Service



The intersection of the axis is the median rank value on importance (from left to right) and satisfaction (from bottom to top)

(N=300)

NOTE: Please refer to the numbered list of attributes in Table 8.1 and 8.2 for descriptions of the attributes shown as numbers in the above chart.

The "target area" consists of the attributes that riders consider very important, but are rated low on satisfaction. The following attributes fell into the "target area" for the CTA Red Line:

- Trains that are not overcrowded
- Reliable trains that come on schedule
- Explanations and announcements of delays
- Frequent service so that wait times are short
- Cleanliness of the train interior
- Temperature on the train
- Fairness/consistency of fare structure
- Frequency of delays for repairs/emergencies
- Cleanliness of stations
- Physical condition of stations

8D. CTA Red Line — Comparison with Factor Analysis

A factor analysis was performed on the 30 attributes not included in split sampling (all respondents were asked to rate each of these questions). It should be noted, utilizing the impact score approach, only one attribute that appears in the target area was a part of split sampling treatment: "cost effectiveness, affordability, and value". However, five of split sample attributes placed within the second tier for impact score rankings. Split sampling of 18 attributes (including "having a station near my home" and "having a station near my destination") was used in the TCRP B-11 project to reduce the length of the phone interview. Each respondent was asked to rate the same 30 attributes, the remaining 18 attributes were rated by only a third of the sample (100 respondents for the Red Line), with each third being asked to rate a different 6 attributes.

Split sampling cannot be effectively used when factor analysis is employed. For factor analysis to be reliable without very large sample sizes, all respondents must be asked all questions. Therefore, this factor analysis comparison is based on comparison analysis of the 30 attributes asked of all CTA Red Line customers.

The correlation results for the factor solution are displayed in Table 8.4. Four dimensions were found which are labeled: "trip performance", "personal security", "customer service", and "comfort".

The communality correlations for the attributes within each dimension are as shown for each attribute.

Table 8.4
Factor Dimensions for CTA Red Line Service

1 Trip Performance		2 Personal Security		3 Customer Service		4 Comfort	
Frequent Service	0.7318*	Safety on Trains	0.7445*	Service # Display	0.6166*	Not crowded	0.7164*
Reliable, On-Time	0.7147*	Safety at Stations	0.7123*	Maps at Stations	0.6079*	Seat Availability	0.6261*
Wait for Transfers	0.6884*	Absence of Odors	0.6765*	Posted Schedule	0.5457*	Train Temperature	0.5684
Hours of Service	0.6453*	Clean Interiors	0.6637*	Shelters/Benches	0.5588	Ride Smoothness	0.5092
Friendly Service	0.6030*	Free of Nuisances	0.5822*	Disability Access	0.5003		
Delay Explanations	0.5913*	Clean Stations	0.5623*				
Route Info. on Rail	0.5795*	Clean Exteriors	0.4532*				
Safe Conductors	0.5444*	Stations Condition	0.4993				
Connecting Buses	0.5223*	Ease Paying Fare	0.3342				
Announcement Clarity	0.5217*						
Opening Doors	0.5195*						
Frequency Sat/Sun.	0.4223						

* values greater than 0.5 significance (N=300)

None of the intercorrelations among attributes is above the 0.8 level that would be considered highly correlated. All except one correlation are within the medium range of 0.4 to 0.8. The factor analysis does little to help us differentiate among the many "trip performance" attributes as to what should be targeted for agency action. It is clear Red Line customers equate cleanliness of the trains and stations with a sense of personal security and safety; however, the travel environment attributes important to Red Line customers were more specifically identified by the impact score analysis. Shelters and benches could be as easily correlated with the "comfort" dimension as with "customer service".

When multiple regression analysis is performed to identify the dimensions' order in terms of the strength of their relationship with overall satisfaction with Red Line service, the order is as follows:

1. Trip performance
2. Comfort
3. Customer service
4. Personal security

By contrast the impact score analysis found the target area attributes for Red Line Service to be a combination of specific attributes within the trip performance, comfort, and personal security dimensions. "Not overcrowded", "temperature on trains", smoothness of ride", "absence of odors", and "clean train interiors" all have higher correlations with (or impacts on) overall satisfaction than "route/direction information on trains", "connecting bus service", or "frequency of service on Saturdays/Sundays" — all attributes placed within the first ordered dimension. A factor analysis alone would be unlikely to target important and specific trip environment characteristics which cross factor defined dimension boundaries.

CTA BLUE LINE SERVICE

8E. CTA Blue Line - Computation of Impact Scores

The top target area attributes for the CTA Blue Line as determined by the impact score approach are as shown below:

CTA Blue Line Service
Target Attributes
(N=302)

	Attribute
1	Reliable trains that come on schedule
2	Frequent service so that wait times are short
3	Availability of seats on the train
4	Trains that are not overcrowded
5	Frequency of delays for repairs/emergencies
6	Cost effectiveness, affordability, and value
7	Explanations and announcement of delays
8	Friendly, courteous, and quick service
9	Smoothness of the ride and stops
10	Ease of paying fare, purchasing tokens
11	Clear and timely announcement of stops
12	Fairness/consistency of fare structure

Thus, for Blue Line service, customer-defined requirements are more travel performance oriented than for Red Line service in Chicago. Also, the physical condition of vehicles and infrastructure is more likely to have an impact on overall satisfaction for Blue Line riders. Red Line service customers are more concerned with such travel environment elements as:

- Cleanliness of the train interior
- Temperature on the train
- Absence of offensive odors
- Freedom from the nuisance behaviors of others

The attributes above have slightly lower reported problem occurrence rates on the Blue Line, and also have less impact on Blue Line customers' overall satisfaction.

8F. CTA Blue Line — Comparison with Quadrant Analysis

When impact score results for the CTA Blue Line, as shown in Table 8.5 and Table 8.6, are compared with Quadrant Analysis results as shown in Chart 8.7, significant differences appear.

Differences in Impact Score and Quadrant Analysis results are identified as follows:

In Target Area by Impact Scores, but not by Quadrant Analysis

Cost Efficiency, Value and Friendly Service — The quadrant analysis does not take into account this attribute's high impact on overall satisfaction; any significant rise in problem occurrence for this attribute could have a large impact on overall satisfaction.

Availability of Seats — The quadrant analysis does not take into account the high reported problem occurrence, while the attribute has a moderate impact on overall satisfaction.

Ease of Paying Fare and Clear and Timely Announcements — The quadrant analysis does not take into account both the moderately high reported problem occurrence and moderate impact on overall satisfaction displayed by these two attributes.

In Target Area by Quadrant Analysis, but not by Impact Scores

Cleanliness of Stations — The quadrant analysis does not consider the modest problem occurrence reported and the attribute's modest impact on overall satisfaction.

Absence of Offensive Odors, Cleanliness of Interiors, Freedom from Nuisance Behaviors of Others — The quadrant analysis does not take into account that these attributes lower impact on overall satisfaction for Blue Line customers.

8G. CTA Blue Line - Translation of Impact Scores to a Report Card

Once impact scores are placed in descending order, statistically significant differences in ranking can be calculated using standard tests for statistical significance (Table 8.6). The table can then be simply divided by quadrants (adhering to statistically significant breaks in ranking) to assign report card grades to each individual service attribute.

For future CTA Blue Line tracking surveys, a grade level "D" can be assigned to all attributes with impact scores above 0.350, a "C" can be assigned to all impact scores within the range of 0.249 to 0.350, a "B" to impact scores between 0.122 to 0.248, and an "A" to impact scores below 0.121.

Table 8.5 Computation of Impact Scores – Blue Line <i>(N=302)</i> Attribute		Mean Overall Sat. w/ Problem	Mean Overall Sat. w/o Problem	Gap Value	Percent Who Had Problem	Impact Score	Report Card
1	Reliable trains that come on schedule	6.16779	7.93377	1.766	0.494	0.872	D
2	Frequent service so that wait times are short	6.11679	7.85277	1.736	0.454	0.788	D
3	Availability of seats on the train	6.48824	7.77273	1.284	0.563	0.723	D
4	Trains that are not overcrowded	6.71066	7.77670	1.066	0.652	0.695	D
5	Frequency of delays for repairs/emergencies	6.30952	7.76786	1.458	0.429	0.626	D
6	Cost effectiveness, affordability, and value	4.68421	7.72840	3.044	0.190	0.578	D
7	Explanations and announcement of delays	6.48630	7.60131	1.115	0.483	0.539	D
8	Friendly, courteous, and quick service	5.56164	7.52444	1.963	0.242	0.475	D
9	Smoothness of the ride and stops	6.38136	7.46995	1.089	0.391	0.426	D
10	Ease of paying fare, purchasing tokens	6.20618	7.46392	1.258	0.321	0.404	D
11	Clear and timely announcements of stops	6.22680	7.46078	1.234	0.321	0.396	D
12	Fairness/consistency of fare structure	5.55556	7.53165	1.976	0.186	0.368	D
13	Cleanliness of stations	6.21348	7.39906	1.186	0.295	0.350	C
14	Temperature on the train	6.50442	7.37566	0.871	0.374	0.326	C
15	Transit personnel who know the system	4.11111	7.48235	3.371	0.096	0.324	C
16	Absence of offensive odors	6.67153	7.36585	0.694	0.454	0.315	C
17	Cleanliness of the train interior	6.67164	7.35119	0.680	0.444	0.302	C
18	Displaying of customer service number	5.92063	7.32850	1.408	0.209	0.294	C
19	Short wait time for transfers	6.45161	7.40237	0.951	0.308	0.293	C
20	Posted minutes to next train at stations	6.01563	7.39352	1.378	0.212	0.292	C
21	Physical condition of stations	6.55455	7.32461	0.770	0.364	0.280	C
22	Quietness of the vehicles and system	6.43243	7.10938	0.677	0.366	0.248	B
23	Physical condition of vehicles and infrastructure	5.42857	7.14118	1.713	0.141	0.241	B
24	Safe and competent conductors	5.57143	7.30469	1.733	0.139	0.241	B
25	Hours of service during weekdays	5.85106	7.27381	1.423	0.156	0.222	B
26	Connecting bus service to stations	6.15254	7.23881	1.086	0.195	0.212	B
27	Comfort of seats on the train	5.92857	7.34884	1.420	0.140	0.199	B
28	Freedom from the nuisance behaviors of others	6.72477	7.22917	0.504	0.361	0.182	B
29	Availability of handrails or grab bars	6.45000	7.27500	0.825	0.200	0.165	B
30	Number of transfer points outside downtown	5.14286	7.10390	1.961	0.083	0.163	B
31	Route/direction visible on trains	5.13043	7.21455	2.084	0.076	0.158	B
32	Availability of shelter and benches	6.52174	7.20601	0.684	0.228	0.156	B
33	Availability of monthly/discount passes	6.50000	7.29730	0.797	0.140	0.112	A
34	Station names visible from train	5.16667	7.00000	1.833	0.059	0.108	A
35	Availability of schedules/maps at stations	6.45238	7.19919	0.747	0.139	0.104	A
36	Cleanliness of the train exterior	6.33333	7.17121	0.838	0.109	0.091	A
37	Frequency of service on Saturdays and Sundays	6.70455	7.17089	0.466	0.146	0.068	A
38	Safety from crime on trains	6.20000	7.10676	0.907	0.066	0.060	A
39	Safety from crime at stations	6.18750	7.09790	0.910	0.053	0.048	A
40	Ease of opening doors of train	6.90698	7.11200	0.205	0.142	0.029	A
41	Train traveling at a safe speed	6.90909	7.13483	0.226	0.110	0.025	A
42	Accessibility to those with a disability	6.92000	7.05310	0.133	0.083	0.011	A
43	Absence of graffiti	6.88462	6.89474	0.010	0.255	0.003	A
44	Availability of information by phone and mail	7.33333	7.15476	-0.179	0.067	-0.012	A
45	Provision of signs and information in Spanish	7.60000	7.07143	-0.529	0.056	-0.030	A
46	Cost of making transfers	7.22222	6.83117	-0.391	0.105	-0.041	A

Table 8.6
Summary of Rankings and Scores - CTA Blue Line

Table 8.6 Summary of Rankings and Scores - CTA Blue Line									
	Attribute	Importance Ranking	Satisfaction Ranking	Percent Who Experienced Problem		Overall Satisfaction Gap		Impact Score	Report Card
				%	Rank	V	Rank		
	Median Importance Rank=4 Low Satisfaction >3 (N=302) Median Problem Experience Rank=8 (19%) Median Overall Satisfaction Gap Value Rank=4								
1	Reliable trains that come on schedule	1	4	49.4	3	1.8	3	0.872	(1) D
2	Frequent service so that wait times are short	3	4	45.4	3	1.7	3	0.788	(1) D
3	Availability of seats on the train	6	6	56.3	2	1.3	4	0.723	(2) D
4	Trains that are not overcrowded	5	6	65.2	1	1.1	5	0.695	(2) D
5	Frequency of delays for repairs/emergencies	4	4	42.9	4	1.5	4	0.626	*(3) D
6	Cost effectiveness, affordability, and value	2	3	19.0	8	3.0	1	0.578	*(3) D
7	Explanations and announcement of delays	4	5	48.3	3	1.1	5	0.539	(4) D
8	Friendly, courteous, and quick service	4	3	24.2	7	2.0	2	0.475	(5) D
9	Smoothness of the ride and stops	7	4	39.1	5	1.1	5	0.426	(6) D
10	Ease of paying fare, purchasing tokens	4	3	32.1	6	1.3	4	0.404	(6) D
11	Clear and timely announcements of stops	6	4	32.1	6	1.2	4	0.396	(6) D
12	Fairness/consistency of fare structure	3	4	18.6	8	2.0	2	0.368	*(6) D
13	Cleanliness of stations	5	4	29.5	6	1.2	4	0.350	(7) C
14	Temperature on the train	4	3	37.4	5	0.9	5	0.326	(7) C
15	Transit personnel who know the system	4	2	9.6	10	3.4	1	0.324	*(7) C
16	Absence of offensive odors	4	5	45.4	3	0.7	6	0.315	(7) C
17	Cleanliness of the train interior	4	4	44.4	4	0.7	6	0.302	(8) C
18	Displaying of customer service number	8	6	20.9	7	1.4	4	0.294	(8) C
19	Short wait time for transfers	6	4	30.8	6	1.0	5	0.293	(8) C
20	Posted minutes to next train at stations	8	4	21.2	7	1.4	4	0.292	(8) C
21	Physical condition of stations	6	4	36.4	5	0.8	5	0.280	(8) C
22	Quietness of the vehicles and system	9	5	36.6	5	0.7	6	0.248	*(9) B
23	Physical condition of vehicles and infrastructure	4	3	14.1	9	1.7	3	0.241	*(9) B
24	Safe and competent conductors	1	2	13.9	9	1.7	3	0.241	(9) B
25	Hours of service during weekdays	3	1	15.6	9	1.4	4	0.222	(9) B
26	Connecting bus service to stations	7	3	19.5	8	1.1	5	0.212	(9) B
27	Comfort of seats on the train	7	3	14.0	9	1.4	4	0.199	*(10) B
28	Freedom from the nuisance behaviors of others	4	4	36.1	5	0.5	6	0.182	(10) B
29	Availability of handrails or grab bars	4	3	20.0	7	0.8	5	0.165	*(10) B
30	Number of transfer points outside downtown	7	2	8.3	10	2.0	2	0.163	*(10) B
31	Route/direction visible on trains	7	2	7.6	10	2.1	2	0.158	(10) B
32	Availability of shelter and benches	7	4	22.8	7	0.7	6	0.156	(10) B
33	Availability of monthly/discount passes	6	3	14.0	9	0.8	5	0.112	*(11) A
34	Station names visible from train	4	1	5.9	10	1.8	3	0.108	*(11) A
35	Availability of schedules/maps at stations	8	3	13.9	9	0.7	6	0.104	(11) A
36	Cleanliness of the train exterior	10	3	10.9	10	0.8	5	0.091	(11) A
37	Frequency of service on Saturdays and Sundays	10	5	14.6	9	0.5	6	0.068	(12) A
38	Safety from crime on trains	1	2	6.6	10	0.9	5	0.060	(12) A
39	Safety from crime at stations	1	2	5.3	11	0.9	5	0.048	(12) A
40	Ease of opening doors of train	6	2	14.2	9	0.2	7	0.029	(13) A
41	Train traveling at a safe speed	1	1	11.0	10	0.2	7	0.025	*(13) A
42	Accessibility of trains to those with a disability	7	5	8.3	10	0.1	7	0.011	(14) A
43	Absence of graffiti	7	4	25.5	7	0.0	8	0.003	*(14) A
44	Availability of information by phone and mail	8	3	6.7	10	-0.2	8	-0.012	*(15) A
45	Provision of signs and information in Spanish	10	5	5.6	11	-0.5	8	-0.030	*(16) A
46	Cost of making transfers	9	4	10.5	10	-0.4	8	-0.041	*(16) A

() Numbers indicate statistically significant rank at the 90% confidence interval level *Split sample size=100 Shaded cells are above median

Chart 8.7
Quadrant Analysis of Performance (*Satisfaction*) vs. Importance
for CTA Blue Line Service



The intersection of the axis is the median rank value on importance (from left to right) and satisfaction (from bottom to top)

(N=302)

NOTE: Please refer to the numbered list of attributes in Table 8.5 and 8.6 for descriptions of the attributes shown as numbers in the above chart.

The "target area" consists of the attributes that riders consider very important, but are rated low on satisfaction. The following attributes fell into the "target area" for the CTA Blue Line:

- Reliable trains that come on schedule
- Frequent service so that wait times are short
- Frequency of delays for repairs/emergencies
- Explanations and announcement of delays
- Fairness/consistency of fare structure
- Cleanliness of stations
- Absence of offensive odors
- Cleanliness of the train interior
- Freedom from the nuisance behaviors of others

8H. CTA Blue Line — Comparison with Factor Analysis

A factor analysis was performed for the 30 attributes not included in split sampling (all respondents were asked to rate each of these questions). The CTA Blue Line correlation results for the factor solution are displayed in Table 8.8 below. Five dimensions were found which are labeled: "personal security", "trip performance", "communications", "customer/agency interaction", and "transfer service".

The communality correlations for the attributes within each dimension are as shown for each attribute.

Table 8.8
Factor Dimensions for CTA Blue Line Service

1 Personal Security		2 Trip Performance		3 Communications		4 Customer/Agency Interactions	
Safety at Stations	0.7181*	Reliable, On-Time	0.7096*	Route Info. on Rail	0.6074*	Safe Conductors	0.6582*
Safety on Trains	0.6601*	Frequent Service	0.7193*	Posted Schedule	0.5329*	Friendly Service	0.6215*
Absence of Odors	0.6424*	Seat Availability	0.6744*	Maps at Stations	0.5127*	Ride Smoothness	0.5858*
Clean Interiors	0.6042*	Not crowded	0.6558*	Service # Display	0.4747*	Hours of Service	0.5330
Clean Stations	0.5900*	Ease Paying Fare	0.5642*	Frequency Sat/Sun	0.6213	Delay Explanations	0.4670
Free of Nuisances	0.5533*	Train Temperature	0.5328	Announcement Clarity	0.6170	Opening Doors	0.3878
Stations Condition	0.5368			Disability Access	0.4587	5 Transfer Services	
Shelters/Benches	0.4577			Clean Exterior	0.6189		
						Connecting Buses	0.5860*
						Wait for Transfers	0.5735*

* values greater than 0.5 significance (N=302)

None of the intercorrelations among attributes is above the 0.8 level that would be considered highly correlated. All except one correlation are within the medium range of 0.4 to 0.8.

The factor analysis for Blue Line service attributes is less differentiated than for the Red Line. Multicollinearity among attributes is extensive. The factor analysis obtained significant values for only two-thirds of the 30 attributes tested. For example, the temperature on the train is closely correlated with the dimension of trip performance but also with perceptions of customer/agency interactions.

On the basis of multiple regression analysis using the dimensions as the independent variables, the order of the dimensions in terms of their affect on overall satisfaction is as follows:

1. Trip performance
2. Customer/agency interactions
3. Communications
4. Transfer service
5. Personal security

Three of the attributes identified by the impact score approach as within the top tier for target issues are not within the top factor analysis dimension — because they were not highly correlated with other trip performance attributes. These attributes are: explanations/announcements of delays, friendly/courteous/quick personnel, and smoothness of the ride and stop. All of these attributes are placed by the factor analysis in a secondary dimension tier that we have labeled "customer/agency interactions".

COMBINED CTA RAIL

8I. Combined CTA Rail - Computation of Impact Scores

The top target attributes for combined CTA rail customers, determined from weighted data as defined in Appendix D, and determined by the impact score approach are as shown below:

**Combined CTA Rail
Target Attributes
(N=602)**

	Attribute
1	Trains that are not overcrowded
2	Reliable trains that come on schedule
3	Frequent service so that wait times are short
4	Cost effectiveness, affordability, and value
5	Availability of seats on the train
6	Explanations and announcement of delays
7	Frequency of delays for repairs/emergencies
8	Cleanliness of the train interior
9	Temperature on the train
10	Smoothness of the ride and stops
11	Absence of offensive odors

The target issues or attributes are a combination of travel performance and travel environment issues. As previously noted, Blue Line customers are more concerned with the former. (See Tables 8.9 and 8.10 for impact scores).

It should also be noted that for the top attribute of concern, "trains that are not overcrowded", almost three-fourths (72%) of CTA customers report that they have had a problem with this within the last 30 days. Also, satisfaction with this attribute was the lowest for all attributes. However, perhaps due to the fact that such a high percentage of customers experience this problem, negative experience does not show a high impact on overall satisfaction, and the attribute ranks only in the median range for importance. Thus, while this attribute should be tracked, it is possible that reducing the percent of customers experiencing a problem with overcrowding will not have a significant effect on improving overall satisfaction.

The impact score analysis shows both Red Line and Blue Line customers to be price sensitive. The "cost and value" attribute should also be carefully tracked. Experiencing problems with this attribute has a significant impact on overall satisfaction with service; a rise in the percent of customers reporting a problem with cost or value could significantly lower overall customer satisfaction levels.

Almost half of CTA customers report experiencing a problem with four travel environment issues:

- Cleanliness of the train interior
- Temperature on the train
- Smoothness of the ride and stops
- Absence of offensive odors

The first two have significant effects on overall customer satisfaction with service; the latter two, smoothness of the ride and stops and absence of offensive odors, have an impact on overall satisfaction that is just below the median for all attributes.

Frequency of service on Saturdays and Sundays, accessibility of trains to those with a disability, and absence of graffiti have high dissatisfaction ratings; however, these attributes are shown by the impact score approach to have low or moderate problem occurrence rates and affects on overall satisfaction.

CTA generally gets high marks on:

- Number of transfer points
- Safety from crime on trains and at stations
- Physical condition of vehicles and infrastructure
- Availability of information by phone and mail
- Traveling at a safe speed

8J. Combined CTA Rail — Comparison with Quadrant Analysis

When impact score results for the combined CTA Rail customers are compared with Quadrant Analysis results as shown in Chart 8.11, significant differences appear.

The quadrant analysis does not take into account the relatively low problem incidence rate for "fairness and consistency of fares" and "cost effectiveness, affordability, and value", coupled with the very high affect of "cost and value" on overall satisfaction. The quadrant analysis includes "fairness and consistency of fares" in the target issues but excludes "cost and value".

The quadrant analysis includes "freedom from the nuisance behaviors of others"; however, this attribute is reported as a problem by only 26% of customers and has an impact on overall satisfaction that is below the median for all attributes. Conversely, "availability of seating, "trains that are not overcrowded", and "smoothness of ride" are excluded from the target area in a quadrant analysis, ignoring their high reported problem incidence rates, coupled with moderate to high impacts on overall satisfaction.

Due to weighting complications and the unreliability of factor solutions for the CTA Blue Line (extensive multicollinearity among attributes), the factor analysis for combined CTA Rail customer ratings did not yield meaningful or reliable results.

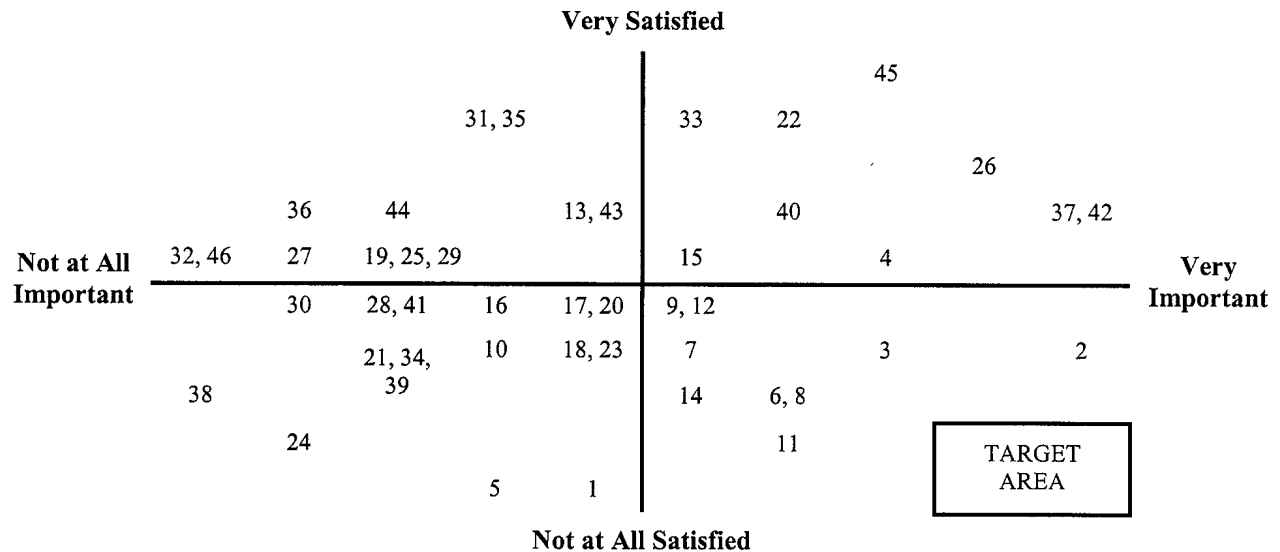
	Table 8.9 Computation of Impact Scores – Comb. CTA (N=602) Attribute	Mean Overall Sat. w/ Problem	Mean Overall Sat. w/o Problem	Gap Value	Percent Who Had Problem	Impact Score	Report Card
1	Trains that are not overcrowded	6.29363	7.49242	1.199	0.718	0.861	D
2	Reliable trains that come on schedule	5.80658	7.50032	1.694	0.504	0.854	D
3	Frequent service so that wait times are short	5.75943	7.38828	1.629	0.467	0.761	D
4	Cost effectiveness, affordability, and value	4.39626	7.26903	2.873	0.257	0.738	D
5	Availability of seats on the train	6.15946	7.30777	1.148	0.598	0.687	D
6	Explanations and announcement of delays	5.91285	7.30710	1.394	0.488	0.680	D
7	Frequency of delays for repairs/emergencies	5.69564	7.06657	1.371	0.436	0.598	D
8	Cleanliness of the train interior	6.01977	7.21211	1.192	0.496	0.591	D
9	Temperature on the train	5.80431	7.20345	1.399	0.411	0.575	D
10	Smoothness of the ride and stops	5.81572	7.19205	1.376	0.416	0.573	D
11	Absence of offensive odors	6.12198	7.19043	1.068	0.527	0.563	D
12	Fairness/consistency of fare structure	4.78248	7.11284	2.330	0.233	0.543	C
13	Transit personnel who know the system	4.29662	7.07976	2.783	0.192	0.534	C
14	Freedom from the nuisance behaviors of others	6.12014	7.12360	1.003	0.502	0.504	C
15	Friendly, courteous, and quick service	5.20614	7.12706	1.921	0.260	0.499	C
16	Clear and timely announcements of stops	5.64498	7.12386	1.479	0.333	0.492	C
17	Ease of paying fare, purchasing tokens	5.87251	7.11565	1.243	0.366	0.455	C
18	Cleanliness of stations	5.84863	7.05388	1.205	0.359	0.433	C
19	Comfort of seats on the train	4.64287	6.92748	2.285	0.183	0.418	C
20	Short wait time for transfers	5.79642	7.13653	1.340	0.303	0.406	C
21	Posted minutes to next train at station	5.47769	7.05084	1.573	0.252	0.396	C
22	Hours of service during weekdays	5.15371	6.99567	1.842	0.200	0.368	C
23	Physical condition of stations	6.17621	6.94231	0.766	0.422	0.323	C
24	Displaying of customer service number	5.39901	6.85914	1.460	0.194	0.283	B
25	Connecting bus service to station	5.78635	6.91459	1.128	0.227	0.256	B
26	Safe and competent conductors	5.14170	6.84351	1.702	0.133	0.226	B
27	Cost of making transfers	4.97181	6.79186	1.820	0.121	0.220	B
28	Availability of shelter and benches	5.97356	6.85097	0.877	0.247	0.217	B
29	Availability of monthly/discount passes	5.40911	6.71615	1.307	0.146	0.191	B
30	Availability of schedules/maps at stations	5.76036	6.85627	1.096	0.172	0.188	B
31	Ease of opening doors of train	5.82508	6.79138	0.966	0.167	0.161	B
32	Cleanliness of the train exterior	5.43475	6.79734	1.363	0.116	0.158	B
33	Station names visible from train	5.23260	6.70261	1.470	0.104	0.153	B
34	Quietness of the vehicles and system	6.21698	6.70514	0.488	0.298	0.145	B
35	Route/direction visible on trains	5.51982	6.76093	1.241	0.111	0.138	B
36	Number of transfer points outside downtown	5.70389	6.82442	1.121	0.087	0.097	A
37	Safety from crime on trains	5.65754	6.71720	1.060	0.088	0.093	A
38	Frequency of service on Saturdays and Sundays	6.40272	6.81838	0.416	0.218	0.091	A
39	Accessibility to those with a disability	5.95590	6.80120	0.845	0.092	0.078	A
40	Physical condition of vehicles and infrastructure	6.04472	6.64285	0.598	0.120	0.072	A
41	Absence of graffiti	6.37482	6.63472	0.260	0.255	0.066	A
42	Safety from crime at stations	5.82205	6.67161	0.850	0.071	0.060	A
43	Availability of handrails or grab bars	6.58857	6.84577	0.257	0.220	0.057	A
44	Availability of information by phone and mail	6.31010	6.80248	0.492	0.051	0.025	A
45	Train traveling at a safe speed	6.92286	6.75798	-0.165	0.128	-0.021	A
46	Provision of signs and information in Spanish	7.45813	6.79871	-0.659	0.042	-0.028	A

Table 8.10
Summary of Rankings and Scores - Combined CTA Rail

Attribute	Importance Ranking	Satisfaction Ranking	Percent Who Experienced Problem		Overall Satisfaction Gap		Impact Score	Report Card
			%	Rank	V	Rank		
1 Trains that are not overcrowded	6	11	71.8	1	0.9	8	0.861	(1) D
2 Reliable trains that come on schedule	1	7	50.4	3	1.7	4	0.854	(1) D
3 Frequent service so that wait times are short	3	7	46.7	4	1.6	4	0.761	(2) D
4 Cost effectiveness, affordability, and value	3	5	25.7	9	2.3	2	0.738	*(3) D
5 Availability of seats on the train	7	10	59.8	2	1.2	6	0.687	(3) D
6 Explanations and announcement of delays	4	8	48.8	4	1.4	5	0.680	(4) D
7 Frequency of delays for repairs/emergencies	5	7	43.6	5	2.8	1	0.598	*(5) D
8 Cleanliness of the train interior	4	8	49.6	3	1.2	6	0.591	(5) D
9 Temperature on the train	5	6	41.1	5	1.4	5	0.575	(5) D
10 Smoothness of the ride and stops	7	7	41.6	5	0.8	8	0.573	(5) D
11 Absence of offensive odors	4	9	52.7	3	1.1	7	0.563	(5) D
12 Fairness/consistency of fare structure	5	6	23.3	9	1.4	5	0.543	*(6) C
13 Transit personnel who know the system	6	4	19.2	11	1.3	6	0.534	*(6) C
14 Freedom from the nuisance behaviors of others	5	8	50.2	3	1.0	7	0.504	(6) C
15 Friendly, courteous, and quick service	5	5	26.0	8	1.9	3	0.499	(6) C
16 Clear and timely announcements of stops	7	6	33.3	7	1.5	5	0.492	(6) C
17 Ease of paying fare, purchasing tokens	6	6	36.6	6	1.2	6	0.455	(7) C
18 Cleanliness of stations	6	7	35.9	6	1.2	6	0.433	(7) C
19 Comfort of seats on the train	8	5	18.3	11	1.5	5	0.418	*(8) C
20 Short wait time for transfers	6	6	30.3	7	1.3	6	0.406	(8) C
21 Posted minutes to next train at station	8	7	25.2	9	1.6	4	0.396	(9) C
22 Hours of service during weekdays	4	2	20.0	10	1.8	3	0.368	(9) C
23 Physical condition of stations	6	7	42.2	5	-0.7	12	0.323	(10) C
24 Displaying of customer service number	9	9	19.4	11	1.5	5	0.283	(11) B
25 Connecting bus service to station	8	5	22.7	10	1.1	7	0.256	(11) B
26 Safe and competent conductors	2	3	13.3	13	1.7	4	0.226	(12) B
27 Cost of making transfers	9	5	12.1	13	0.4	10	0.220	*(12) B
28 Availability of shelter and benches	8	6	24.7	9	1.4	5	0.217	(12) B
29 Availability of monthly/discount passes	8	5	14.6	12	2.3	2	0.191	*(13) B
30 Availability of schedules/maps at stations	9	6	17.2	11	1.1	7	0.188	(13) B
31 Ease of opening doors of train	7	2	16.7	12	1.0	7	0.161	(14) B
32 Cleanliness of the train exterior	10	5	11.6	13	1.4	5	0.158	(14) B
33 Station names visible from train	5	2	10.4	14	0.5	9	0.153	*(14) B
34 Quietness of the vehicles and system	8	7	29.8	8	1.1	7	0.145	*(14) B
35 Route/direction visible on trains	7	2	11.1	13	1.2	6	0.138	(14) B
36 Number of transfer points outside downtown	9	4	8.7	14	1.8	3	0.097	*(15) A
37 Safety from crime on trains	1	4	8.8	14	1.1	7	0.093	(15) A
38 Frequency of service on Saturdays and Sundays	10	8	21.8	10	1.1	7	0.091	(15) A
39 Accessibility to those with a disability	8	7	9.2	14	0.8	8	0.078	(15) A
40 Physical condition of vehicles and infrastructure	4	4	12.0	13	0.6	9	0.072	*(16) A
41 Absence of graffiti	8	6	25.5	9	0.3	10	0.066	*(16) A
42 Safety from crime at stations	1	4	7.1	14	0.8	8	0.060	(16) A
43 Availability of handrails or grab bars	6	4	22.0	10	0.5	9	0.057	*(16) A
44 Availability of information by phone and mail	8	4	5.1	15	-0.2	11	0.025	*(17) A
45 Train traveling at a safe speed	3	1	12.8	13	2.9	1	-0.021	*(18) A
46 Provision of signs and information in Spanish	10	5	4.2	15	0.3	10	-0.028	*(18) A

() Numbers indicate statistically significant rank at the 90% confidence interval level *Split sample size=100 Shaded cells are above median

Chart 8.11
Quadrant Analysis of Performance (*Satisfaction*) vs. Importance
for Combined CTA Rail Service



The intersection of the axis is the median rank value on importance (from left to right) and satisfaction (from bottom to top)

(N=602)

NOTE: Please refer to the numbered list of attributes in Tables 8.9 and 8.10 for descriptions of the attributes shown as numbers in the above chart.

The "target area" consists of the attributes that riders consider very important, but are rated low on satisfaction. The following attributes fell into the "target area" for combined CTA Rail:

- Reliable trains that come on schedule
- Frequent service so that wait times are short
- Explanations and announcement of delays
- Frequency of delays for repairs/emergencies
- Cleanliness of the train interior
- Temperature on the train
- Absence of offensive odors
- Fairness/consistency of fare structure
- Freedom from the nuisance behaviors of others