

SAND2013-3890C

Defeating the Tyranny of Averages

Find out how satisfied your customers *really* are

Exceptional service in the national interest



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A disclaimer or two

- I'm not a statistician, but I play one on TV
 - Actually, I worked with one to develop our new analysis methods
- This presentation compares two slightly different data sets
 - Old customer satisfaction (CSAT) results determined from MONTHLY satisfaction surveys*
 - New CSAT results determined from TRANSACTIONAL satisfaction surveys
 - The surveys ask substantially similar questions

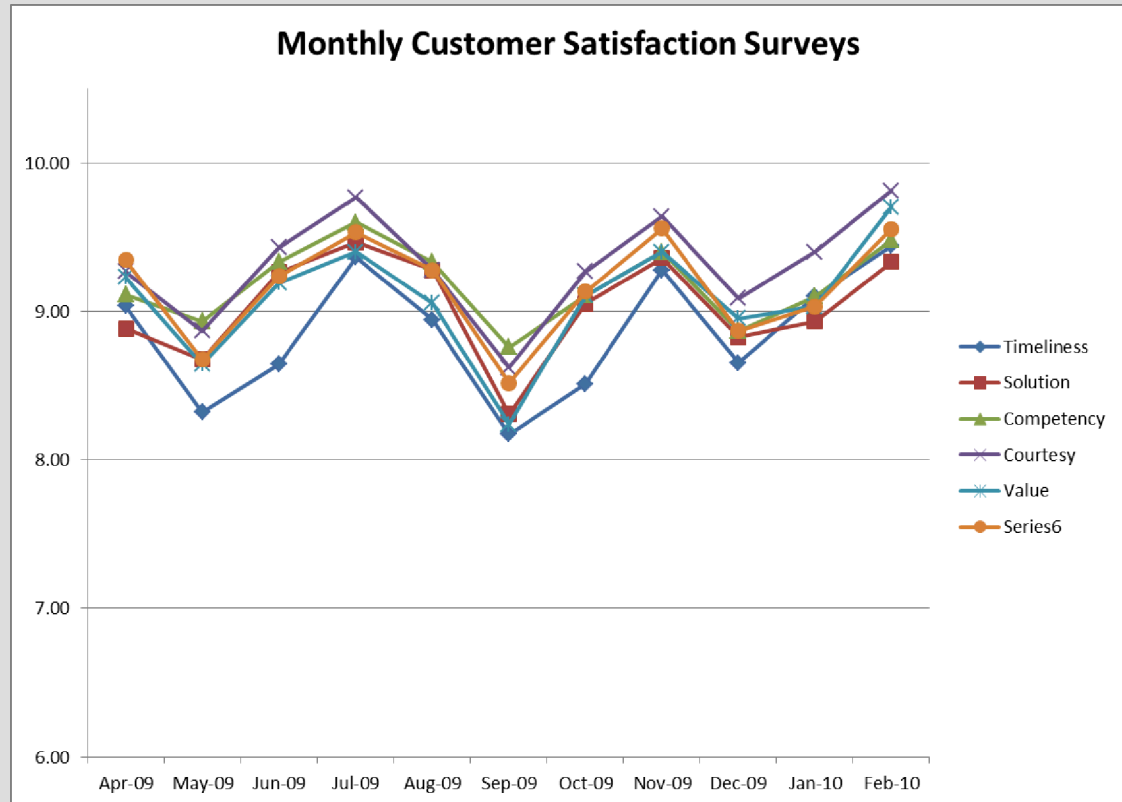
**We did collect transactional survey data, but didn't use them for CSAT results*

A data story: Once upon a time ...

- Flush with indirect funding
- Concierge-level services
- Routinely happy customers
 - CSATs averaged around 8.9 to 9.2 on a 10-point scale
- Business model changed in 2009
 - Much tighter budgets & fewer technicians
 - Fewer services covered by indirect funds & longer SLAs

When the business model changed, CSAT results were ... strange

- Monthly results showed virtually NO change
 - Only one little bump downward
- CSAT *comments* told different story
 - Tended toward the negative
 - More “horror-story” anecdotes about our services



This was very curious

- Why did our numbers not reflect this growing customer unhappiness?
- What were we missing and why were we missing it?
- Was there any way to get more subtle, meaningful, actionable information from CSATs?



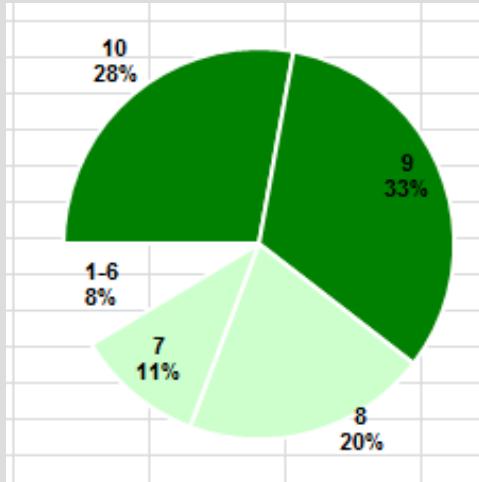
We were held hostage by the tyranny of averages!

So what's the problem with averages?

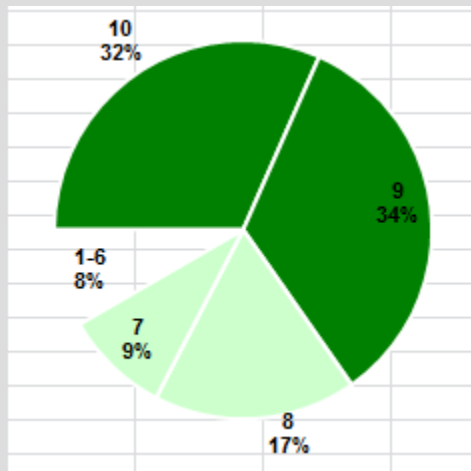
- Cover a multitude of sins
 - Extremes are shielded and skew results
- Don't make much sense if you're combining results from different topics
 - Comparing elephants, cupcakes, and chainsaws
- Reinforce single-number thinking
 - “What was our CSAT score for last month?”
- Encourage narrow-focus thinking
 - React to normal score variation as if it's a meaningful movement

Old method: Monthly scores

Service Desk



Deskside Support

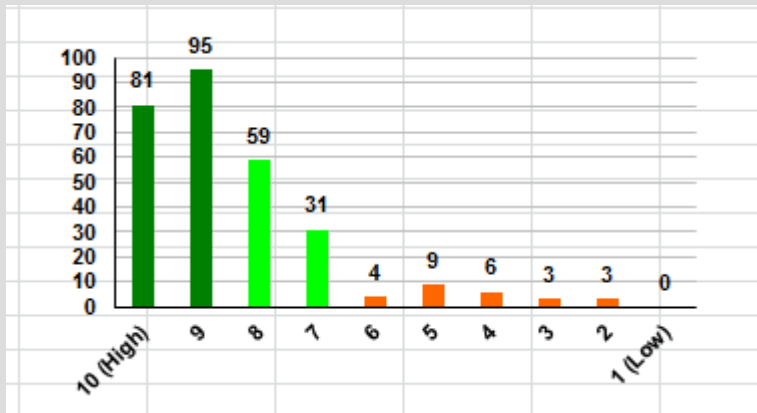


Monthly Customer Satisfaction Surveys

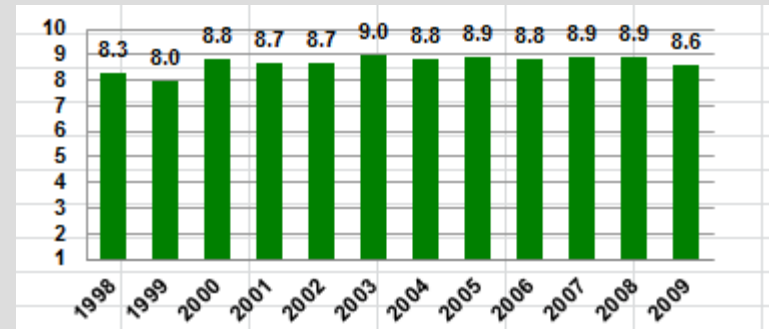
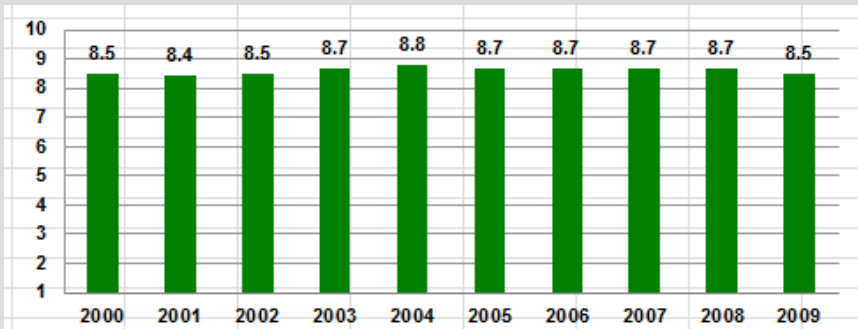
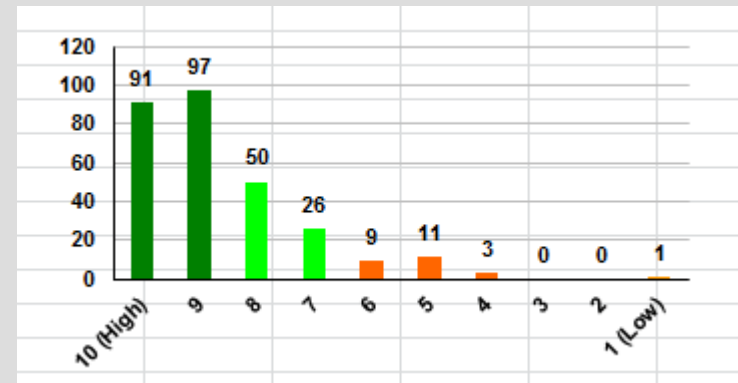


Old method: Average score distribution & yearly average reports

Service Desk

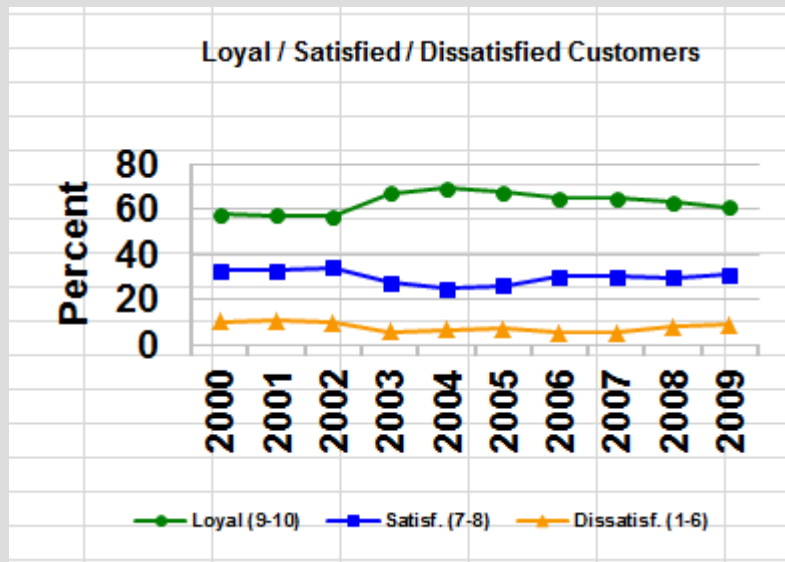


Deskside Support

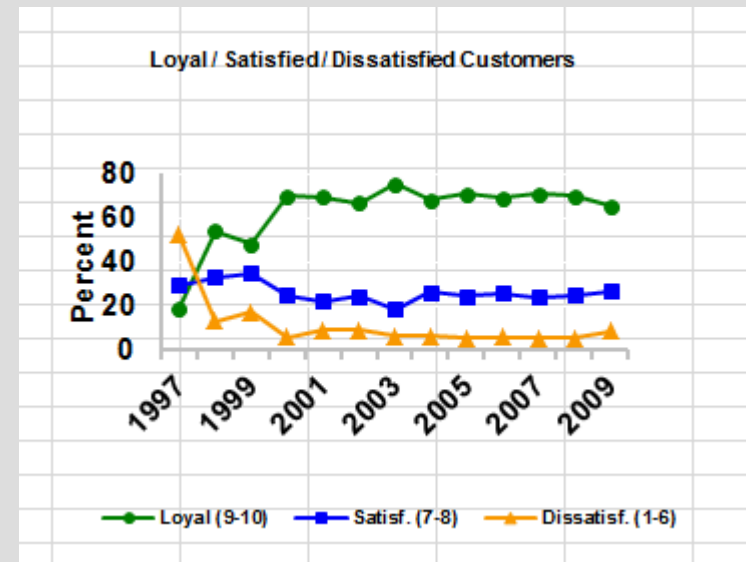


Old method: Loyal/satisfied/dissatisfied customers

Service Desk



Deskside Support



We redesigned the system from the ground up!

- Survey
 - Ask the right questions
 - Separate the topics
 - Use a different scale
- Analysis methods
 - Move beyond averages
- Management reports
 - Different detail levels of CSAT results

The old survey

- Six questions of mixed topics
 - Service delivery
 - Technician qualities
 - Overall experience
- Ten-point satisfaction scale

Computing Support Services (CSS) Customer Satisfaction Survey


Please answer the following questions (if any don't apply, please select N/A)

Thank you for participating in CSS's customer satisfaction survey. You were statistically selected as a CSS customer who received service in the past month. Your answers will help us improve our performance.

	Very Dissatisfied	Neutral	Very Satisfied	
How satisfied were you with the ...	(1)		(10)	
1. Timeliness of your service?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
2. Effectiveness of the provided solution?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
3. Technical competency of the service personnel?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
4. Courtesy and professionalism of the experience?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
5. Level of communication from the support personnel?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
6. Overall experience and outcome of the service provided?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A

Please tell us about any part of your service that worked especially well:

Please tell us what improvements we could make:


Integrated Estimating Services

Send feedback on the ideas, information, design, layout and usability of this page to [Survey Team](#)

The new survey maps business goals to survey questions

Some of our business goals (derived from policy)

We maintain high levels of customer satisfaction

Our solutions are correct and work as intended
Our service & resolutions are timely and meet SLAs

We restore service with minimum disruption to the customer

Technicians are knowledgeable, competent, have good attitudes, and display good customer service skills

We seek customer input for potential areas of improvement or new services

SNL Computing Support Services 30-Second Survey

Please answer the following questions about your experience with us for this ticket.

	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied	
How would you rate your <i>overall satisfaction</i> with the resolution of this ticket?						
Please provide any comments you may have about this experience with us:						
<input type="text"/>						
	Highly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Highly Agree	
Please rate the <i>resolution process</i> for this ticket:						
I received a response to my request in a timely manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
My issue was resolved in a timely manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
The solution resolved my issue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
The solution to my issue was acceptable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
My issue was resolved with minimum disruption to my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
Please rate the <i>support staff</i> who helped you with this ticket:						
The support staff was attentive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
The support staff seemed to understand my needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
The support staff seemed knowledgeable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
The support staff was courteous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
The support staff was professional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
The support staff communicated to me throughout the entire resolution process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> N/A
Please provide any feedback about this experience that will help us improve our service delivery:						
<input type="text"/>						
Please check this box if you would like us to contact you about your feedback. <input type="checkbox"/> Yes						
<small>Send feedback on the design, layout and usability of this page to Survey Team</small>						
<input type="button" value="Submit Survey"/>						

New analysis method

- Use a statistical analysis script designed by statistician
- Incorporates upper and lower targets
- Results include ...
 - Percent of scores that met upper and lower targets
 - Distribution of scores (overall and by question)
 - Trends in positive and negative scores with significance indicators (separated into process & technician trends)
 - Chi-squared tests to compare one month's score against any other month's score

New management reports with various levels of detail

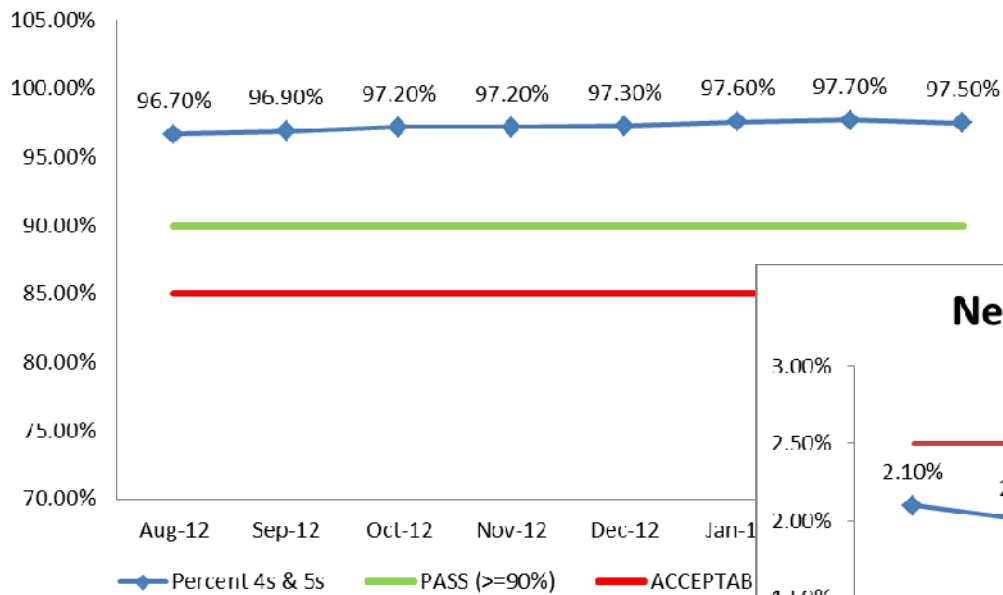
- High-level “index” of customer satisfaction
 - Similar to old reports
- Detailed customer satisfaction reports
 - By ticket queue
 - By technician

And OMG! Big data!

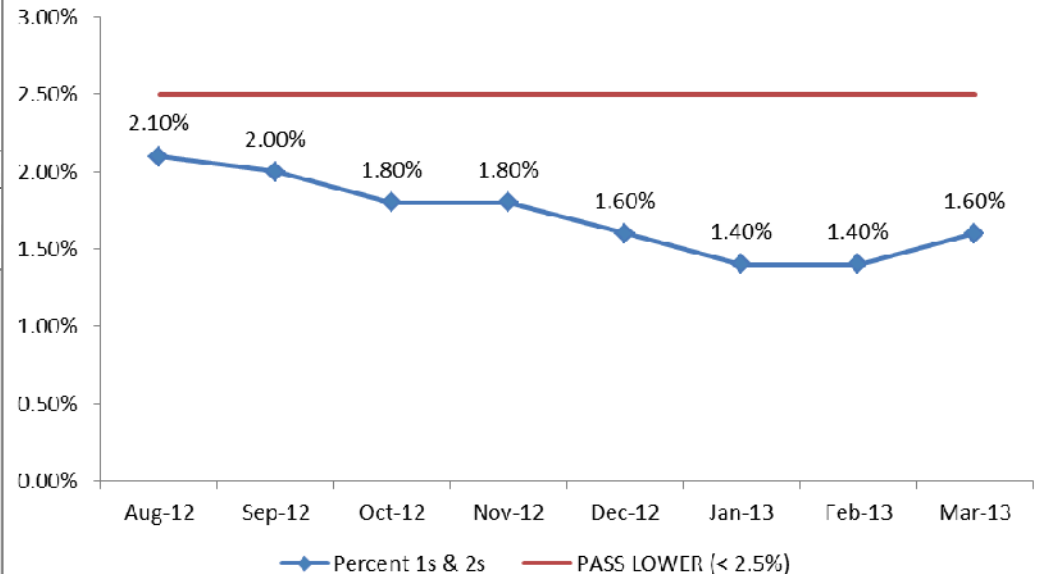
Example
new
results

High-level customer satisfaction “index”

Positive Responses (Percent 4s + 5s)

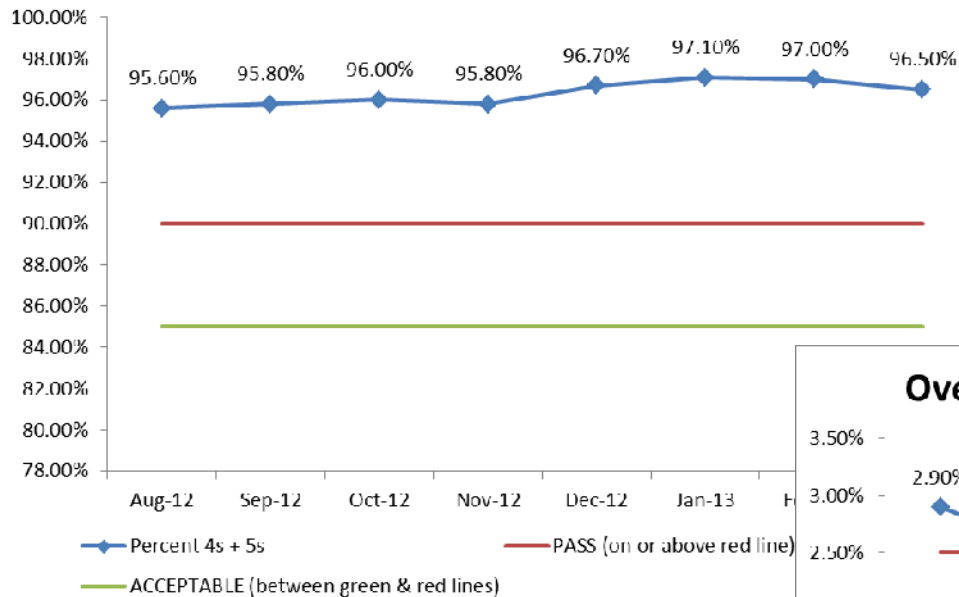


Negative Responses (Percent 1s + 2s)

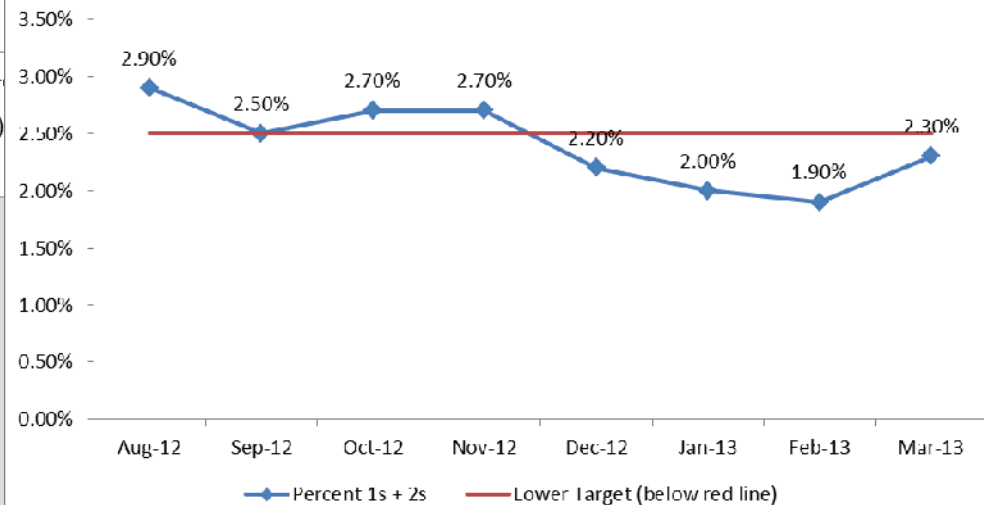


High-level indicator of overall satisfaction with ticket resolution

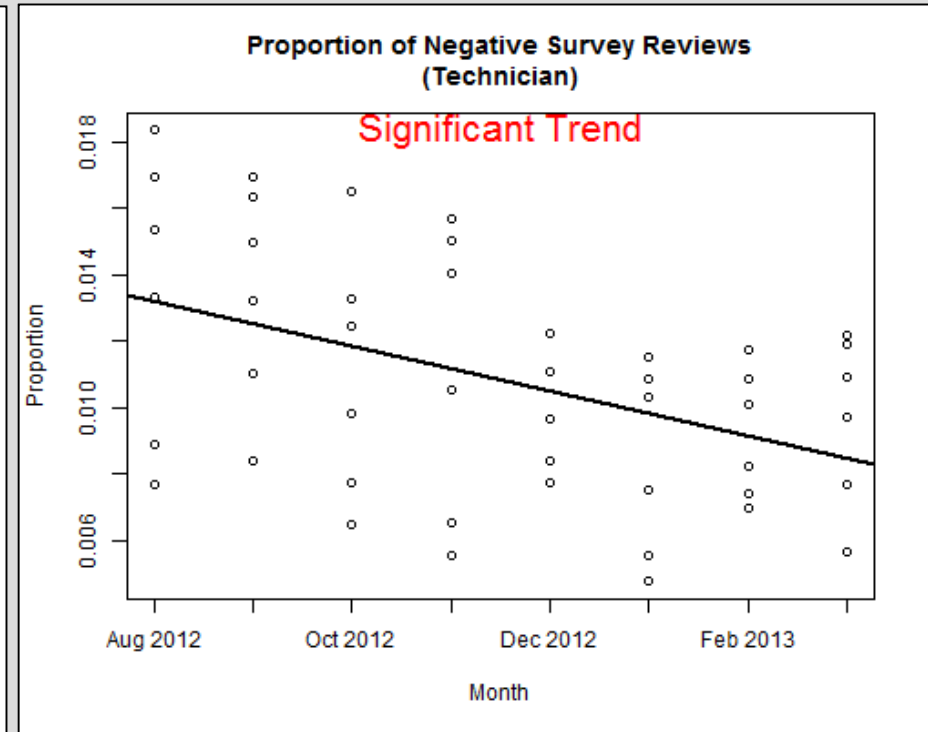
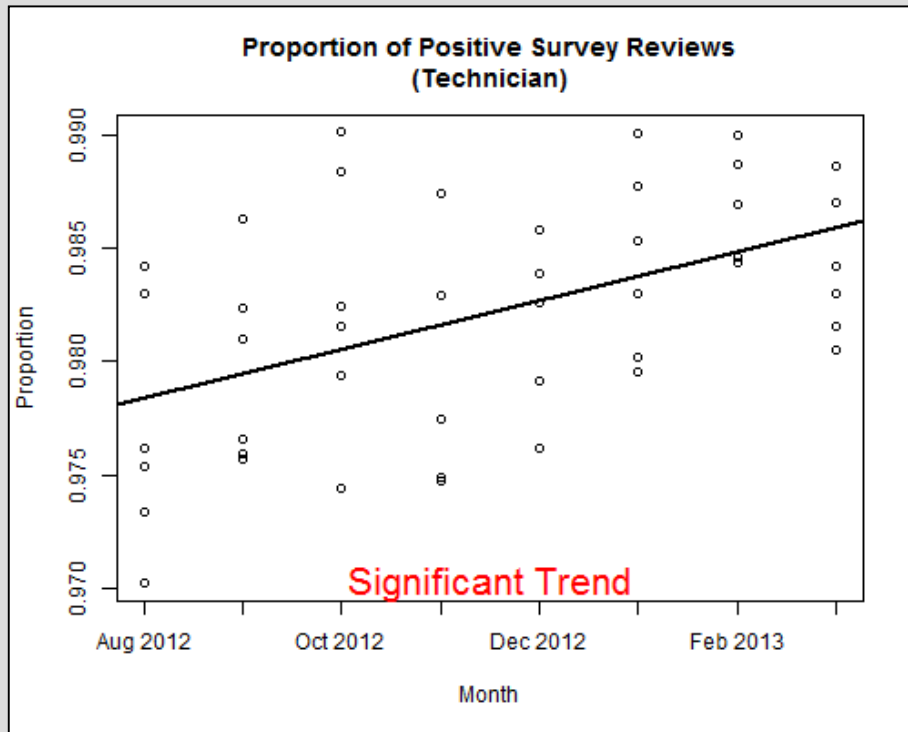
Overall satisfaction with resolution of this ticket



Overall satisfaction with resolution of this ticket



High-level trends for technician questions



High-level breakdown of results by question

<i>Q3: My issue was resolved in a timely manner</i>	Q3	Percent 1s	Percent 2s	Percent 3s	Percent 4s	Percent 5s	Percent 1s + 2s	Percent 4s + 5s	Met Lower Target	Met Upper Target
	Aug-13	1.90%	1.20%	1.90%	5.00%	90.10%	3.10%	95.10%	FAIL	PASS
	Sep-13	1.80%	1.30%	1.70%	4.80%	90.30%	3.20%	95.20%	FAIL	PASS
	Oct-13	2.00%	1.00%	1.90%	4.90%	90.20%	3.00%	95.10%	FAIL	PASS
	Nov-13	2.10%	0.90%	1.50%	5.30%	90.30%	2.90%	95.60%	FAIL	PASS
	Dec-13	1.80%	0.70%	1.70%	3.70%	92.10%	2.50%	95.80%	FAIL	PASS
	13-Jan	1.50%	1.20%	1.20%	4.30%	91.90%	2.70%	96.10%	FAIL	PASS
	Feb-13	1.40%	0.50%	1.70%	3.90%	92.50%	1.90%	96.30%	PASS	PASS
	Mar-13	1.80%	0.80%	1.50%	4.00%	91.90%	2.60%	96.00%	FAIL	PASS

<i>Q8: The support staff seemed to understand my needs</i>	Q8	Percent 1s	Percent 2s	Percent 3s	Percent 4s	Percent 5s	Percent 1s + 2s	Percent 4s + 5s	Met Lower Target	Met Upper Target
	12-Aug	1.10%	0.60%	0.80%	1.90%	95.60%	1.70%	97.50%	PASS	PASS
	Sep-13	1.10%	0.40%	0.80%	2.00%	95.70%	1.50%	97.70%	PASS	PASS
	Oct-13	0.90%	0.40%	0.50%	2.00%	96.20%	1.30%	98.20%	PASS	PASS
	Nov-13	0.90%	0.50%	0.90%	2.00%	95.80%	1.40%	97.70%	PASS	PASS
	Dec-13	0.80%	0.50%	0.50%	1.70%	96.60%	1.20%	98.30%	PASS	PASS
	Jan-13	0.70%	0.30%	0.70%	1.70%	96.60%	1.00%	98.30%	PASS	PASS
	Feb-13	0.90%	0.30%	0.40%	1.30%	97.10%	1.20%	98.40%	PASS	PASS
	Mar-13	0.80%	0.40%	0.50%	1.90%	96.40%	1.20%	98.30%	PASS	PASS

Group results: Overview-level scores

		<i>Score distribution in percentages by question by month</i>						<i>PERCENT NEGATIVE SCORES</i>	<i>PERCENT POSITIVE SCORES</i>	<i>NEGATIVE SCORES TARGET: <= 2.5%</i>	<i>POSITIVE SCORES TARGET: >= 90%</i>
Group	Date	Number of Responses	Percent 1s	Percent 2s	Percent 3s	Percent 4s	Percent 5s	Percent 1s + 2s	Percent 4s + 5s	Met target for negative scores	Met target for positive scores
GROUP-1	Aug-12	1128	1.90%	0.80%	1.60%	2.60%	93.10%	2.70%	95.70%	FAIL	PASS
GROUP-1	Sep-12	1041	1.60%	0.70%	1.00%	3.00%	93.70%	2.30%	96.70%	PASS	PASS
GROUP-1	Oct-12	1053	1.40%	0.60%	1.10%	2.30%	94.60%	2.00%	96.90%	PASS	PASS
GROUP-1	Nov-12	944	1.30%	0.60%	0.90%	3.00%	94.20%	1.90%	97.20%	PASS	PASS
GROUP-1	Dec-12	706	1.20%	0.60%	1.30%	2.40%	94.40%	1.80%	96.90%	PASS	PASS
GROUP-1	Jan-13	1174	0.90%	0.40%	0.90%	1.80%	95.90%	1.30%	97.80%	PASS	PASS
GROUP-1	Feb-13	969	1.10%	0.30%	0.90%	2.10%	95.60%	1.40%	97.70%	PASS	PASS
GROUP-1	Mar-13	1210	1.10%	0.50%	0.80%	2.30%	95.30%	1.60%	97.60%	PASS	PASS
GROUP-2	Aug-12	44	0.20%	2.20%	1.90%	2.40%	93.20%	2.40%	95.60%	PASS	PASS
GROUP-2	Sep-12	43	3.20%	0.20%	0.70%	1.00%	94.90%	3.40%	95.90%	FAIL	PASS
GROUP-2	Oct-12	42	3.00%	0.40%	2.40%	7.70%	86.50%	3.40%	94.20%	FAIL	PASS
GROUP-2	Nov-12	32	0.60%	0.90%	4.30%	7.10%	87.10%	1.50%	94.20%	PASS	PASS
GROUP-2	Dec-12	40	1.30%	1.30%	1.50%	3.30%	92.70%	2.50%	96.00%	FAIL	PASS
GROUP-2	Jan-13	37	2.50%	1.00%	1.20%	7.20%	88.10%	3.50%	95.30%	FAIL	PASS
GROUP-2	Feb-13	40	0.20%	0.20%	1.20%	5.20%	93.20%	0.50%	98.40%	PASS	PASS
GROUP-2	Mar-13	47	0.60%	1.50%	0.40%	2.30%	95.20%	2.10%	97.50%	PASS	PASS

Group 1 chi-squared test

	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13
Aug-12	1	0.678	0.637	0.3	0.132	0.002	0.039	0.009
Sep-12	0.678	1	0.896	0.732	0.127	0.001	0.036	0.012
Oct-12	0.637	0.896	1	0.88	0.389	0.015	0.096	0.049
Nov-12	0.3	0.732	0.88	1	0.465	0.018	0.093	0.196
Dec-12	0.132	0.127	0.389	0.465	1	0.804	0.706	0.833
Jan-13	0.002	0.001	0.015	0.018	0.804	1	0.744	0.364
Feb-13	0.039	0.036	0.096	0.093	0.706	0.744	1	0.404
Mar-13	0.009	0.012	0.049	0.196	0.833	0.364	0.404	1

- Scores of 0.05 or lower between months indicate a statistically “real” difference between the two months’ scores
 - NOT a trend indicator; just a check on score variation
- The red text says that Group 1’s overall scores were statistically different when comparing these particular months

Tech results: Overview-level scores

		Score distribution in percentages by question by month						PERCENT NEGATIVE SCORES	PERCENT POSITIVE SCORES	NEGATIVE SCORES TARGET <= 2.5%	POSITIVE SCORES TARGET >= 90%
Tech	Date	Number of Responses	Percent 1s	Percent 2s	Percent 3s	Percent 4s	Percent 5s	Percent 1s + 2s	Percent 4s + 5s	Met target for negative scores	Met target for positive scores
TECH-1	Aug-12	67	2.80%	1.20%	1.10%	2.40%	92.50%	4.00%	94.90%	FAIL	PASS
TECH-1	Sep-12	83	0.60%	0.50%	0.70%	3.00%	95.20%	1.10%	98.20%	PASS	PASS
TECH-1	Oct-12	48	3.50%	0.20%	1.10%	4.20%	91.00%	3.70%	95.20%	FAIL	PASS
TECH-1	Nov-12	43	0.00%	0.00%	0.00%	1.40%	98.60%	0.00%	100.00%	PASS	PASS
TECH-1	Dec-12	37	0.00%	0.00%	1.40%	1.60%	97.00%	0.00%	98.60%	PASS	PASS
TECH-1	Jan-13	68	0.00%	0.00%	1.90%	0.50%	97.60%	0.00%	98.10%	PASS	PASS
TECH-1	Feb-13	72	1.90%	0.50%	1.60%	1.70%	94.30%	2.40%	96.00%	PASS	PASS
TECH-1	Mar-13	72	0.60%	0.00%	0.70%	1.60%	97.10%	0.60%	98.70%	PASS	PASS
TECH-2	Aug-12	10	0.00%	0.00%	0.00%	0.80%	99.20%	0.00%	100.00%	PASS	PASS
TECH-2	Sep-12	24	3.60%	1.80%	0.70%	3.60%	90.30%	5.40%	93.90%	FAIL	PASS
TECH-2	Oct-12	24	0.00%	0.00%	3.90%	3.90%	92.10%	0.00%	96.10%	PASS	PASS
TECH-2	Nov-12	19	5.30%	0.40%	1.30%	7.00%	85.90%	5.70%	93.00%	FAIL	PASS
TECH-2	Dec-12	7	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	PASS	PASS
TECH-2	Jan-13	5	0.00%	0.00%	0.00%	10.00%	90.00%	0.00%	100.00%	PASS	PASS
TECH-2	Feb-13	8	1.60%	0.00%	0.00%	1.60%	96.80%	1.60%	98.40%	PASS	PASS
TECH-2	Mar-13	8	2.10%	0.00%	0.00%	9.40%	88.50%	2.10%	97.90%	PASS	PASS

What we have learned and are still learning

- We believe we are asking the right questions
 - Asking about things important to us internally
 - Asking about things customers care about
- We are still using averages (sort of), but we are also using frequency data and statistical trends for a much richer view of customer satisfaction
- Customer satisfaction “index” is still very high
 - But we have MUCH greater confidence that in general, customers are happy with us
- Interesting information is emerging in the *detailed* reports

What we have learned and are still learning, cont'd.

- We are still struggling to understand implications of the results
 - How can we move from information to knowledge and wisdom?
 - Find areas of strength and weakness
 - Identify targets for improvement
- We must challenge our tendency to react to score variations instead of real trends
 - Trends emerge **OVER TIME**
 - Emerging trends don't necessarily require immediate action

**Questions or
comments?**