



# TBR

TECHNOLOGY BUSINESS RESEARCH, INC.

## Notebooks: Corporate IT Buying Behavior & Customer Satisfaction Study

### Fourth Calendar Quarter 2009

CORPORATE NOTEBOOK VENDOR	4Q09 TBR RANK	4Q09 WSI SCORE	4Q09 Strength/Weakness Points
Lenovo	1	80.4	+5
Dell	2	79.4	-1
HP	2	78.4	-1
Publish Date: March 3, 2010			
Author: Julie Perron			

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# Executive Summary

## TBR began its shift from telephone to online data collection in 2Q09

During the second calendar quarter of 2009, TBR shifted its methodology from collecting data via telephone-based interviews to an online data collection model. While standard survey processes remained intact (qualifications and screener, basic survey design), we notified clients that we observed differences in the way respondents reacted to scaling questions. Notably, online respondents were less likely to use the extremes of the scales; therefore, many of the mean scores declined in the online model. In presenting the study results since the methodology shift, TBR has focused on the levels of decline and the observed differences across the three competitor groups (Dell, HP and Lenovo).



http://survey.euro.confirmat.com/wix5/p344569729.aspx - Microsoft Internet Explorer

Address http://survey.euro.confirmat.com/wix5/p344569729.aspx

0% 25% 50% 75% 100%

**S2Q2**

How important is it to you that your primary vendor for notebook PCs fully meets your expectations across each of these areas?

	Importance of Attribute				
	Not at all	Not Very Important	Somewhat important	Important	Very Important/Critical
Overall Hardware Quality/Reliability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Product Design/Features	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Overall Value	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery Time/Product Availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Replacement Parts Availability	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Phone Support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Repair Time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Ease of Doing Business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

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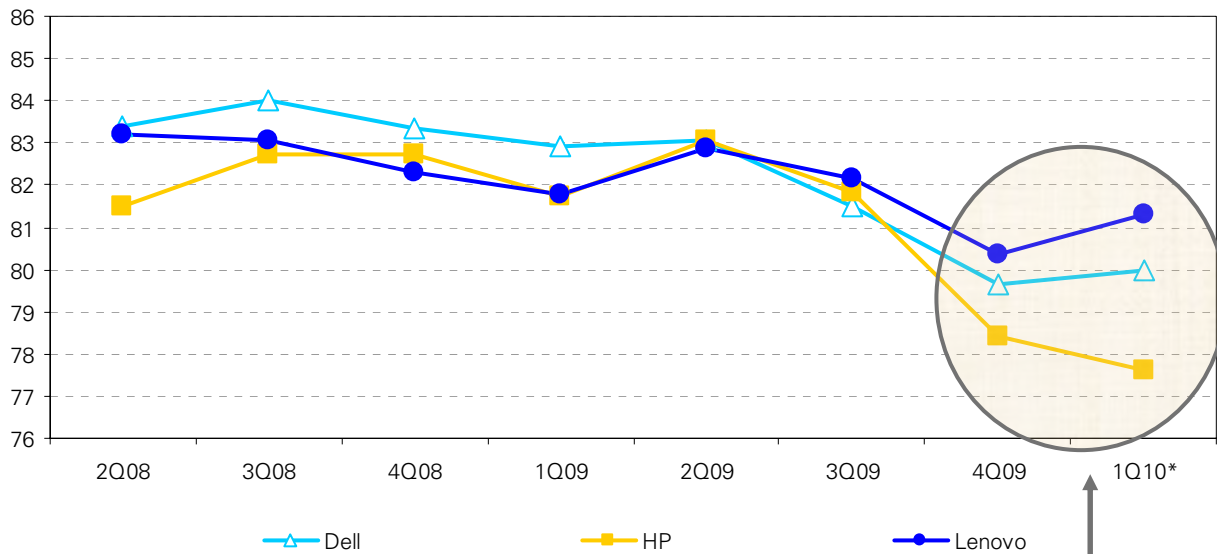
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In viewing the results of the scaling questions, we looked for exceptions to a trend (e.g., one competitor's score declining by a smaller magnitude than the others, where TBR reported that the competitor with the more gently declining rating had actually improved its competitive status). In other words, we looked at the magnitude of decline for scores and reported only on those that declined greater than could be explained by the methodology shift. For the purposes of this study, that magnitude was set at a 4% or greater change in score from one period to the next.

## 4Q09 report begins to set new baseline for TBR's online methodology

Since TBR uses six-month moving averages for its reporting periods, the 3Q09 study represented the first iteration of strictly online data collection. Due to differences in the use of the scaling questions for the online panel, the 3Q09 study results exhibited modestly declining ratings, yet the full effects were not revealed until the current 4Q09 period, when TBR observed significantly declining ratings. This must be viewed within the context of the shift in methodology.

TBR **CORPORATE NOTEBOOK WEIGHTED SATISFACTION INDICES, EXTENDED TO PRELIMINARY 1Q10\***



WSI Scores are stabilizing

TBR expects that we will soon move past the time periods that require us to look at differences in degree in order to accurately interpret the study results. Looking to the 1Q10 reporting period, ratings appear to have largely stabilized, and in some cases are beginning to improve (see Slides 11 through 13 for visuals). The upcoming reporting period (1Q10) will likely represent the new baseline for this study.

SOURCE: TBR.

## Table of Vital Statistics for the 4Q09 Corporate Notebook Satisfaction Competition

	Lenovo	Dell	HP
4Q09 Ranking	1	2	2
Rank Change vs. 3Q09	0	0	0
Weighted Satisfaction Index (WSI)	80.4	79.4	78.4
WSI Change vs. 3Q09	-2.1%	-2.3%	-4.2%
Overall Satisfaction (7-pt. scale)	5.7	5.7	5.7
Customer Loyalty (5-pt. scale)	4.1	4.4	4.2
Rationale for Ranking Position Determinations	WSI reasonably higher than competition and three competitive strengths	Distance of WSI from that of Lenovo and one competitive warning	Distance of WSI from that of Lenovo and one competitive warning
Competitive Strengths	Hardware Quality/Reliability (Full, continuing); Repair Time (Full, new); Phone Support (Marginal, new)	None	None
Competitive Weaknesses or Warnings	None	Phone Support (Warning, new)	Overall Value (Warning, new)
Significant Movement (shifts of significance set at 4% or greater)	No positions declined at levels reaching 4% minimum to be considered significant; notebook value satisfaction declined by 3.8% yet this was part of an industry-wide concern affecting all three OEMs	Phone support declined by 4%; overall value by 3.7% the latter of which was part of industry-wide declining satisfaction	Notebook value, product design, repair time and phone support all declined by 4% or more
Relative Significant Movement (where magnitudes of change were outside of industry averages)	None – all positions were more durable to declining trends observed among the competition	Phone support declined by a greater magnitude than competitors' average	Delivery time, repair time, parts availability, value, reliability and product design declined by greater magnitudes than competitors' averages
Relative Significant Movement (where magnitudes of change were below industry averages)	Phone support, repair time and overall satisfaction comparatively stable against declining competitors' positions	Ease of doing business and product design comparatively stable against competitors' positions; delivery time stable against HP's declining position	No examples

## Table of Vital Statistics for the 4Q09 Corporate Notebook Satisfaction Competition

	Lenovo	Dell	HP
<b>Future Outlook (WSI 3Q09 to Projected 4Q09)</b>	+1.2%	+0.4%	-1%
<b>Future Success Opportunities (based on data)</b>	Hardware reliability strength secure; phone support may be upgraded from marginal to full competitive strength; potential new (and first-time) strength for notebook value; customer loyalty improving	Ease of doing business satisfaction strengthening further – potential competitive strength if strong opinion consensus; repair time satisfaction improving and approaching that of Lenovo	Customer loyalty improving and approaching that of Dell
<b>Potential Challenges</b>	Dell repair time satisfaction improving and approaching that of Lenovo – could affect Lenovo's current competitive strength status	Value rating falling substantially behind Lenovo; phone support remaining well below Lenovo yet HP's declining rating on parity with Dell – could negate Dell's warning	Value rating remaining at substantial distance from industry average; repair time dropping well below industry average and could lead to warning
<b>Summary Statement</b>	In addition to maintaining control over the single most critical competitive strength – hardware reliability – Lenovo went on to reclaim past competitive advantages for technical support in 4Q09. Unlike its weakening competitors, Lenovo's performances generally held up throughout 2009. Its biggest challenges are maintaining this momentum, building stronger relationships (ease of doing business, loyalty), and addressing industrywide concerns regarding value propositions.	Dell's satisfaction positions weakened considerably during the second half of 2009, particularly those relating to support and services, with notebook value being the most recent among weakening positions. However, Dell's scores appear to be stabilizing (based on 4Q09 results) and, in some cases, rebounding. TBR sees the perception of value as Dell's biggest challenge going forward, as this is the only metric not yet recovering, while Lenovo is poised to grab a potential competitive strength win for this category.	HP's scores have been hit the hardest in the 4Q09 reporting period. While some positions appear to be stabilizing based on the results of the most recent calendar quarter, HP is not recovering as quickly as Dell. In many cases, TBR has observed three successive calendar quarters of declining ratings for HP; this downward momentum is driven by three specific challenges – notebook value, ease of doing business and repair time.
<b>Bottom Line</b>	The 4Q09 competition was defined by continued strengthening of Lenovo's satisfaction positions, where scores have exhibited general resistance to the downward trends most significantly affecting the performances of Dell and HP throughout 2009 and, in particular, during the last six months of 2009. Lenovo has successfully recaptured much of what defined its leadership status during 2008 – customer delight with respect to hardware quality/reliability and technical support services. TBR has observed that fourth calendar quarter results can often exert negative pressures on the OEMs, where spending is reduced, product refreshes are rare and customers may tend to forget their enthusiasm of earlier parts of the year. This year, the phenomenon was exacerbated by the great economic recession. It is plausible that Lenovo held up better than others under this pressure due to its longstanding iconic reputation for ThinkPad quality and associated services. The reason that this does not necessarily translate into strong customer loyalty (an area where Lenovo lags the competition) is unclear, but it may be associated with the likelihood that customers are not thinking about switching OEMs at a time of reduced spending. As spending budgets open up in 2010, the competitive field in this study may yet be redefined.		

# Greater resistance to downward trends strengthens Lenovo's leadership position

## Lenovo's WSI declines by 2.1% in 4Q09

- Unlike competitors, none of Lenovo's mean satisfaction scores declined by magnitudes outside the margin of error.
- Lenovo's notebook value rating declined by the greatest volume, yet this was clearly part of an industrywide concern.

## Dell's WSI recedes by 2.3%

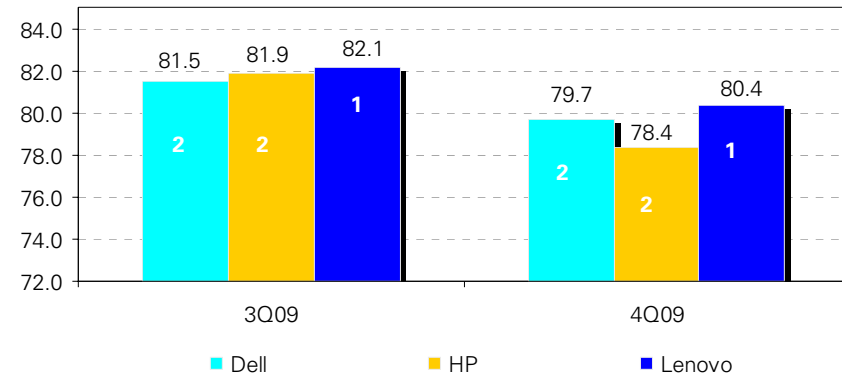
- Dell's phone support satisfaction rating declined significantly, followed by overall value.
- Areas where Dell's positions were comparatively stable against competitors included delivery time, ease of doing business, and product design.

## HP's performances weakening, down 4.2%

- Significantly declining satisfaction positions included, in order of magnitude, notebook value, product design, repair time, and overall satisfaction.
- Some additional areas where HP's scores declined by greater levels than the competition included delivery time, parts availability, and hardware quality.



4Q09 vs. 3Q09 CORPORATE NOTEBOOK WEIGHTED SATISFACTION RATINGS & RANKINGS




SOURCE: TBR.

## 2009 Trends:

- *Lenovo's performances have been less susceptible to the weakening trends we have been observing; its WSI between 1Q09 and 4Q09 declined by 1.7%.*
- *WSI positions for Dell and HP, from start to finish in 2009, declined by significantly greater magnitudes than that of Lenovo – both receding by 4%.*

## Competitive Strength and Weakness roster expands to further benefit Lenovo

Determinations are based on two-pronged results: statistical significance tests (three tests) and GAP analyses (two tests)

TBR  Notebook PC Vendor Strengths and Weaknesses Summary			
	DELL	HP	LENOVO
Overall Hardware Quality/Reliability	○	○	●
Product Design/Features	○	○	○
Delivery Time/Product Availability	○	○	○
Replacement Parts Availability	○	○	○
Phone Support	⌚ NEW	○	● * NEW
Time to Repair	○	○	● NEW
Overall Value	○	⌚ NEW	○
Ease of Doing Business	○	○	○
Numeric Value	-1	-1	5
Weighted Satisfaction Index	79.4	78.4	80.4
Rank	2	3	1

Key: ○ Weakness; ● Strength; ○ Neutral. ⌚ Warning area for weakness, but insufficient data to substantiate at this time. \* The determination was marginal.  
SOURCE: TBR.

- **Lenovo** retained its hardware quality/reliability competitive strength from the previous reporting period, while adding two new ones for both areas of technical support.
- **Dell** was cited with one competitive warning (for phone support) due to a sizeable drop in its satisfaction rating, placing it at a significant distance from the industry average.
- **HP** gained a new competitive warning for overall value, due to a substantial decline in its rating and its subsequent placement significantly below the industry average.

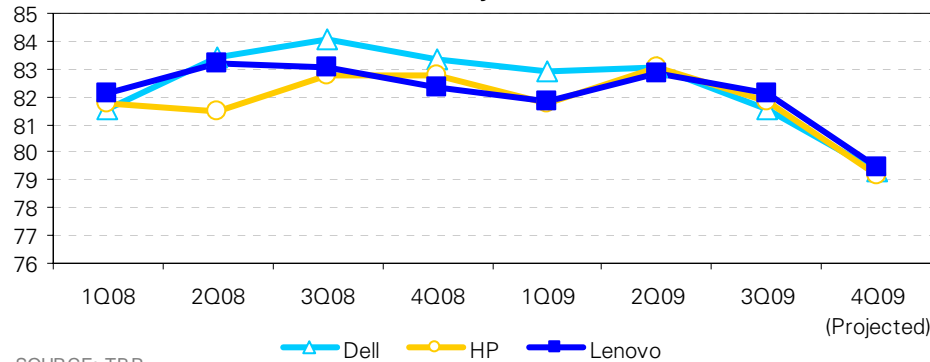
Yellow-shaded boxes represent areas where positions have declined; e.g., competitive strength downgraded to neutral, neutral downgraded to warning, etc.

Blue-shaded boxes represent areas where positions have improved; e.g., removal of a warning, transition from weakness to warning, emergence of a new strength, etc.

## TBR's prediction for the 4Q09 results called for further weakening; however, actual developments show varying levels of decline

TBR

**CORPORATE NOTEBOOK WSI RATINGS**  
1Q08 to Projected 4Q09



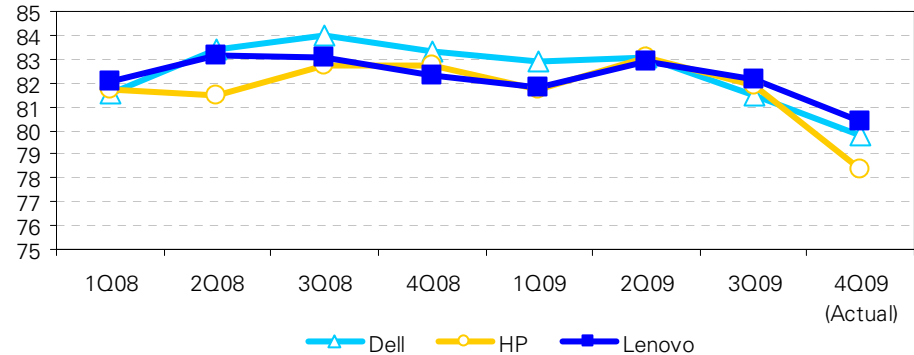
SOURCE: TBR.

In 3Q09, Lenovo barely eked out a singular No. 1 ranking over competitors; the determination was driven by Lenovo's clear competitive advantage for hardware reliability, the most weighty category in the WSI calculation. In examining the results of the third calendar quarter 2009, TBR observed substantial weakening of all three OEM's scores, yet it appeared the magnitudes of the declining ratings would be similar.

What actually occurred in 4Q09 was a decline of significantly greater magnitude for HP's WSI, followed by that of Dell, with Lenovo's position declining least. This was based on the complete 4Q09 reporting period, with interviews extending from July through to the end of December 2009. Fourth quarter interviews tend to be more negative than average in these studies, due to a lack of new business offerings in the quarter and, in this case, reduced spending due to the recession. However, it appears HP took a greater hit than its competitors during the fourth quarter.

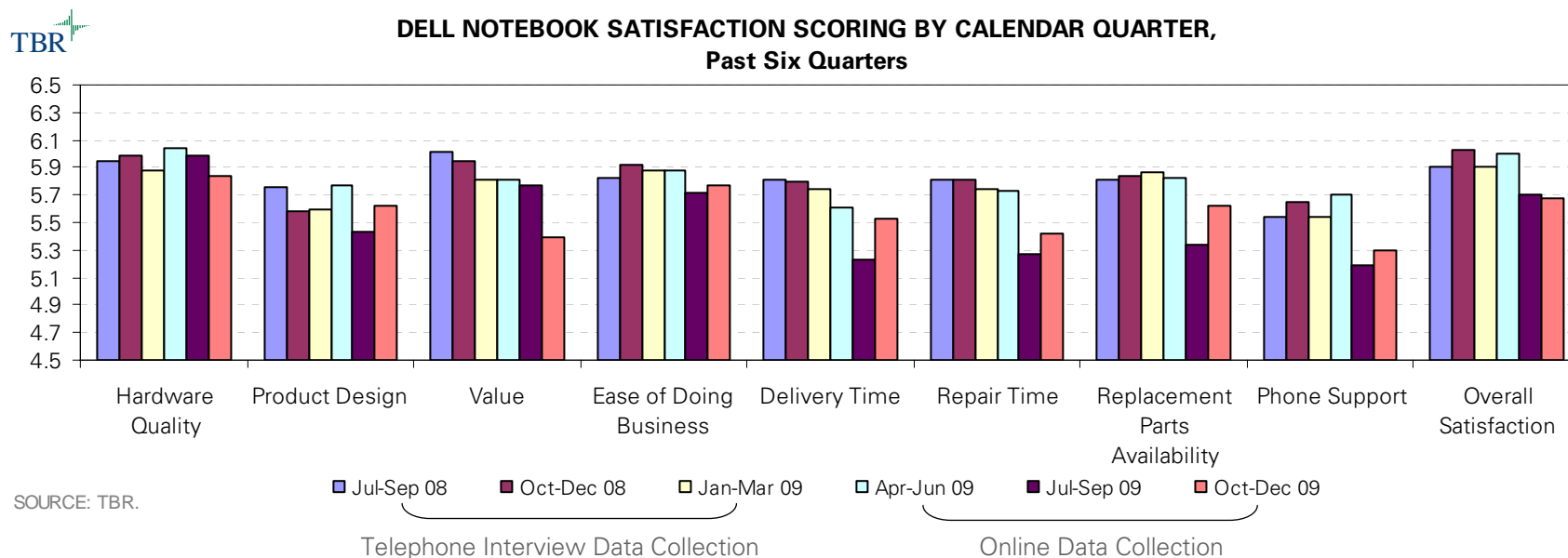
TBR

**CORPORATE NOTEBOOK WSI RATINGS**  
1Q08 to Actual 4Q09



SOURCE: TBR.

## Dell's most current satisfaction positions begin to stabilize or improve, with the noteworthy exception of overall notebook value



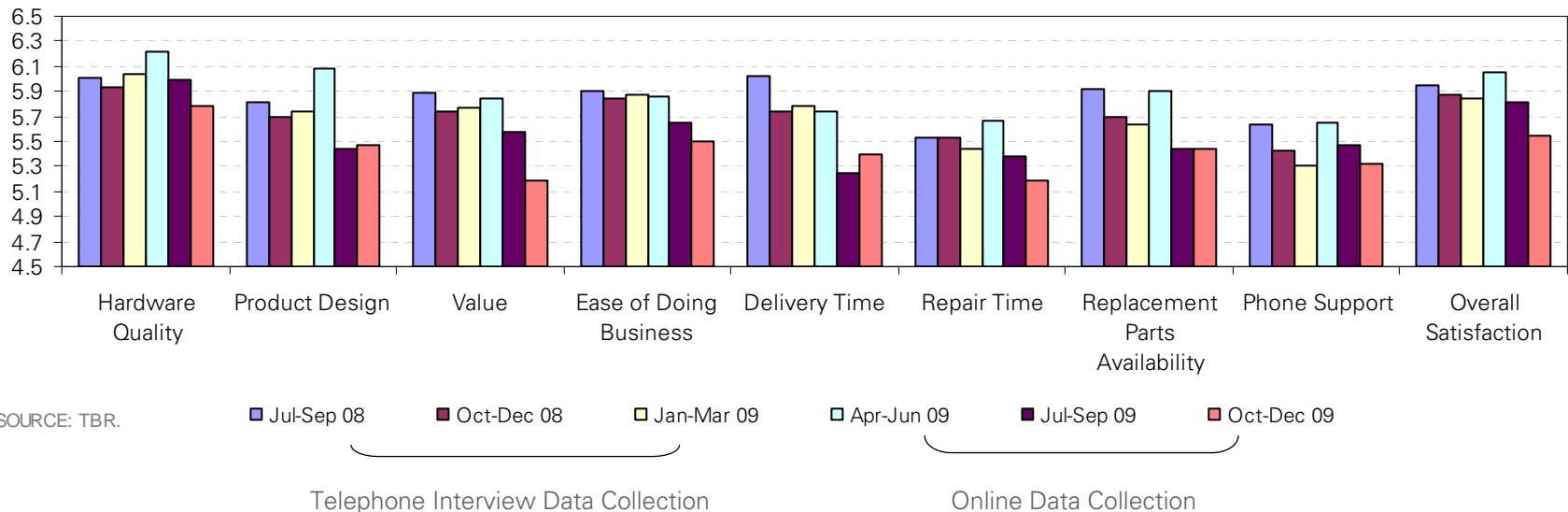
In many cases, customer satisfaction ratings during the online data collection period (2Q09 through 4Q09) were lower than those of the telephone interview period (3Q08 through 1Q09). From here on, TBR expects the trendlines to settle into a reasonable pattern, including a return to smaller proportional shifts within the mean satisfaction scores from reporting period to reporting period. For Dell, this means we will not see further declines unless they are a function of actual customer sentiment.

For Dell, the first quarter of online data collection, interestingly, resulted in scores that were relatively in line with those of the previous three quarters (based on telephone interviews). It was in 3Q09 that Dell's scores tended to drop across some areas. Note the general consistency of Dell's hardware quality and ease of doing business ratings throughout this entire timeline. During 4Q09, Dell's scores appear to be either stabilizing or improving, particularly across the services areas. The singular exception is value, where an industrywide trend appears to be developing regarding general dissatisfaction with notebook value, likely a function of both the economic recession and a real need for improved value propositions from the OEMs.

## Several of HP's positions are stabilizing during the fourth quarter, yet notebook value perceptions resist the trend

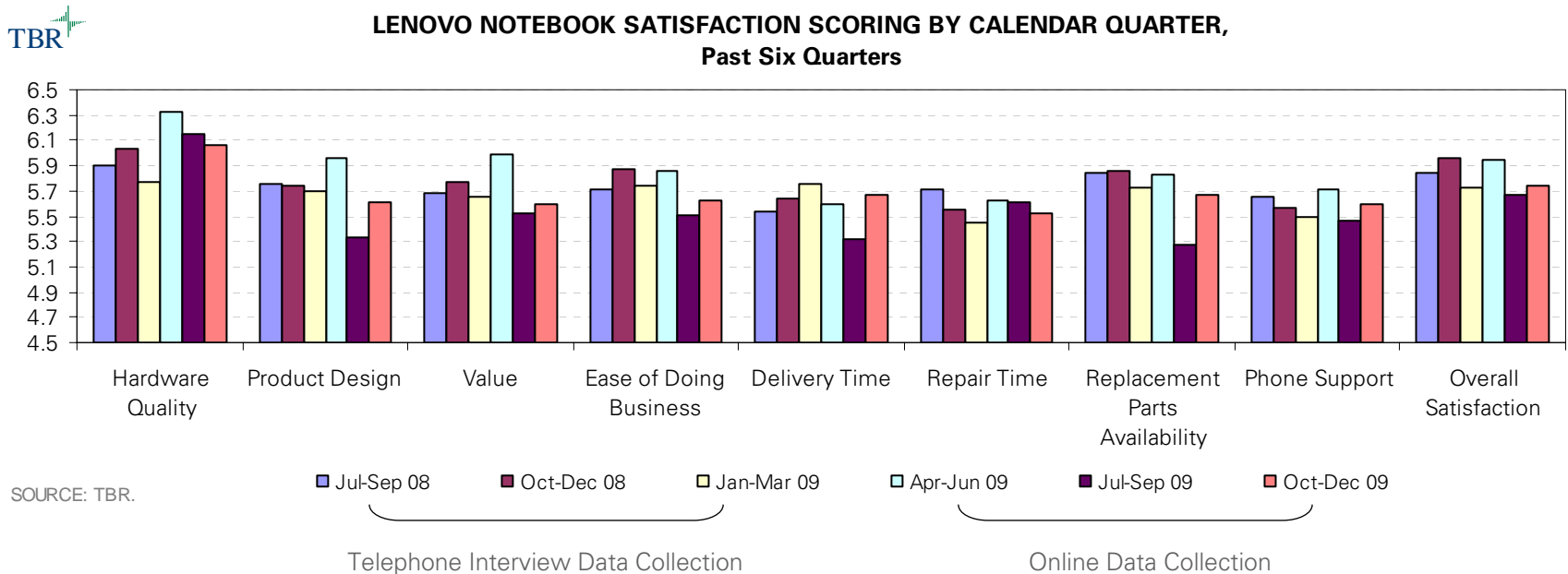


HP NOTEBOOK SATISFACTION SCORING BY CALENDAR QUARTER,  
Past Six Quarters



During the first four quarters of the timeline, many of HP's scores were fairly stable, several of which (hardware quality and design, repair time) peaked during 2Q09, TBR's first installment of the online data collection model. However, during the last two calendar quarters, its positions collectively declined, and by a significant magnitude. In comparing the results for the past two calendar quarters, it appears HP's ratings are stabilizing, or that the rates of decline are losing momentum. There is one particular exception, and a finding consistent with the challenge faced by all three OEMs – the perception of notebook value. Here, HP's 4Q09 rating dipped more substantially than in the past, a development that forced TBR to cite HP with a competitive warning. While Dell and Lenovo also face challenges relative to pricing and value propositions, HP was most adversely affected, as evidenced by the substantially greater level of decline during the past six quarters.

## Lenovo's mean satisfaction positions generally improve during the most recent calendar quarter, with many positions returning to previous high points



During the first four quarters of the timeline above, Lenovo's rating positions either remained relatively stable or peaked during the last quarter, 2Q09 – the first quarter of online data collection. In most cases, and consistent with the competition, Lenovo's scores did drop during 3Q09, yet there were two noteworthy exceptions. Both areas of technical support (phone support and repair time) have generally exhibited scores that fall within a very narrow range of the scale, including 3Q09, the period when most scores tended to weaken in this study. In the most recent calendar quarter, Lenovo's performances are clearly strengthening in a manner not approached by the competition. This includes the overall value metric, where Lenovo's score remained stable while competitors' ratings continued to decline, and at substantial magnitudes.

## Competitive Strength and Weakness determinations maintain Lenovo's singular No. 1 ranking

Competitive Strength/Weakness Analysis by Weight								
LENOVO			DELL			HP		
CUSTOMER PRIORITIES	WEIGHT*	FINDING	CUSTOMER PRIORITIES	WEIGHT*	FINDING	CUSTOMER PRIORITIES	WEIGHT*	FINDING
Hardware Quality/Reliability	4.25	■	Hardware Quality/Reliability	4.41		Hardware Quality/Reliability	4.11	
Replacement Parts Availability	3.95		Replacement Parts Availability	4.05		Replacement Parts Availability	3.91	
Ease of Doing Business	3.94		Overall Value	4.04		Time to Repair	3.88	
Overall Value	3.87		Ease of Doing Business	3.93		Ease of Doing Business	3.87	
Time to Repair	3.85	■	Time to Repair	3.86		Overall Value	3.77	■
Phone Support	3.78	■	Product Design	3.83		Product Design	3.75	
Product Design	3.75		Delivery/Availability	3.71		Phone Support	3.72	
Delivery/Availability	3.73		Phone Support	3.70	■	Delivery/Availability	3.68	
LENOVO RANKING #1		WSI: 80.4	DELL RANKING #2		WSI: 79.4	HP RANKING #2		WSI: 78.4

■ Full Competitive Strength  
■ Marginal Competitive Strength  
■ Competitive Warning  
■ Full Competitive Weakness

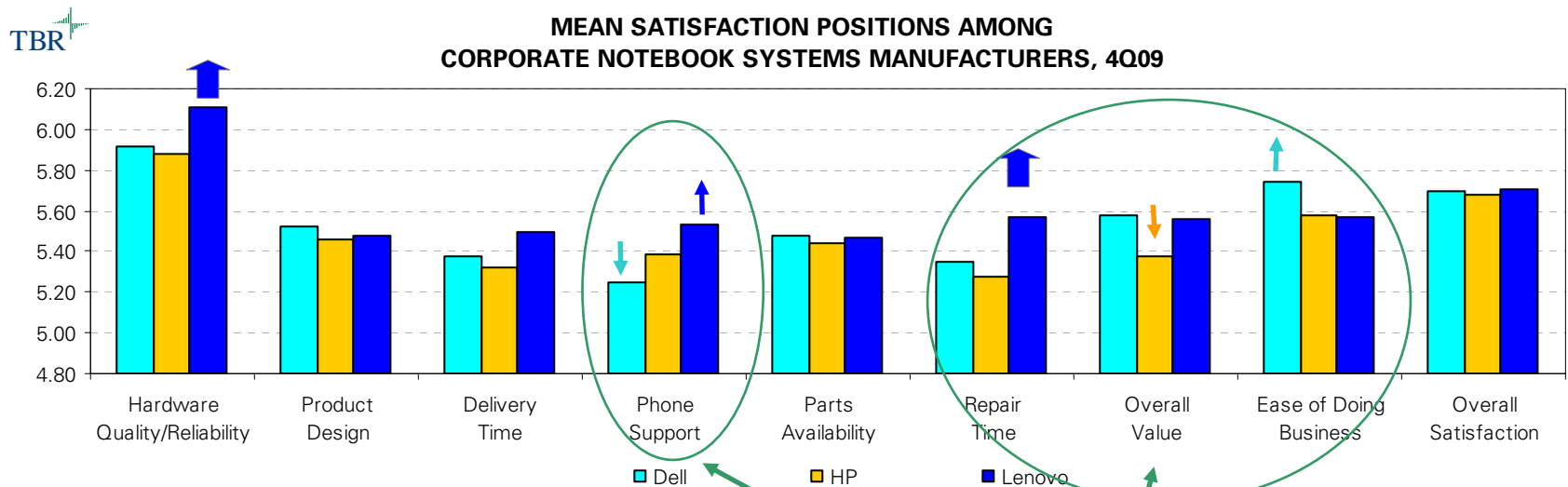
\*Mean importance rating.

SOURCE: TBR.

Lenovo's WSI position was comfortably higher than those of the competition. TBR's decision to rank the vendor alone at the top was based on Lenovo's stellar hardware quality/reliability rating. Lenovo earned a mean satisfaction rating of 6.1, against the competition's 5.9 ratings. This was determined as significantly higher than average at a high level of confidence. Study participants displayed a strong consensus of opinion regarding Lenovo notebook reliability, whereas perceptions of HP and Dell customers were more divided. Lenovo's leadership position was enhanced in 4Q09, with the addition of two competitive strengths – a full one for repair time and a marginal win for phone support. Note these two metrics were further down the list of priorities for Lenovo customers; it was the critical hardware reliability strength that ultimately held Lenovo in check at the No. 1 ranking position.

Dell and HP, at the shared No. 2 ranking position, each presented with a single competitive warning. In both cases, these warnings occurred within categories at least halfway down the list of priorities and, in the case of Dell, within the least important category.

## 4Q09 findings expand the list of performance differentiators from one to five



SOURCE: TBR.

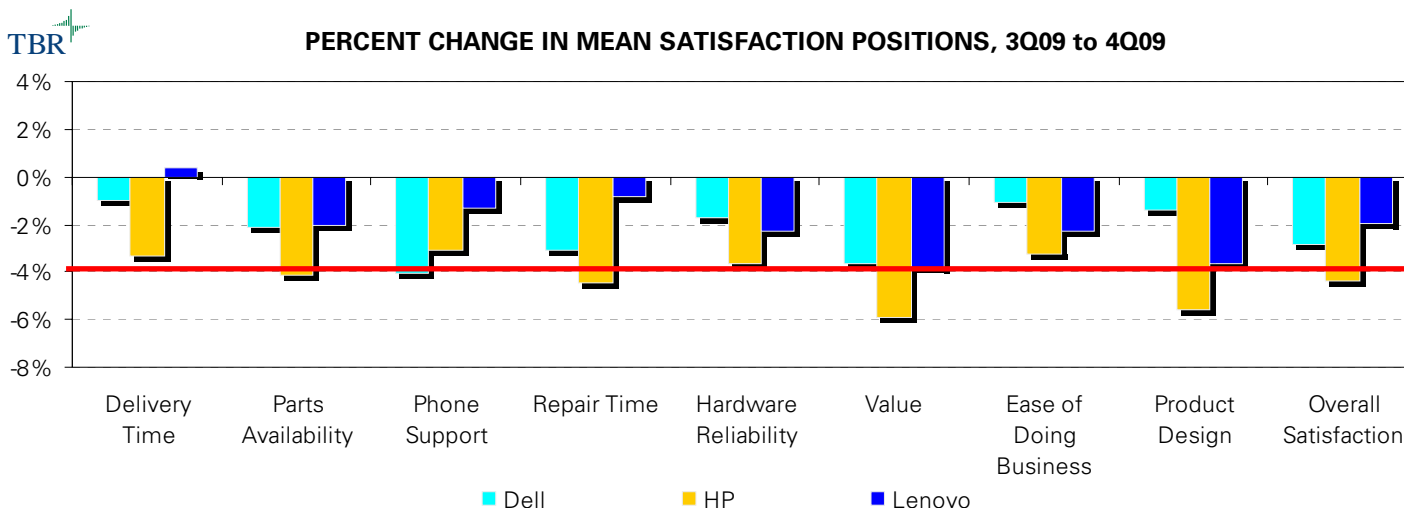
Arrows designate significantly different performances against industry averages for each of the categories.

Those areas marked with large arrows exhibited statistically significant differences at a minimum 95% confidence level; smaller arrows designate significant differences at the 90% confidence level.

### NEW PERFORMANCE DIFFERENTIATORS

- Phone support & repair time – favoring Lenovo
- Phone support – Dell underperforming
- Overall value – HP underperforming
- Ease of doing business – Dell favored but no competitive strength issued due to somewhat divided opinions

# In 4Q09, broadly declining satisfaction positions are the rule – TBR looks for degrees of decline as a means of determining competitive positioning



*Proportional shifts of 4% or greater are considered significant changes.*

SOURCE: TBR.

### Shifts of magnitudes greater than that explained by TBR’s methodology shift

Notebook Value: Affecting all three OEMs

Product Design: Affecting HP and Lenovo

Phone Support: Primarily affecting Dell

Parts Availability, Repair Time, Hardware Reliability, Overall Satisfaction – Primarily affecting HP

### Shifts inordinately affecting specific competitors versus industry averages

Dell: Phone Support declining more significantly than industry averages; Delivery Time, Ease of Doing Business, Product Design more stable than industry averages

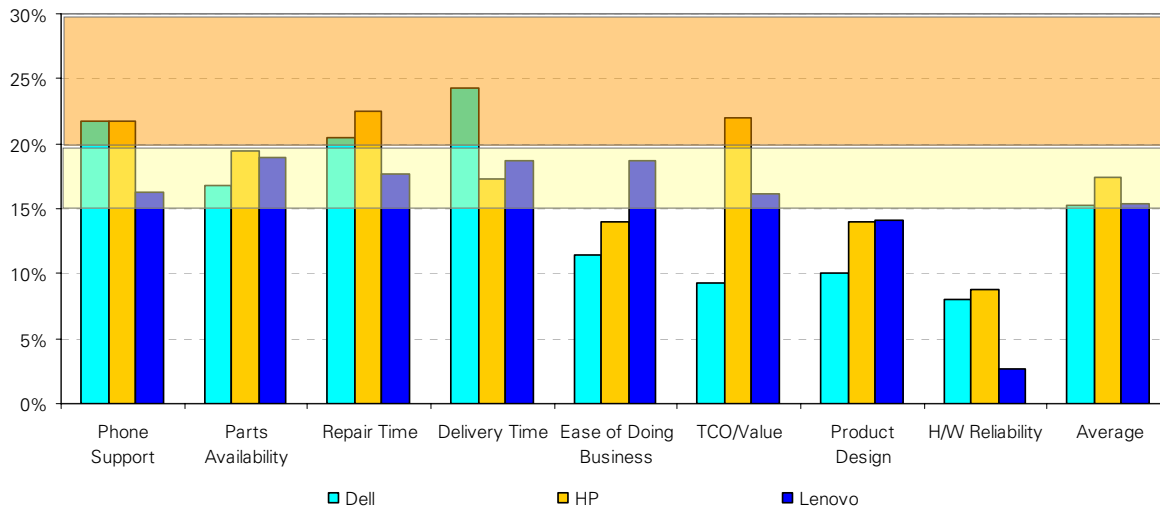
HP: Delivery Time, Parts Availability, Repair Time, Hardware Reliability, Notebook Value, Product Design, Overall Satisfaction – all declining more significantly than industry averages

Lenovo: Delivery Time, Phone Support, Repair Time more stable than industry averages

## Corporate notebook customers tend to be least satisfied with technical support and lead times

TBR

**ANALYSIS OF DISSATISFACTION - NOTEBOOK SERVICES AND PRODUCT QUALITY**  
(% rating less than 5 on 7-pt. satisfaction scale)



- = Critical Concern: High level of urgency to explore causes and address immediately
- = Modest Concern: Explore causes and implement improvement programs if required

One of TBR's most useful tools for contributing insight to the study results is to consider the proportions of respondents who express disappointment (those rating the categories <5 on the 7-pt. satisfaction scale). Any category with 15% or greater of the respondents expressing disappointment has been flagged, suggesting the OEMs need to explore these issues further. Any category with >20% is considered a highly critical area.

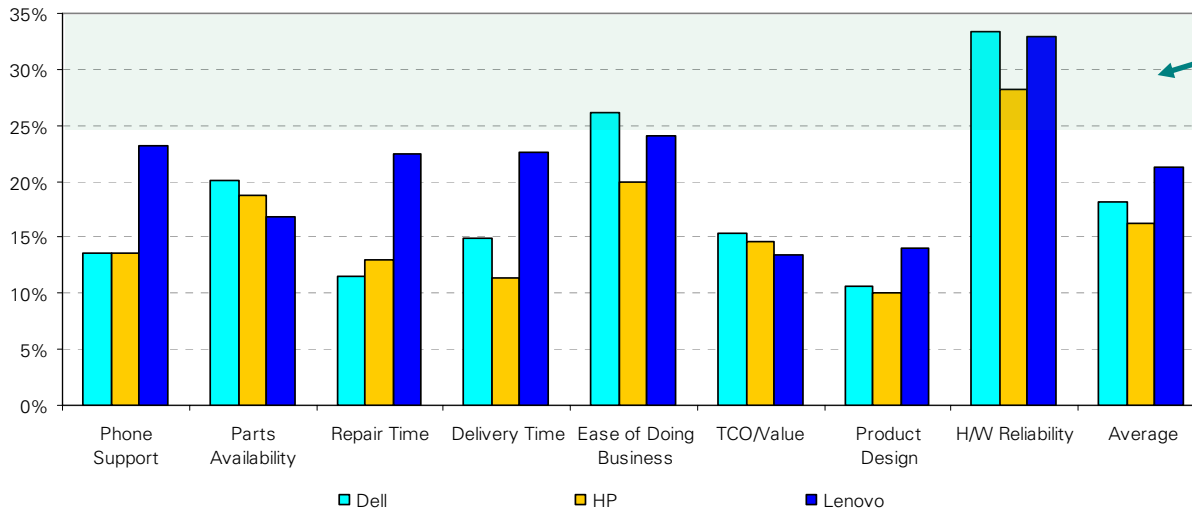
SOURCE: TBR.

Some of the commonalities include a reasonably high level of disappointment with parts availability, delivery time and repair time, where all three competitors have been fairly equally affected. Phone support primarily affected Dell and HP. Some of the differences: HP was substantially more affected by disappointment with notebook value and Dell the least. Lenovo was most adversely affected by some disappointment around ease of doing business while Dell was not. Dell was substantially affected by customer disappointment around delivery time, a condition that has been affecting Dell's performances for some time.

Overall, customer disappointment was higher than it should have been across all categories, with the exception of hardware reliability. Here, Lenovo's competitive strength was essentially delivered through a dearth of disappointed ratings.

## Customer delight is largely restricted to notebook hardware quality/reliability

TBR **ANALYSIS OF CUSTOMER DELIGHT - NOTEBOOK SERVICES AND PRODUCT QUALITY**  
(% rating perfect 7 on 7-pt. satisfaction scale)



25% or more of responses at the "Perfect 7" level designates true customer delight

The Perfect 7 score, designating customer delight, is becoming increasingly rare in TBR's studies, particularly with the online data collection model, where respondents tend to avoid the highest levels of the scale.

SOURCE: TBR.

All three OEMs achieved at least 25% of their scores for hardware quality/reliability at the Perfect 7 level, which designates pure customer delight. While Lenovo earned the competitive strength win in 4Q09, it was not due to a greater proportion of delighted customers but a lack of disappointment (see previous slide).

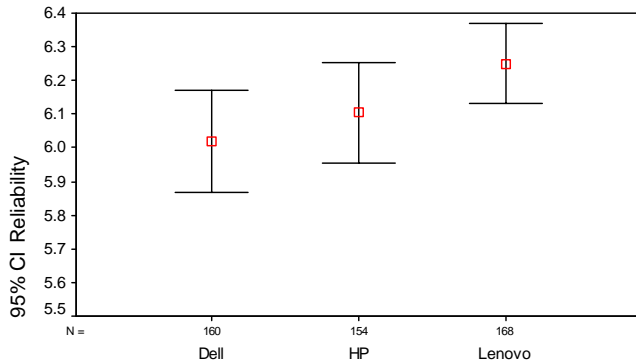
Dell and Lenovo also narrowly achieved strong delight for ease of doing business. However, Dell customers were more unified in their sentiment while Lenovo customers were split between delight and disappointment (previous slide).

Areas with relatively high proportions of delighted customers, but not reaching the minimum barrier of 25%, include phone support, repair time, and delivery time, where Lenovo earned close to 25% Perfect 7 ratings. Within the first two areas (phone support and repair time), Lenovo earned new competitive strengths in 4Q09.

# Hardware reliability remains on the list of performance differentiators in 4Q09, with Lenovo's margin of victory increasing

HARDWARE QUALITY/RELIABILITY SATISFACTION

95% Confidence Interval Around the Mean



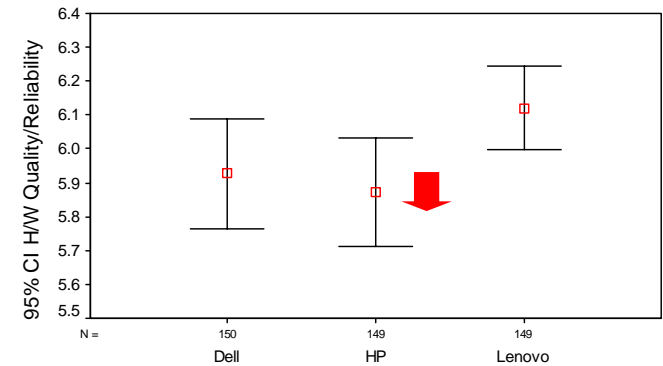
Notebook Vendor

3Q09

The distance between the mean score of Lenovo and the competition for notebook reliability increased in 4Q09, due to a sizeable decline in HP's rating. Consequently, Lenovo retains its competitive strength status.

HARDWARE QUALITY/RELIABILITY SATISFACTION

95% Confidence Interval Around the Mean

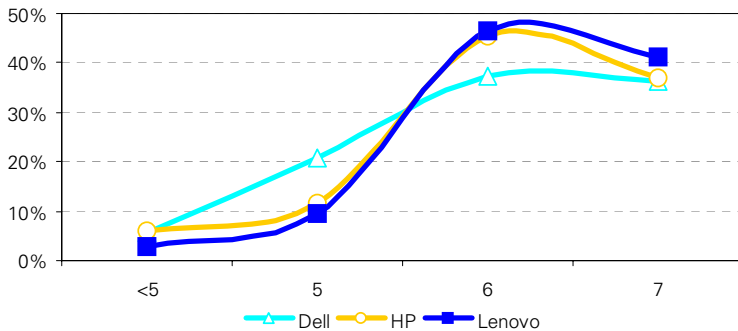


Notebook Vendor

4Q09



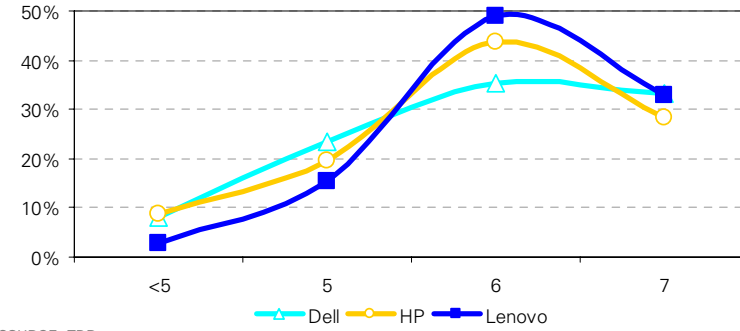
SATISFACTION WITH HARDWARE RELIABILITY BY CATEGORY



HP's ratings for notebook reliability shifted to the left on the satisfaction scale, picking up an increased number of level-5 ratings and fewer ratings at the higher levels of the scale.



SATISFACTION WITH HARDWARE RELIABILITY BY CATEGORY

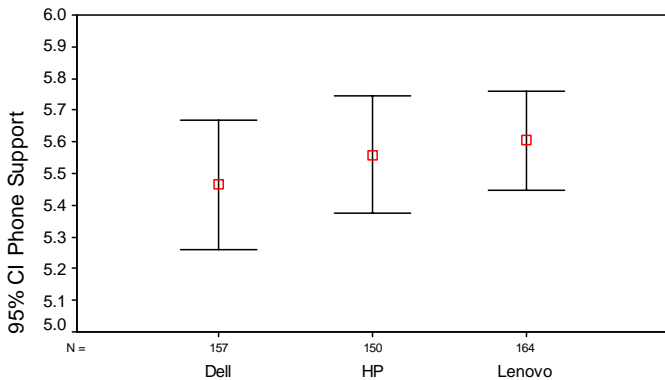


SOURCE: TBR.

# Phone support joins the list of performance differentiators for the first time since 3Q08

PHONE SUPPORT SATISFACTION

95% Confidence Interval Around the Mean



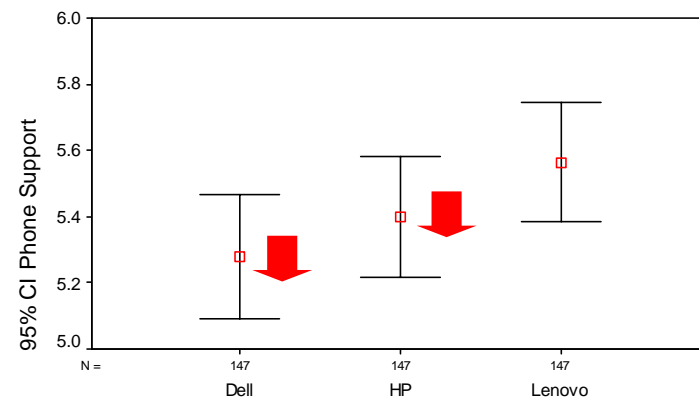
Notebook Vendor

3Q09

Mean scores for phone support were comparable in 3Q09. With ratings for HP and Dell, in particular, declining in 4Q09, Lenovo's comparative stability paid off. Lenovo recaptured the competitive strength win – its first since 2Q08 and 3Q08. Dell was cited with a competitive warning as its score was significantly lower than the industry average in 4Q09.

PHONE SUPPORT SATISFACTION

95% Confidence Interval Around the Mean

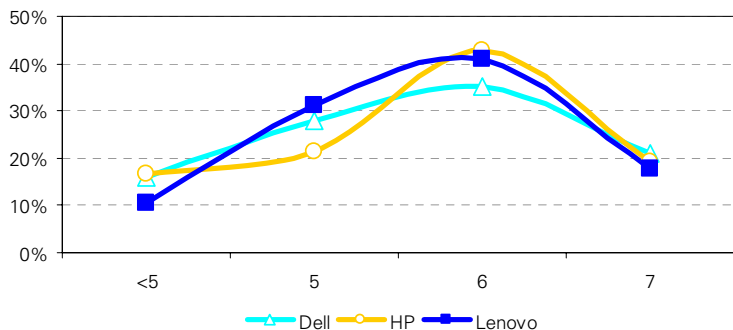


Notebook Vendor

4Q09



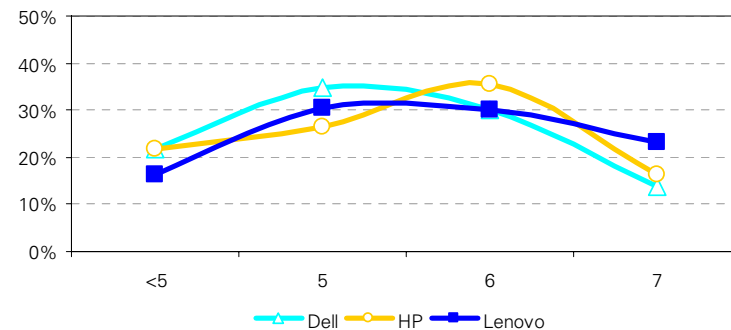
SATISFACTION WITH PHONE SUPPORT BY CATEGORY



In 4Q09, both HP and Dell picked up a substantial number of disappointed ratings for phone support.



SATISFACTION WITH PHONE SUPPORT BY CATEGORY

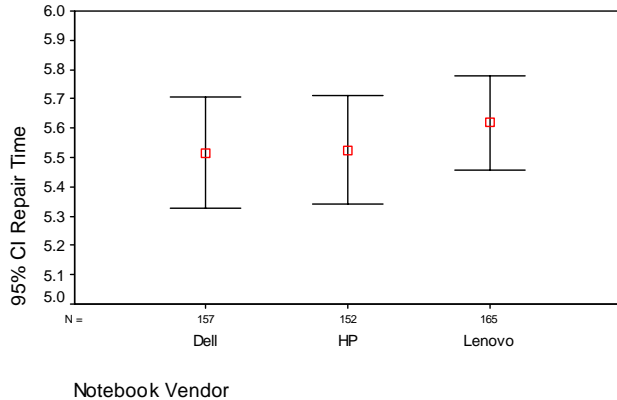


SOURCE: TBR.

# Repair time also rejoins the performance differentiation roster after a two-reporting-period hiatus, yet category winner shifts

REPAIR TIME SATISFACTION

95% Confidence Interval Around the Mean

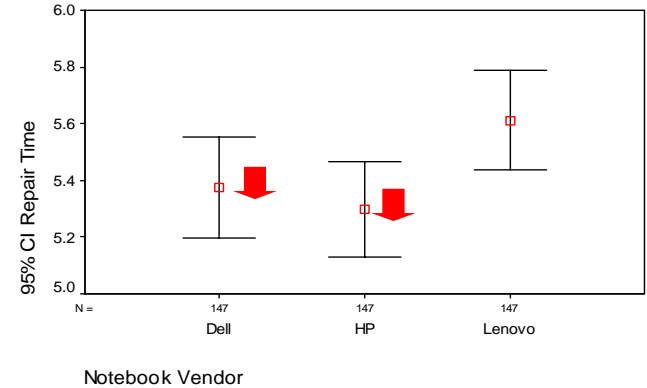


3Q09

Mean repair time satisfaction scores were fairly even across the three OEMs in 3Q09. As scores for Dell and HP declined in 4Q09, Lenovo was boosted to a clearly dominant position. Lenovo earned its first competitive strength since 2Q08 and 3Q08. Note the shift in leadership identification; Dell had earned strengths in this category steadily from 2Q08 through 2Q09.

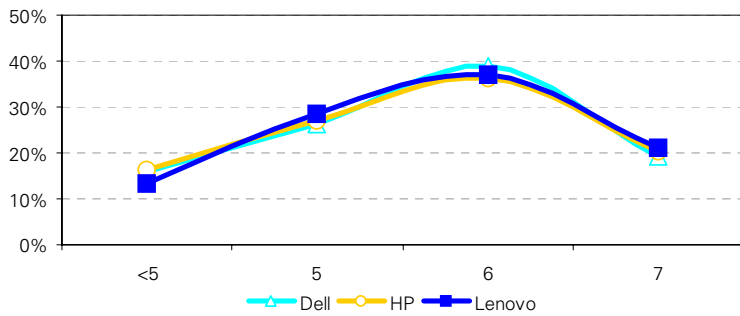
REPAIR TIME SATISFACTION

95% Confidence Interval Around the Mean



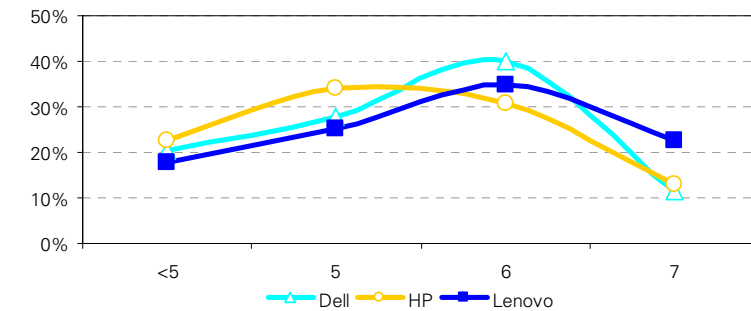
4Q09

SATISFACTION WITH REPAIR TIME BY CATEGORY



HP's performances eroded most significantly between 3Q09 and 4Q09, its scores shifting sharply to the lower ends of the scale. Dell lost a considerable number of Perfect 7 ratings during the period.

SATISFACTION WITH REPAIR TIME BY CATEGORY

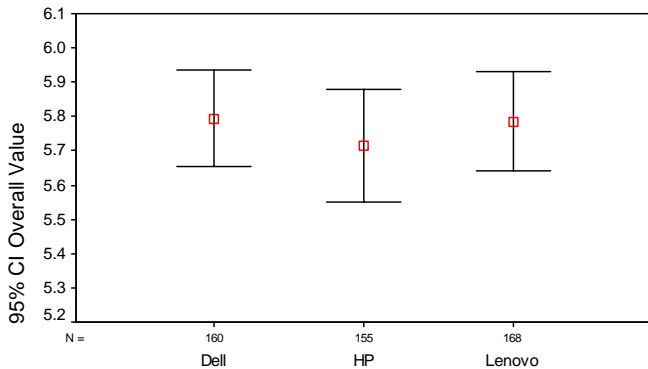


SOURCE: TBR.

# Notebook value emerges as a performance differentiator for the first time since 1Q09

OVERALL NOTEBOOK VALUE SATISFACTION

95% Confidence Interval Around the Mean



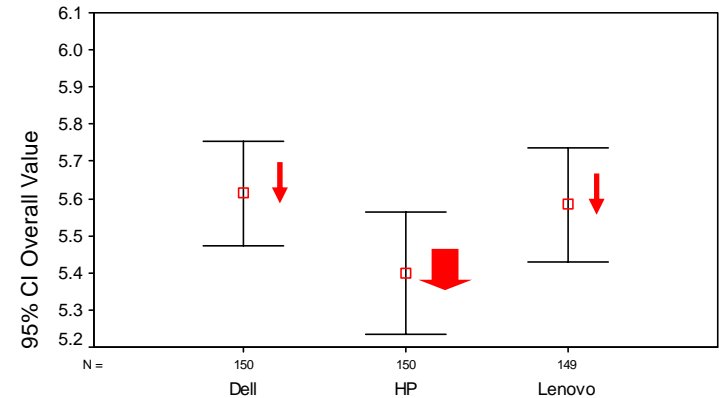
Notebook Vendor

3Q09

Mean notebook value ratings were comparable across the three OEMs in 3Q09. All three competitors' scores dropped in 4Q09, though by varying degrees. HP's score declined by 5.9%, against its competitors' average -3.7%. While there were no winners for the category in 4Q09, HP was cited with a competitive warning.

OVERALL NOTEBOOK VALUE SATISFACTION

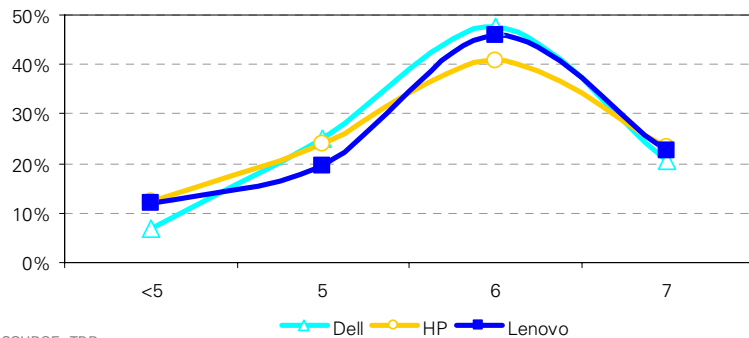
95% Confidence Interval Around the Mean



Notebook Vendor

4Q09

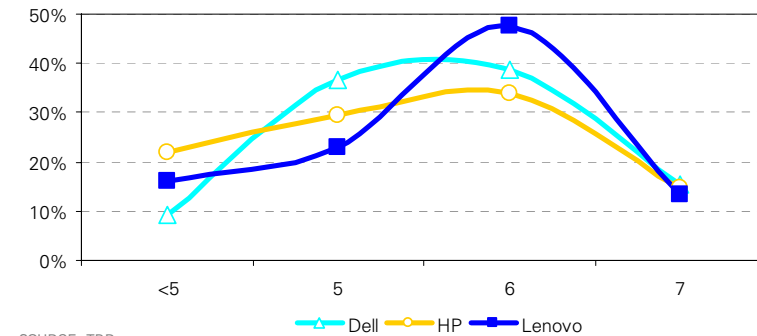
SATISFACTION WITH NOTEBOOK VALUE BY CATEGORY



SOURCE: TBR.

HP gained a sizeable proportion of disappointed ratings in 4Q09; note how the distribution curve shifted abruptly from the desired shape (scores peaking at the 6-level) to a flatter curve with about half the scores below 6.

SATISFACTION WITH NOTEBOOK VALUE BY CATEGORY



SOURCE: TBR.

## Dell remains at No. 2 due to continuing competitive pressures from Lenovo

- Dell's weighted satisfaction index declined by 2.3% from 3Q09 to 4Q09, driven by significantly declining phone support and notebook value satisfaction ratings. This comes on the heels of a similar decline of nearly 2% between the previous two periods, for a cumulative 4% WSI erosion during 2H09 driven by weakening technical support and delivery time positions.
- Between 3Q09 and 4Q09, Dell's satisfaction scores remained relatively stable against weakening competitors in the areas of ease of doing business, delivery time, and product design, but exhibited a greater-than-average weakening for phone support.
- Dell received its first competitive warning for phone support in 4Q09, due to a score that was significantly lower than the industry average and a cumulative 7% loss in value during 2H09.
- Categories in which TBR observed an increase in and an inordinate number of dissatisfied ratings included phone support, repair time, and delivery time.
- Successes, Challenges & Opportunities:
  - *Successes*: Customer loyalty, ease of doing business
  - *Challenges*: Technical support, hardware quality versus Lenovo, notebook value
  - *Opportunities*: Parts availability (moving ahead of competition); repair time gaining on Lenovo

**Bottom Line:** While Dell has experienced a difficult 2H09 in this competition, there are signs of a potential recovery, particularly around the services attributes that have largely been the drivers of Dell's challenges. The 2009 concerns around technical support may be related to delayed spending on new systems and greater requirements for supporting existing solutions within increasingly mobilized environments. There are basically two factors influencing this competition that Dell needs to understand with the greatest urgency: 1) the competitive pressures coming from Lenovo with respect to hardware quality/reliability (where a daunting new bar has been set) and technical support; and 2) the focus on pricing and value, where Lenovo is currently positioned within reach of its first-ever competitive strength. While TBR finds that Dell customers appear less likely to switch notebook OEM based on price than either HP or Lenovo customers, this does not necessarily translate into Dell customer acceptance of a strong value proposition. Dell needs to work on this messaging as well as the area where Dell customers indicated they were more likely than competitors' customers to switch notebook OEM – support. The simplified message for Dell: Enhance your value proposition by addressing support quality and overall costs within your marketing communications.

## HP narrowly holds onto No. 2 ranking position due to strengthening Lenovo performances

- HP's weighted satisfaction index declined by 4.4% between 3Q09 and 4Q09, with its largest magnitude declines observed in the areas of notebook value and repair time. The weakening of HP's positions in 4Q09 was an extension of more modest declines observed between the previous two reporting periods, for a cumulative 6% WSI erosion during 2H09 driven by weakening notebook value and delivery time positions.
- Between 3Q09 and 4Q09, HP's satisfaction scores exhibited greater-than-average weakening versus the competition for notebook value, repair time, product design, and hardware quality, among other attributes.
- HP was cited with its first competitive warning for notebook value, with its mean score declining a cumulative 7.5% during 2H09 and constituting a considerable switch from the competitive strength it earned for the category a little more than a year ago (3Q08).
- Categories exhibiting increases in, and an inordinate number of, dissatisfied scores included notebook value, repair time, and phone support.
- Successes, Challenges & Opportunities:
  - *Successes*: Customer loyalty
  - *Challenges*: Notebook value, repair time, ease of doing business
  - *Opportunities*: Depends on new product refreshes and associated communications
- **Bottom Line**: TBR believes pricing and timing have been at the root of HP's challenges in the 4Q09 study. While all three OEMs' notebook value satisfaction ratings took a hit, HP was the only one cited with a score that was considerably lower than the industry average, and, consequently, the only one to earn a competitive warning. In addition, TBR finds that HP customers will be more likely than Dell's to switch notebook OEM based on price. Along with challenges posed by the communication of the value proposition, TBR believes HP has also been affected by timing issues: it has been a while since a full product refresh and customers curtailed spending considerably during 2009. As a result, HP customers may be in need of the swift reminder regarding HP's capabilities that could only come from full product refreshes supplemented by services enhancements. Differentiation is the name of the game, and HP will subsequently need to up its pace to carve out its niche and define its leadership qualities for customers. In the 4Q09 study results, with the exception of notebook value, HP's satisfaction scores were not affected by higher-than-average disappointed customers but rather by a lack of delighted customers. Innovative product and service offerings are the best route to enhancing customer delight. With respect to value, however, HP needs to look at both its value proposition messaging and its pricing as there were significant numbers of customers who indicated they were clearly dissatisfied with HP notebook value.

## Lenovo retains its singular No. 1 ranking by reclaiming past competitive advantages for notebook support services

- Lenovo's weighted satisfaction index declined by 2.1% from 3Q09 to 4Q09, yet none of its positions declined by the minimum magnitude to denote significant change. Its largest-volume declining metric was the notebook value rating.
- During 2H09, Lenovo's WSI was the least eroded of the competition, down a cumulative 3% compared to Dell's 4% and HP's 6%.
- Between 3Q09 and 4Q09, Lenovo's satisfaction scores remained relatively stable against weakening competitors' in the areas of delivery time, phone support and repair time.
- While maintaining its competitive strength for hardware reliability, Lenovo added new ones for phone support and repair time – both last observed in 2Q08 and 3Q08.
- Categories exhibiting inordinately high numbers of dissatisfied ratings included delivery time, parts availability, ease of doing business and notebook value.
- Successes, Challenges, & Opportunities:
  - *Successes*: Hardware quality/reliability, technical support
  - *Challenges*: Notebook value, ease of doing business, customer loyalty
  - *Opportunities*: Notebook value – while still a challenge facing the entire industry, Lenovo's 4Q09 score moved ahead of Dell and may position it for a competitive strength in the near future
- **Bottom Line**: Lenovo's second consecutive singular No. 1 ranking was bolstered by its exceptional hardware quality/reliability satisfaction rating, making it the fourteenth competitive strength win to Lenovo's roster of distinctions held since 1Q05. While this status was alone enough to secure Lenovo's sole No. 1 ranking in 3Q09, Lenovo went on to reclaim some past competitive strengths in 4Q09, for technical support, that served to raise some additional bars against the competition. TBR believes Lenovo may have benefited from the trickling out of new products during the year where competitors were waiting for full product refreshes, due out in 1Q10. With that, Lenovo's satisfaction performances have been resistant to the downward trends affecting competitors throughout 2009; Lenovo's scores are continuing to improve. Going forward, the challenge for Lenovo, in addition to maintaining its momentum, will be to translate strong customer satisfaction into loyalty, as both its customer loyalty and ease of doing business (denoting the quality of the relationship) ratings show continued room for improvement.

## TBR's watch list differs from the Competitive Strength & Weakness analysis

### Differences

- The analysis is both backward-looking and forward-looking.
- Items placed on the Watch List are not necessarily areas in which the vendor has underperformed the marketplace or a specific competitor.
- Included are areas where a vendor may have recently excelled, yet the competitive field has shifted during the current reporting period. These represent opportunity areas for the various competitors, based on either past performances or current momentum.

### TBR takes the following factors into consideration in determining items on the Watch List:

- Results of the Improvements GAP Analysis based on a vendor's expectation fulfillment for a category against its overall expectation fulfillment across all measured attributes.
- Competitive positioning based on results of statistical significance tests.
- Decline in satisfaction in the past two reporting periods.
- Longer term trends in satisfaction positions
- Proportion of dissatisfied ratings.
- Loss of competitive strength.
- Items are removed from the Watch List when a vendor has recovered its competitive position from recent reporting periods.

## Dell Watch List focuses on support and other services, along with renewed attention to value propositions

Citation	Placement	Improvements GAP Rating	% Change vs. Previous Period	Trending	Disappointed Customers	Strength/ Weakness Status	Notes
Phone Support	Significantly below industry average, 90% confidence; <Lenovo, 95% confidence	Well Below Average	Declined by 4%, largest magnitude declining area for Dell in 4Q09; Lenovo remained constant, HP -3%	Down sharply past two periods versus comparatively stable competition	22% dissatisfied versus Lenovo's 16%; Increased from 16% in 3Q09	First competitive warning issued in 4Q09; strengths earned in 1Q05 & 2Q05	A consistently elusive goal for Dell – to keep pace with high customer expectations for phone support. Lenovo earned the competitive strength in 4Q09, raising the bar of expectation for Dell. We continue to observe a significant number of dissatisfied customers, now nearly one in four.
Repair Time	Significantly <Lenovo, 90% confidence level	Well Below Average	Declined by 3%, versus Lenovo's 0%	Down sharply past two periods; general declines during past five	20% dissatisfied versus Lenovo's 18%; increased from 16% in 3Q09	Remaining neutral; had earned competitive strengths from 2Q08 through 2Q09	One in five Dell customers in 4Q09 were disappointed with repair time. This has come about after five periods of steadily declining ratings, clearly not associated with TBR's methodology shift. Lenovo earned a competitive strength in 4Q09, lifting the bar of expectation.
Delivery Time	Comparable to industry average	Below Average	Declined by just 1%; improving in terms of magnitude of decline versus previous periods	Down for five straight reporting periods	24% dissatisfied – worst in class versus competitors' average 17.5%; no change from 3Q09	No competitive strength in past five reporting periods	While positions are now beginning to stabilize, TBR believes lead times had much to do with Dell's challenges during the first three quarters of 2009. Extremely high levels of dissatisfaction remain, currently at one in four Dell respondents.

## Dell Watch List focuses on support and other services, along with renewed attention to value propositions

Citation	Placement	Improvements GAP Rating	% Change vs. Previous Period	Trending	Disappointed Customers	Strength/ Weakness Status	Notes
Notebook Value	Significantly >HP; comparable to Lenovo	Average	Declined by 3.7%; second largest magnitude decline for Dell in 4Q09	Down significantly past four periods; has not held advantage since 1Q09	9% dissatisfied; best in class versus competitors' average 20%	Remaining neutral; no competitive strengths since string of four from 3Q08 to 2Q09	In terms of the disappointment index, Dell appears to be in a strong competitive position. However, Lenovo is the only OEM whose score improved during 4Q09. Value was the only category where Dell's 4Q09 score showed a decline. Lenovo is well positioned for a potential competitive strength win.
Hardware Reliability	Significantly <Lenovo, 90% confidence level; comparable to HP	Excels	Declined by 1.75% versus competitors' average -3%	Overall flat for past eight periods but unable to catch Lenovo	8% dissatisfied, same as HP but three times that of Lenovo's <3%	Remaining neutral	Lenovo has earned a competitive strength for the past two reporting periods and thus has raised the bar of expectation considerably. Dell has been unable to break past the 6.0 mean score barrier, while Lenovo often does.
Summary	As TBR cautioned in <i>3Q09 Notebooks</i> report, the key to customer delight is to take initial enthusiasm for a product refresh and sustain that level of satisfaction as the offerings mature and reach full utilization in the marketplace. While it would appear that Dell was unable to keep customer interest at optimum levels, 2009 provided another obstacle in the form of a very deep economic recession and subsequent reduction in spending. TBR's study and other marketplace sources suggest corporate notebook spending will pick up by mid-2010, and Dell has readied itself for a new wave of customer excitement with new solutions announcements beginning in early February. The new ultra-slim Latitude 13 takes the central ideas of its predecessor, the Vostro 13, to the professional market with enterprise features like comprehensive systems management via ImageDirect Services for deployment of several images at once; customized security features including full disk encryption, SSD options, Trusted Platform Module control and Computrace software; and virtualization-ready design. Dell designed the Latitude 13 based on feedback from enterprise customers, who look for greater usability through a larger screen and keyboard. A second offering, the Precision M6500 dual-core mobile workstation, is an update of a previous product with a third storage option and an optional Intel Core i7-970XM Quad Core Extreme Edition processor. With these introductions, the focus on enhanced security and tools for reducing support costs are part of an effort to improve the support experience. The February announcement is likely the first step in an expected full product refresh, likely scheduled for spring, that will include notebooks that take advantage of Intel's new core i7 processors as well as upcoming multi-core vPro hardware platforms, the fourth generation focused on new systems management, security and client virtualization capabilities.						

## HP Watch List focuses on technical support and value perceptions

Citation	Placement	Improvement s GAP Rating	% Change vs. Previous Period	Trending	Disappointed Customers	Strength/Weakness Status	Notes
Repair Time	Significantly <Lenovo, 95% confidence level	Well Below Average	Declined by 4.5%; among largest magnitude declining areas for HP in 4Q09 and highest of competitive field	Down abruptly in 4Q09 following general stability for previous seven periods	22% dissatisfied; worst in class versus competitors' average of 18% and up from 16% in 3Q09	Remaining neutral	Repair time remains one of HP's largest disappointment areas, with nearly one in four HP respondents indicating dissatisfaction. Lenovo earned a competitive strength, thus raising the bar of expectation considerably. Dell is improving, while HP is not.
Phone Support	Trending <Lenovo	Just Below Average	Declined by 3%, versus Lenovo's 0%	Vacillating/alternating for past five periods	22% dissatisfied versus Lenovo's 16%; increased from 17% in 3Q09	Remaining neutral	Phone support was one of the three largest dissatisfaction areas for HP in 4Q09, with nearly one in four HP customers indicating dissatisfaction. Meanwhile, Lenovo scored the competitive strength win.
Notebook Value	Significantly < industry average, 90% confidence level; significantly <Dell 90% and trending <Lenovo	Just Below Average	Declined by 5.9%, the largest magnitude declining area for HP in 4Q09 and highest of competitive field; competitors' average -3.75%	Down substantially in 4Q09; overall declines for past five periods	22% dissatisfied; worst in class versus Dell's 9% and Lenovo's 16%; dissatisfaction nearly doubled for HP since 3Q09	First-ever warning issued in 4Q09; had earned competitive strength back in 3Q08	HP dissatisfaction with notebook value was only 8% in 2Q09 and 12% in 3Q09. In 4Q09, nearly one in four HP customers registered dissatisfaction with notebook value. TBR sees this as the driving factor behind all of HP's weakening satisfaction scores.

## HP Watch List focuses on technical support and value perceptions

Citation	Placement	Improvements GAP Rating	% Change vs. Previous Period	Trending	Disappointed Customers	Strength/ Weakness Status	Notes
Delivery Time	Comparable to industry average	Just Below Average	Declined by 3%, versus competitors' average 0%	Down past five reporting periods	17% dissatisfied, comparable to Lenovo and better than Dell's 24%	No competitive strength since 4Q08	Competitors are recovering more quickly than HP. The weakening of its satisfaction positions likely has to do with reduced spending in the fourth quarter.
Hardware Reliability	Significantly <Lenovo, 95% confidence level; comparable to Dell	Excels	Declined by 3.7%, versus competitors' average -2%	Up sharply in 2Q09, held steady in 3Q09, then down sharply in 4Q09; losing traction against Lenovo	8% dissatisfied, comparable to Dell but three times the amount of Lenovo's <3%	No competitive strength since 3Q08	Lenovo has earned a competitive strength for the past two reporting periods and thus has raised the bar of expectation considerably.

**Summary** In January, HP introduced six new notebooks in its ProBook and EliteBook lines targeted at the professional market and offering customers a choice between an Intel Core i7 processor or a future generation Intel Core processor (likely the next generation multi-core Vpro line) and featuring HP SkyRoom, a unique videoconferencing program. The latest refresh of the 8000 series Elitebook combines the latest management tools and enhanced durability features such as an aluminum finish with a full magnesium-alloy chassis. An HP Long Life Battery option provides up to a three-year lifecycle. HP also introduced the HP Performance Advisor software tool for updating settings and drivers. These product introductions are part of a series of launches during 1Q10 and TBR believes the timing is right for HP to reinvigorate customer enthusiasm around these new solutions. HP has also been working to improve the support structure around its mobile products, including the stabilization of a recent enterprise helpdesk transition, a streamline of the process for customers to purchase parts and services, more accurate diagnostics, improved warranty access via IVR, and improved tools like GPS for tracking calls and a workflow tool for call logging and parts identification. In the summer, the company began the move to HP-badged employees for field services, providing a stable workforce with low turnover. HP Virtual Support Rooms allows IT managers to connect remotely to another PC and apply the fix in real time while running diagnostics. HP offers a 60-day free trial for this service. In the area of hardware quality, HP has improved the phase controls within its manufacturing processors while improving change management disciplines and controls for more consistent execution across factory sites. TBR views all of these efforts as evidence of a comprehensive commitment to providing the needed boost to customer interest, to be timed against anticipated renewed spending on corporate notebooks.

## Lenovo Watch List focuses on the need to sustain recent improvements

Citation	Placement	Improvements GAP Rating	% Change vs. Previous Period	Trending	Disappointed Customers	Strength/Weakness Status	Notes
Notebook Value	Trending >HP and comparable to Dell	Average	Declined by 3.8%, largest magnitude declining area for Lenovo in 4Q09	Down past two periods after improving in 2Q09 but tracking Dell closely	16% dissatisfied, better than HP's 22% but behind Dell, at 9%; increased from 12% in 3Q09	Remaining in recovery; last competitive warning issued in 4Q08	While Lenovo is well positioned for an eventual competitive strength, which would be its first for the category of notebook value, there are some caveats. Lenovo customers are more likely than those of Dell to switch OEM due to pricing.
Delivery Time	Comparable to industry average	Just Below Average	No change, competitors' average -1.5%	More gentle declines long term compared to competitors; stabilized in 4Q09	18% dissatisfied, better than Dell's 24%	No competitive warning since 4Q08	Lenovo has actually made remarkable long-term progress in an area that had been a chronic weakness for it several years ago. Yet, relatively large numbers of dissatisfied customers and a wide spread of opinion remain.
Parts Availability	Comparable to industry average	Well Below Average	Declined by 2%, comparable to Dell and better than HP's -4%	Down sharply in past two periods; generally down for the past five	19% dissatisfied, comparable to industry average	Remaining neutral	While TBR does not see this as a central issue, Dell is making headway at potentially regaining its competitive edge in the near future.

## Lenovo Watch List focuses on the need to sustain recent improvements, while regaining past competitive strengths

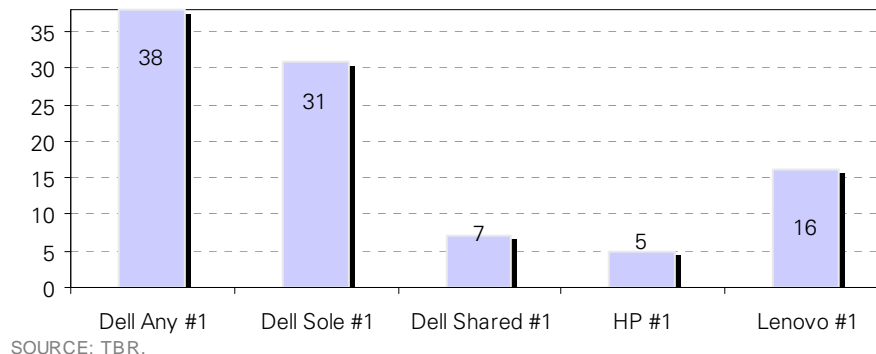
Citation	Placement	Improvements GAP Rating	% Change vs. Previous Period	Trending	Disappointed Customers	Strength/Weakness Status	Notes
NEW – Ease of Doing Business	Trending <Dell	Just Below Average	Declined by 2.3% versus Dell's 0%	Down sharply past two periods; down gently but steadily from high point of 2Q08	19% dissatisfied, worst in class versus competitors' average 12%; increased from 14% in 3Q09	Remaining Neutral	TBR sees ease of doing business as associated with Lenovo's inability thus far to convert strong customer satisfaction into customer loyalty. Dell is on the verge of reclaiming its competitive advantage in this category.
Removed from Watch List	Repair Time & Phone Support: Lenovo scored substantially higher than the industry average and earned its first competitive strengths in each of these categories since 2Q08 and 3Q08. In both cases, Lenovo's mean satisfaction ratings in 4Q09 held steady against average 3.5% declines on the part of the competition.						
Summary	<p>TBR believes Lenovo was better able to survive the increasing scrutiny of customers at a time when both product introductions were limited and spending was curtailed. While competitors did not introduce entirely new product solutions during 3Q09, Lenovo brought us the ThinkPad T400s, which was enhanced to make the laptop more intuitive and easier to use. The T400s was designed along the lines of Lenovo's highly successful x300, featuring an ultra-thin, ultra-light design that does not force customers to trade off performance. In January, the company was busy ensuring that customer interest would remain at optimum levels with six new product introductions, including the ThinkPad Edge, Lenovo's first AMD dual-core offering that focuses on performance, style and affordability for budget-conscious customers, and the x100e, its first professional class ultraportable starting at under \$500 that creates a new product category combining professional performance, usability, design/style, and affordability. Both products are supported by Lenovo Priority Support 24/7, accidental damage, and Hard Disk Drive Retention programs. The other new ThinkPad products introduced in January were the T410s, T410, T510 and W510, based on upcoming Intel dual-core processors for improved multi-tasking performance, improved energy efficiency, greater manageability, and the ThinkPad 22 hour battery life (on select models). By combining the features of Intel's upcoming Core vPro technology with ThinkVantage Technologies, Lenovo is positioning its new solutions as offering simplified remote fleet management and deployment of power settings. Lenovo followed up in late February with the announcement of two new ultralight notebooks, ThinkPad x201 and X201s, featuring unprecedented low-weight options that do not sacrifice performance; Lenovo uses "normal" voltage (in lieu of low voltage) Intel Core processors. A business-class tablet was also part of the announcement. With this unrelenting string of announcements, TBR sees Lenovo as well set-up for extending the current levels of satisfaction improvement into the first part of 2010.</p>						

## Dell continues to hold the record for number of wins, with a grand total of 38 No. 1 rankings

- Dell held the No. 1 position firmly from its emergence in 2Q98 through 2Q06, not to be repeated until 2Q08.
- Among Dell’s No. 1 positions for a record 38 reporting periods, 31 were sole-No. 1 rankings.
- All five of Dell’s No. 1 placements since 3Q06 occurred in the most recent reporting periods.
- HP and Lenovo wins have been sporadic and, clearly, unsustainable over extended periods of time.



**CORPORATE NOTEBOOK  
VENDOR RANKING POSITION WINS**  
(Based on 52-reporting-period history, 1Q97 through 4Q09)



**Number One Ranking Determinations - Past 10 Reporting Periods**

	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
<b>Dell</b>				■	■	■	■	■		
<b>HP</b>		■						■		
<b>Lenovo</b>			■	■				■	■	■
<b>MPC/Gateway</b>	■	■								

SOURCE: TBR.

Note: Coverage of MPC/Gateway was discontinued as of the 4Q08 reporting period.

The roster for the past 10 reporting periods:

- Dell: five wins, consecutively from 2Q08 through 2Q09
- Lenovo: five wins, including the past three periods
- HP: two wins, staggered

# Competition has intensified throughout the more recent reporting periods

**Recent Historical Accumulation of Key Competitive Differences**

	1Q05	2Q05	3Q05	4Q05	1Q06	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	
Dell Delivery Time	■	■			■									■	■						
Dell Value	■	■			■	■								■	■	■	■				
Dell Parts Availability	■	■	■	■					■				■	■	■		■				
Dell Repair Time			■	■	■									■	■	■	■	■			
Dell Quality								■													
Dell Product Design								■	■	■	■	■						■			
Dell Phone Support	■	■																			■
Lenovo Quality	■	■	■	■	■	■	■	■	■	■	■			■						■	■
Lenovo Repair Time		■	■				■							■	■						■
Lenovo Phone Support		■	■											■	■						■
Lenovo Product Design			■			■	■	■	■			■	■	■	■						
Lenovo Delivery Time				■	■												■				
Lenovo Value																	■				
HP Value																					■
HP Quality							■	■			■				■						
HP Delivery Time										■	■	■		■	■	■					
HP Ease of Doing Business													■	■	■						
HP Product Design																		■			

■ TBR awarded this vendor a competitive strength for this attribute in the respective quarter.  
■ TBR cited this vendor with a competitive weakness or warning for this attribute in the respective quarter.

SOURCE: TBR.

Dell's competitive strengths had diminished until 2Q08. They have subsequently been thinning out again.

Dell encountered challenges during 2007. Its product design warning reappeared in 2Q09. Phone support shifted from 2005 strengths to 4Q09 warning.

Lenovo's competitive strengths emerged while weaknesses diminished until 4Q08. Lenovo's hardware reliability strength returned in 2H09. Lenovo regains tech-support strengths in 4Q09 after a four-reporting-period hiatus.

In 4Q08, two warnings emerged in areas where Lenovo had been clear for an extended period of time. Lenovo fully recovered from these challenges in 1Q09.

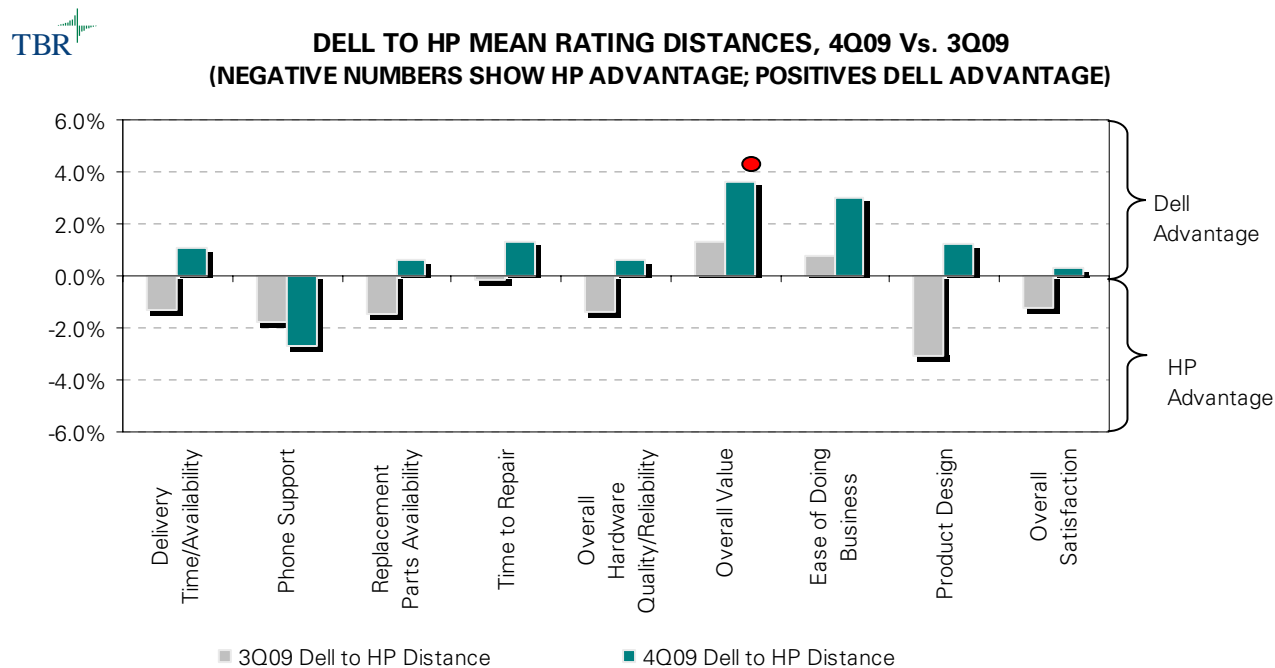
HP emerged in 2008 with key competitive strengths, while falling back to become a neutral player by 1Q09. A first-time competitive strength for product design emerged in 2Q09, but was not sustained into 3Q09.

HP's 3Q08 strength for notebook value flips to a warning in 4Q09.

# 4Q09 In-depth Analysis

## Satisfaction with notebook value separates perceptions of Dell and HP

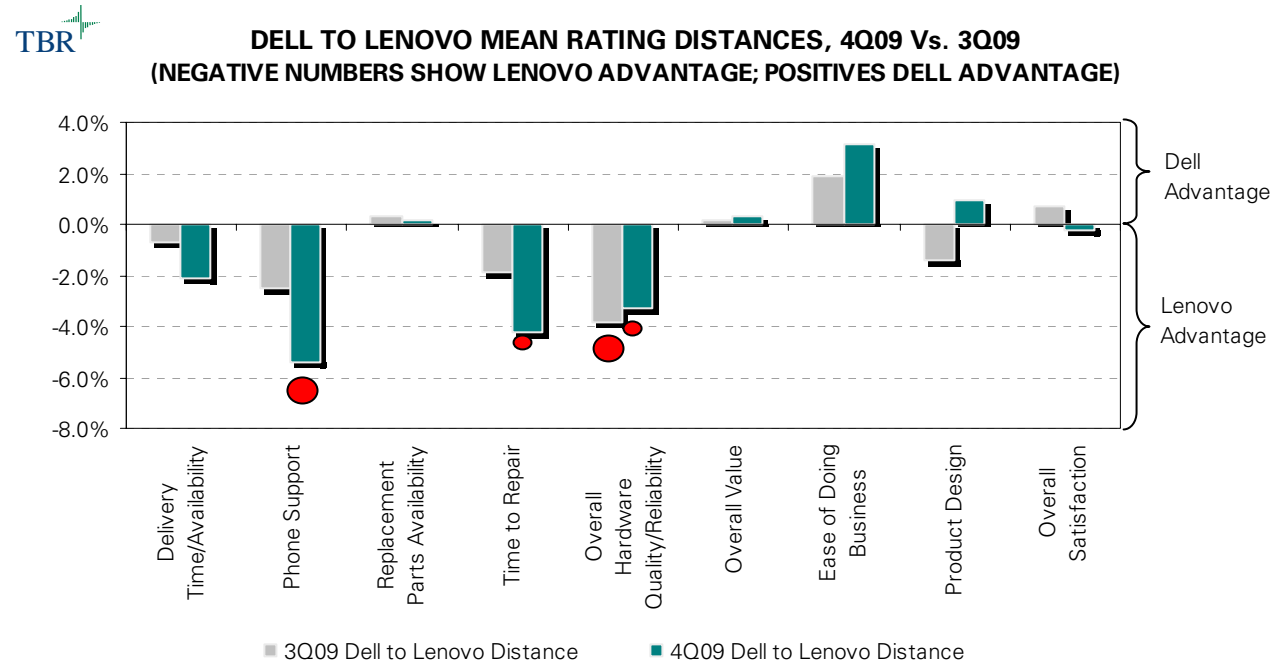
- With HP's weighted satisfaction index declining by nearly twice the magnitude of Dell in 4Q09, the notebook value metric largely defined the difference. Dell regained a competitive advantage over HP for notebook value for the first time since a string of three wins from 3Q08 through 1Q09.
- While both OEMs' mean notebook value satisfaction scores declined in 4Q09, HP's receded by a greater magnitude than Dell's. This development allowed Dell to reclaim the competitive advantage, last observed in 1Q09.
- Dell also gained a marginal advantage over HP for ease of doing business, though it was not statistically significant. Here, HP's mean score declined by 3% against a comparatively flat Dell score.



SOURCE: TBR.

## Lenovo continues to add new competitive advantages over Dell

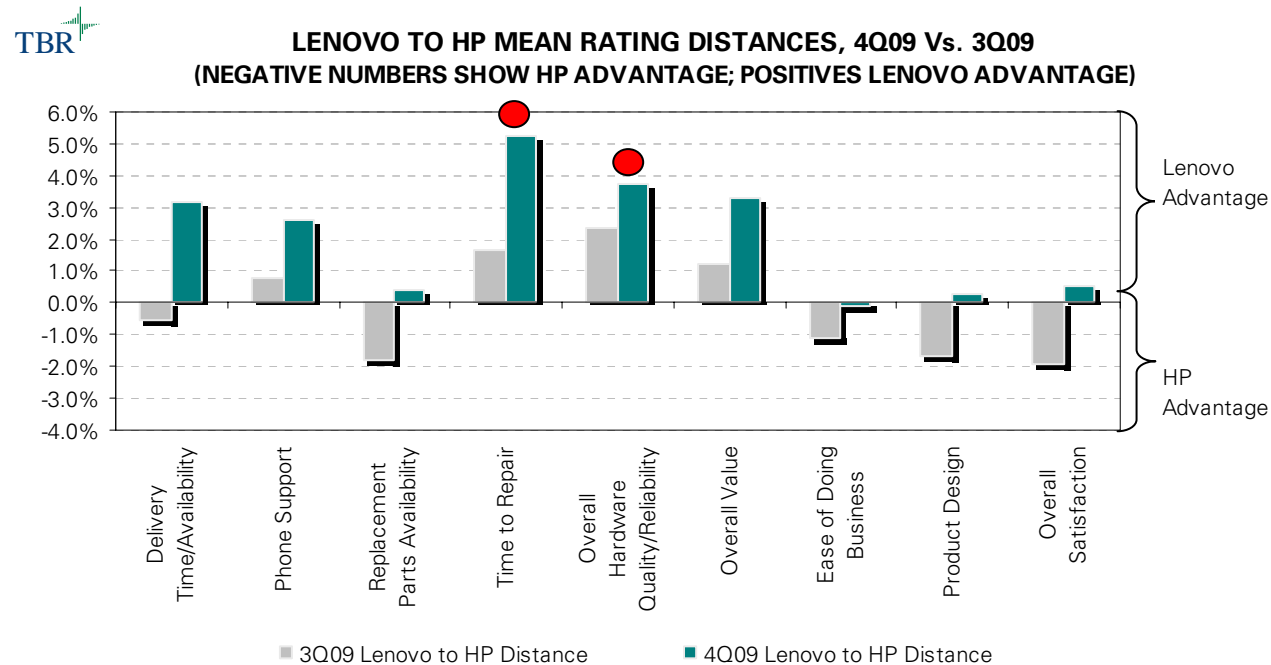
- While the weighted satisfaction indices of Dell and Lenovo declined by similar magnitudes in 4Q09, TBR observed a building of competitive advantages for Lenovo over Dell, including phone support and repair time. Meanwhile, Lenovo retained its competitive advantage over Dell for hardware reliability satisfaction.
- While Lenovo's phone support and repair time positions basically held constant into 4Q09, Dell's declined. In both cases, this enabled a significant performance gap favoring Lenovo to develop.
- Mean hardware reliability satisfaction positions declined modestly for both Lenovo and Dell, leaving a sizeable performance gap between them into 4Q09, again favoring Lenovo.



SOURCE: TBR.

## Lenovo satisfaction positions move ahead of HP's across multiple fronts

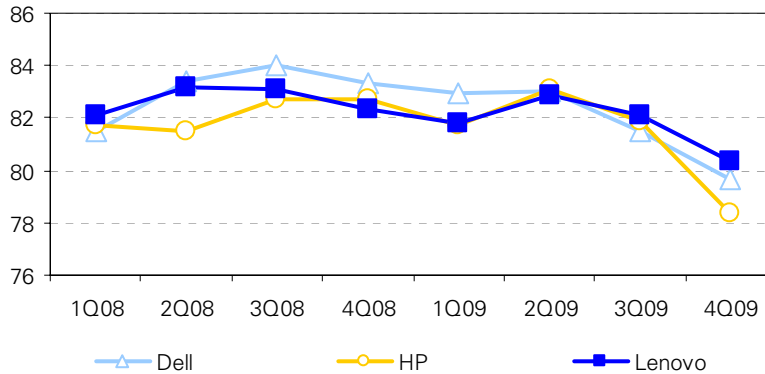
- With HP's weighted satisfaction index declining by twice the magnitude of Lenovo in 4Q09, several new competitive advantages for Lenovo emerged, including repair time and hardware reliability.
- Lenovo also outperformed HP across some additional, albeit not statistically significant areas, including notebook value and delivery time.
- HP's mean hardware reliability satisfaction score declined by a greater magnitude than that of Lenovo, leading to a new and high-confidence win for Lenovo in 4Q09.
- In the area of repair time, Lenovo's score held constant against a significantly declining HP rating, also leading to a new competitive advantage for Lenovo.
- While both OEMs' notebook value ratings declined in 4Q09, HP's score dipped by a significantly greater magnitude, contributing to a growing performance gap between them, though not statistically significant.



SOURCE: TBR.

## A reasonably tight competition between Dell, HP, and Lenovo remains the rule

TBR **CORPORATE NOTEBOOK WEIGHTED SATISFACTION SCORES**  
1Q08 THROUGH 4Q09



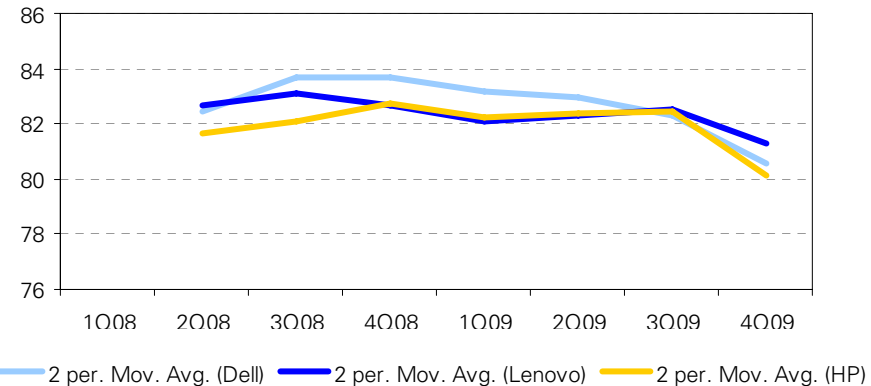
SOURCE: TBR.

A view of the paired moving average trendlines displays the gradual weakening of Dell's WSI ratings from mid-2008 to the present. During this period, Lenovo's performances weakened but then stabilized, and HP's improved during the second half of 2008, followed by a stabilization. For the most recent reporting periods, Lenovo has held its top-ranked status, with its scores exhibiting a greater resistance to downward trends than the competition.

The weighted satisfaction indices of Dell, HP and Lenovo have remained relatively close for an extended time, with an average separation of just 1.5% from the highest to the lowest scores in any period since 1Q08.

Regardless, ranking positions have shifted. Dell gave up its dominant positions of 3Q08 through 1Q09 due to steadily declining WSI ratings, allowing Lenovo to resume a top-ranked status as of 2Q09. HP's WSI positions have generally kept pace with the competition, with the exceptions of 2Q08 and 4Q09.

TBR **CORPORATE NOTEBOOK WEIGHTED SATISFACTION SCORES**  
1Q08 THROUGH 4Q09, WITH MOVING AVERAGES



SOURCE: TBR.

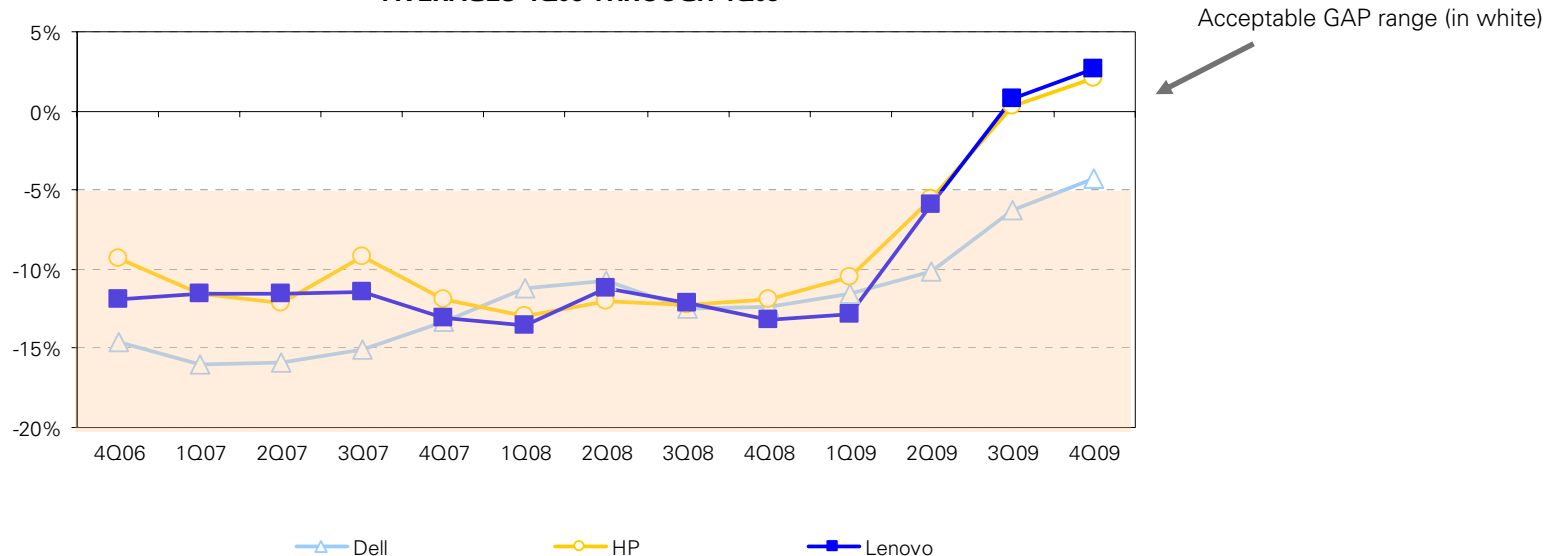
## Hardware Reliability/Quality

Corporate notebook OEMs substantially improve expectation fulfillment during the past three reporting periods

- Notebook reliability GAP scores remained stagnant and below par for an extended period that reached into 1Q09.
- Positions have subsequently shown substantial improvement, and current scores show HP and Lenovo to be fully meeting customer expectations for notebook quality/reliability. Dell's scores have improved at a slower pace.



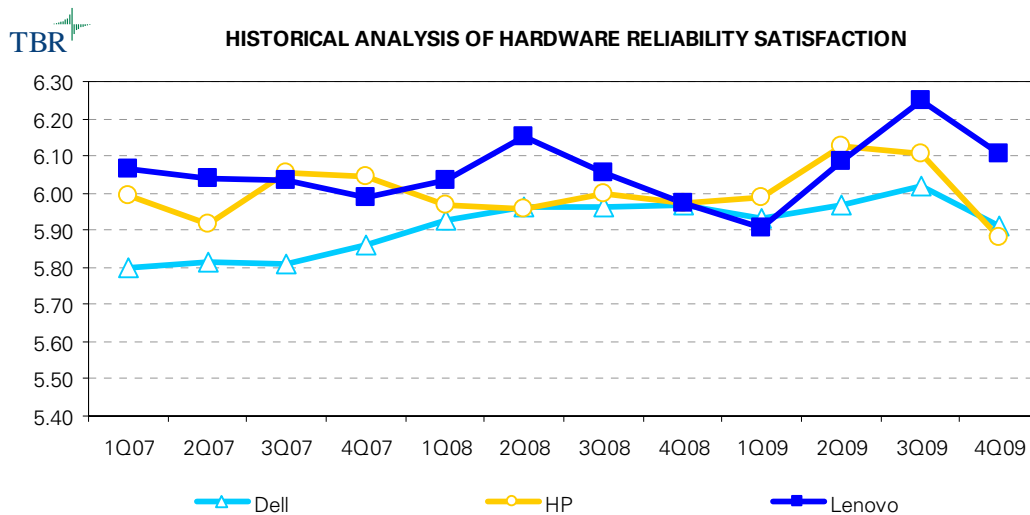
**HARDWARE RELIABILITY ANALYSIS**  
AVERAGES 4Q06 THROUGH 4Q09



SOURCE: TBR.

## Hardware Reliability/Quality

Fairly consistently, Lenovo leads the competitive field for notebook reliability satisfaction



SOURCE: TBR.

Note: This graph represents the pure mean satisfaction positions for hardware reliability.

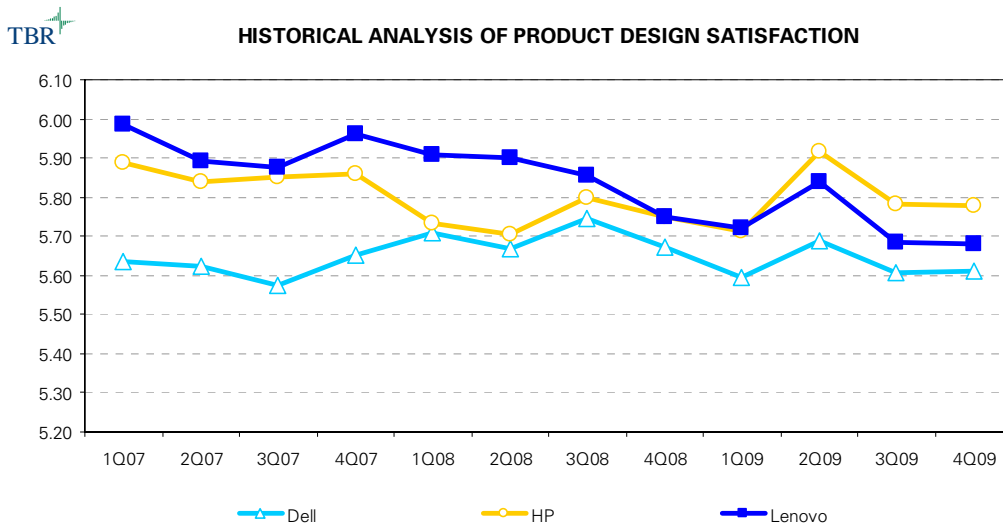
### MAJOR INFLUENCES:

- Satisfaction with notebook quality/reliability is highly correlated with perceptions of both product design and value.
- Today's customer perceptions are influenced by increased mobility and thinner, lighter designs that also incorporate durability and rugged elements.
- Technology innovations include thinner/lighter designs without sacrificing performance, energy efficiency and manageability; more common usage of solid state drives for improved reliability; embedded WiMAX; and more comprehensive security features.
- To reduce support costs, customers are interested in the cost-saving application of improved remote management tools and improved security features.
- Systems manufacturers must focus on positioning their value propositions during stressed economic times. Price may become more of a factor than in the past, particularly in light of the recent successes of the netbook category. More affordable ultra-thin notebooks for business professionals are now entering the marketplace, inspired by the recent success of netbooks.
- Corporate spending on notebooks may begin to pick up in 2010 and the OEMs are starting their refresh cycles during 1Q10 based on Intel's recent core i7 processor and upcoming Core vPro platform, adding new systems management, security and client virtualization capabilities.

- When TBR shifted its methodology from phone to online data collection in 2Q09, customer perceptions of hardware reliability did not follow the same pattern of declining scores as most metrics. Scores either remained constant (HP) or improved (Dell and Lenovo) until 3Q09.
- The fact that we are observing a collective decline in mean satisfaction scores in 4Q09 could be a function of a number of factors. We may simply be observing small corrections following the improvement of the previous two reporting periods, or this may be the function of a sort of ennui that develops when customers delay product upgrades due to reduced spending.

## Product Design

Long-term trends exhibit a steadily declining state of satisfaction with corporate notebook design/features



SOURCE: TBR.

Note: This graph represents the pure mean satisfaction positions for product design.

- TBR believes recent declines in satisfaction with notebook design may be associated with increasing requirements for ultra-thin form factors that do not sacrifice performance or battery life and are not price-prohibitive. More recent factors include the need for improved support and management cost controls for a better value.
- Because of the understated status of product design, TBR presents the pure mean satisfaction positions only.
- Recent design efforts by systems manufacturers include updated and broadened wireless connectivity options such as embedded WiMAX; extended battery life; enhanced security and manageability features; ease-of-use and deployment features; enhanced reliability/durability features; and improved energy efficiency. Intel's upcoming Core vPro fourth-generation platform promises improved systems management, security and virtualization capabilities; Turbo Boost technology automatically adjusts core frequencies for improved workload balancing and energy consumption.
- The recent success of netbooks should inspire a drive toward more affordable ultra-thin notebooks for highly mobile professionals.

- Lenovo has frequently outperformed the competition. Recovering its position in 4Q07, Lenovo regained a competitive strength status and maintained it through three reporting periods. A dip in 4Q08 forced a neutral rating that has persisted.
- Dell has historically been more challenged in creating a strong impression of product design innovation, and was cited with five consecutive competitive warnings (from 4Q06 to 4Q07). A significant improvement allowed Dell to recover, yet an additional period of declining scores (4Q08 and 1Q09) against competitors' substantially improving scores led TBR to reissue the warning in 2Q09. However, competitors' declining positions led to the warning being rescinded by 3Q09.
- HP's positions improved during late 2005 and early 2006, followed by a long period of stasis. Positions declined during 1H08, but rebounded in 3Q08, followed by two periods of decline. The substantial uptick in 2Q09 led to a first-ever competitive strength for HP in this category. The subsequent correction in 3Q09 returned HP to a neutral rating.

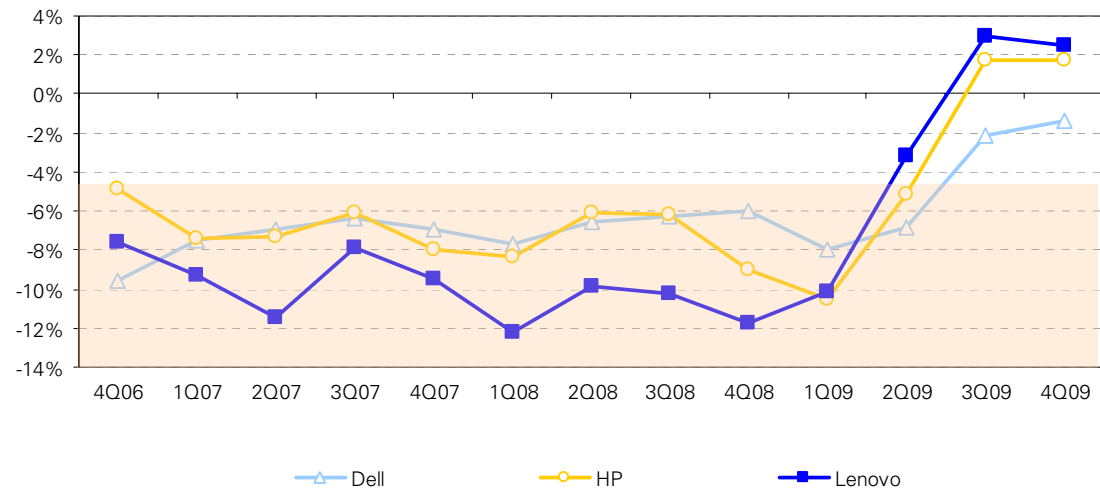
## Notebook Value

Recently relaxing expectations for pricing/value allow all three vendors to follow through by 3Q09

- Dell and HP have historically been most consistent in their GAP scores, bordering on the acceptable range for an extended period.
- Lenovo has generally struggled to keep pace with customer expectations. While managing to keep out of danger throughout 2005 and much of 2008, Lenovo was cited with a competitive warning in 4Q08. The company recovered fully in 1Q09 due to competitors' declining satisfaction positions.
- In 2Q09, the GAP scores of HP and Lenovo shot up considerably due in part to rising satisfaction, but predominantly due to relaxing expectations. By 3Q09, this new trend affected all three players.
- Dell's 3Q09 and 4Q09 ratings, while within the acceptable range, trail those of both HP and Lenovo. Customer expectations for value have been significantly higher among Dell customers.



**VALUE ANALYSIS**  
AVERAGES 4Q06 THROUGH 4Q09



Acceptable  
GAP range  
(in white)

SOURCE: TBR.

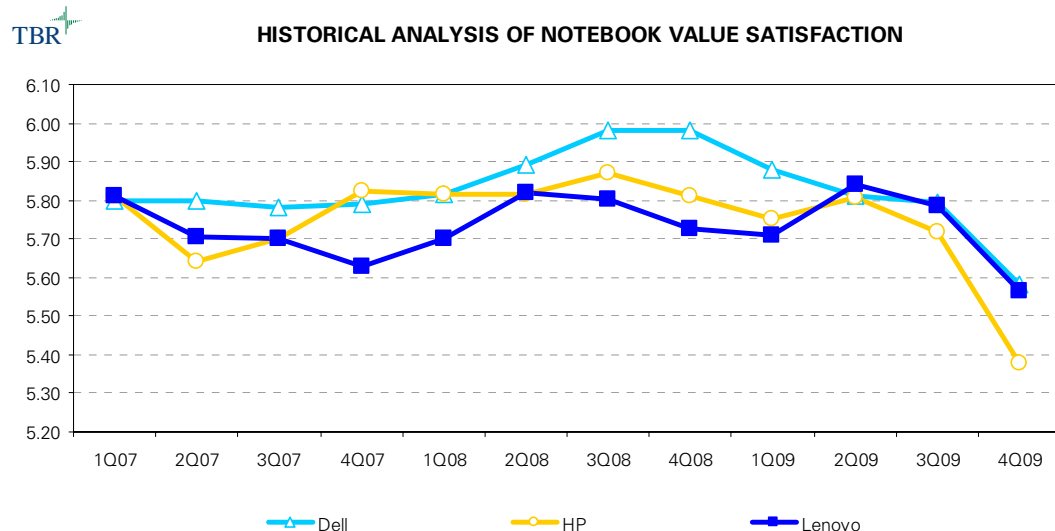
### MAJOR INFLUENCES:

TBR's correlation analyses demonstrate a strong relationship between how customers view notebook value and how they view product characteristics, including both reliability and design. The view of value may be going through somewhat of a transition due to constrained IT spending budgets. The longer-term view (total cost of ownership) is likely remaining intact as it relates to expected reliability and durability of notebook systems. Customers are also looking for better ways to control the high costs of notebook deployment, support and management. The shorter-term view (purchase price) may also be rearing its head, correlated with an expectation for rich design features at affordable prices.

## Notebook Value

### Satisfaction with notebook value takes a hit in 2009

- Dell's satisfaction positions for notebook value rose steadily during 2008, reaching a peak by the year's end. This was followed by a corrective phase that was completed by 2Q09, cancelling out the progress of the previous periods. Dell's first competitive strength win in the timeline to the right occurred in 2Q08, and was held through the next three reporting periods (including 1Q09). By 2Q09, however, Dell's mean positions had collided with those of competitors, resulting in the loss of its previous competitive strength status.
- HP has generally held its own, earning a shared competitive strength with Dell in 3Q08, an honor not to be repeated thereafter due to declining ratings. With a modest rise in position in 2Q09, HP's score matched that of Dell for the first time since 1Q08. HP's score dropped slightly behind those of the competition in 3Q09 and then substantially in 4Q09, leading to its first competitive warning.
- During 1H08, Lenovo recovered from a long period of declining ratings. However, following its 2Q08 peak, positions declined again. This was the second in a series of three waves of similar patterns, with the most recent down-tick occurring in 3Q09.



SOURCE: TBR.

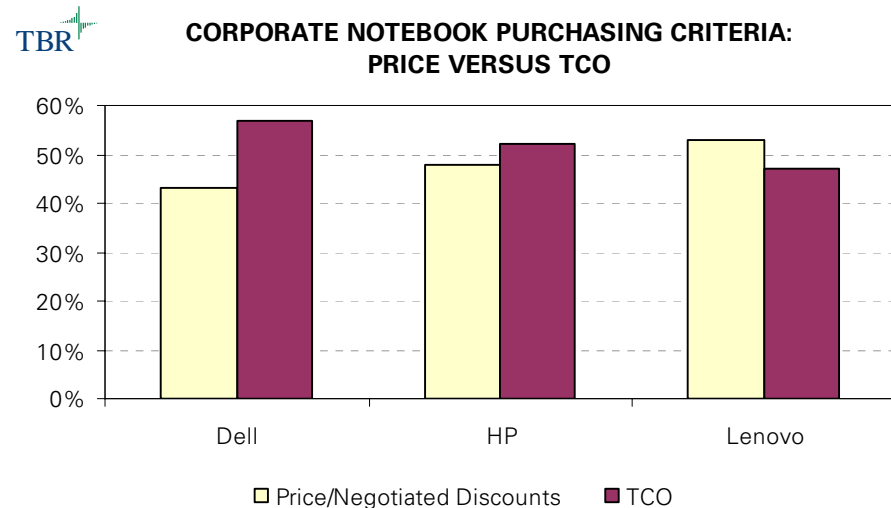
*This graph represents the pure mean satisfaction ratings for notebook value, unlike the GAP positions represented in the previous slide.*

The decline of satisfaction with notebook value is not associated with TBR's methodology shift beginning in 2Q09. Ratings were eroding as far back as 4Q08 and accelerated during 4Q09, well after the data collection method change. TBR believes factors influencing this trend include a very deep economic recession, as well as the need for improved performance, security, management, and support – something that could be addressed as soon as the first or second quarter of 2010 when product refreshes are due. Whether this affects value perceptions, however, will depend on the level at which companies will be willing to take up long-awaited significant upgrades.

## Notebook Value

Commercial notebook customers tend to be split between the price-conscious and those considering the entire value proposition

- When asked whether purchase price/negotiated discounts or total cost of ownership is the priority when evaluating notebook PCs for purchase, customers were split.
- This represents a shift from the preceding reporting period, when an average of 60% were focused on price, and may be an indication that companies are beginning to see their way out of the recession.
- TBR will continue to track these perceptions in future study periods. For now, it appears to be a divided world where some customers (the price-conscious) are taking a shorter-term focus than their counterparts in evaluating the value proposition for corporate notebook PCs.

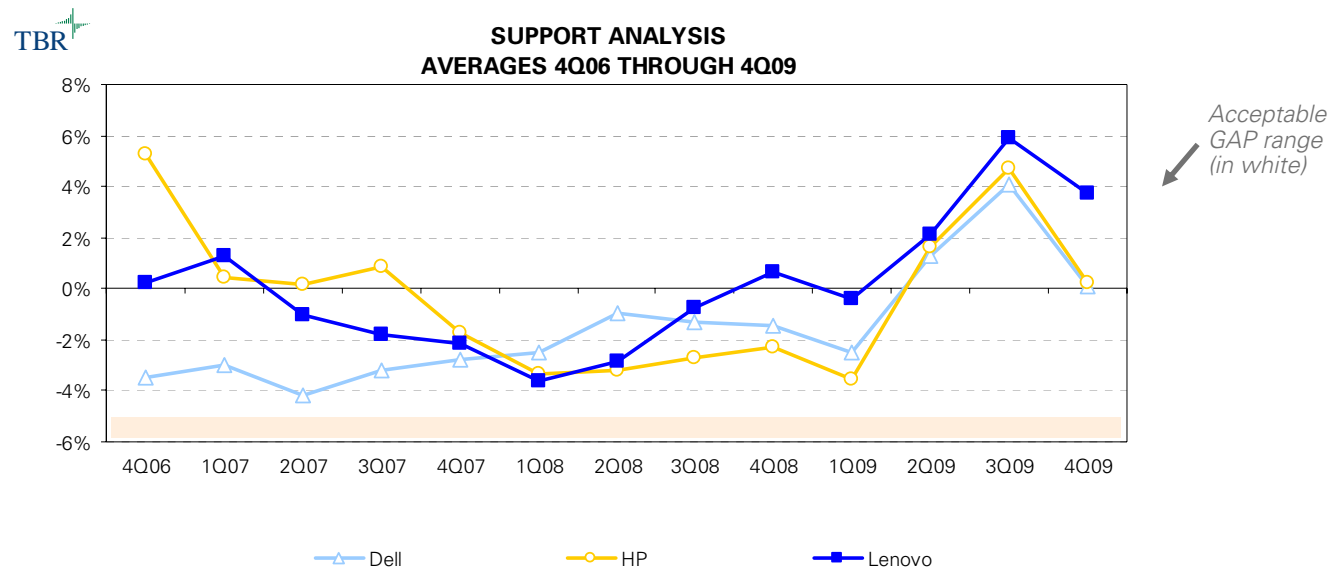


SOURCE: TBR.

## Notebook Support

All three competitors consistently meet customer expectations for notebook support

- Dell, HP and Lenovo have all brought in performances safely and consistently in the acceptable GAP range since 2Q06.
- Dell had perhaps been more challenged than its competitors, due to high expectations, with its GAP ratings only occasionally reaching the 0% mark.
- Overall, since early 2008, the pattern has been one of steady improvement at meeting generally high customer expectations for all three corporate notebook OEMs. Currently, all three are exceeding customer expectations for notebook support.



SOURCE: TBR.

*As would be expected, perceptions of phone support, repair time and parts availability are all strongly correlated with one another.*

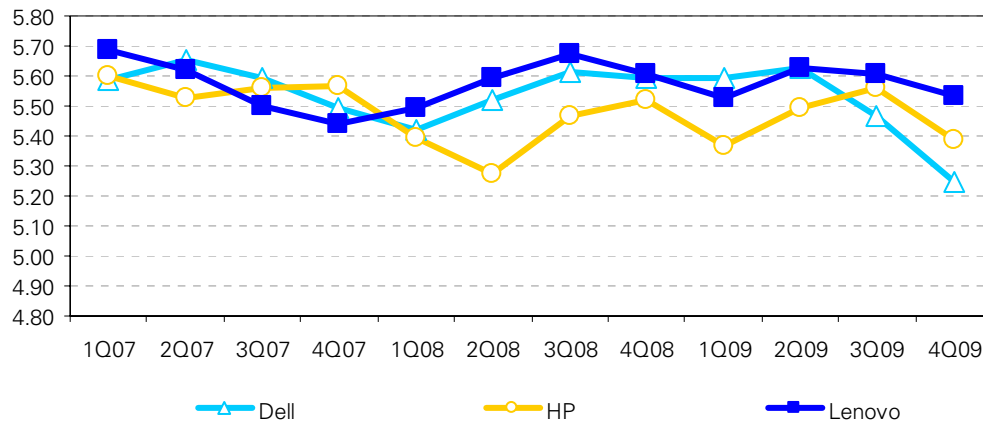
## Notebook Support

Performances had converged over time, but differences returned

- Until late 2007, performance differences were generally lacking with respect to technical support services for corporate notebooks. Differences increased in 2008, driven by improvements for Lenovo and Dell and somewhat greater challenges for HP. By 4Q09, however, only Lenovo maintained consistently strong satisfaction ratings, significantly outperforming both competitors in both categories.
- Dell's phone support rating positions have proven more challenging than those relating to repair time. However, both areas have been steadily weakening over time, followed by an acceleration during the past two periods.
- HP's positions for both support categories had been declining steadily since early 2007. Its repair time ratings stabilized in 2008, when it ran as a middle-of-the-road competitor. HP's phone support positions declined steadily to 2Q08, followed by a partial recovery, though positions have been subsequently irregular, lacking sustainability. HP's repair time satisfaction ratings have been comparatively more stable than those for phone support.
- Lenovo's satisfaction positions steadily improved during 2008; yet, both categories exhibited declines during late 2008 and early 2009. Both recovered nicely into 2H09.



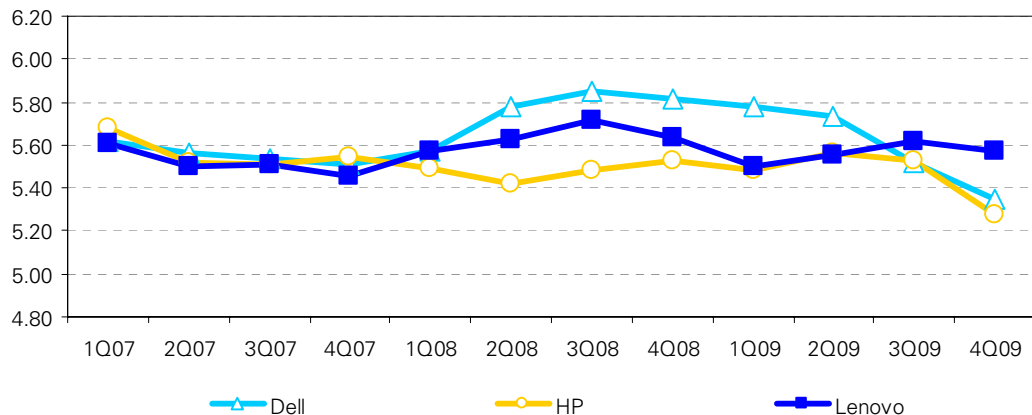
### HISTORICAL ANALYSIS OF PHONE SUPPORT SATISFACTION



SOURCE: TBR.



### HISTORICAL ANALYSIS OF REPAIR TIME SATISFACTION



SOURCE: TBR.

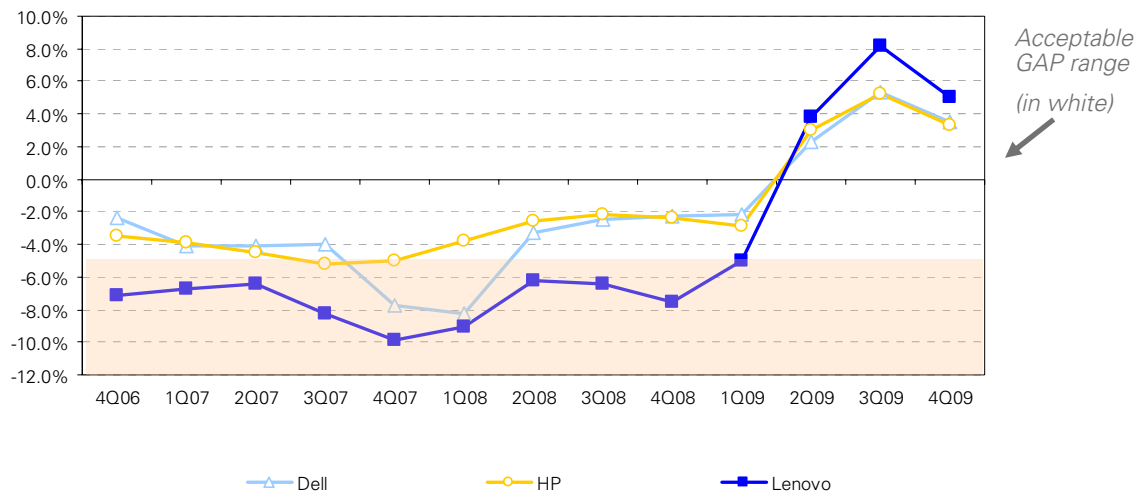
## Notebook Delivery/Availability

Dell and HP have been most successful in consistently meeting customer expectations in the long term, while Lenovo has suddenly matched their performance in 2009

- Note that most GAP performances relative to delivery time have been erratic, influenced by new product introductions and backlogs as well as the availability of various components.
- Dell's lead has not always been assured, particularly following an extended period during which GAP positions steadily widened. In 2Q08, Dell regained its first competitive strength since 1Q06. This was carried into 3Q08, but has not been repeated.
- HP's successes have been erratic, though competitive strengths were established from 3Q07 to 1Q08. By 3Q08 and 4Q08, HP regained and retained a competitive strength. This, however, was not sustained into 1Q09 or beyond.
- Lenovo's GAP positions had generally resided outside the acceptable GAP range, though its 2Q08 position showed a substantial improvement. From 3Q05 to 4Q08, Lenovo was consistently unable to achieve GAP positions in the acceptable range. In 4Q08, Lenovo was cited with its first competitive warning since 1Q06, but fully recovered by 1Q09. In 2Q09, Lenovo earned its first GAP rating well within the acceptable range, where it currently remains.

TBR

PRODUCT DELIVERY/AVAILABILITY ANALYSIS  
AVERAGES 4Q06 THROUGH 4Q09



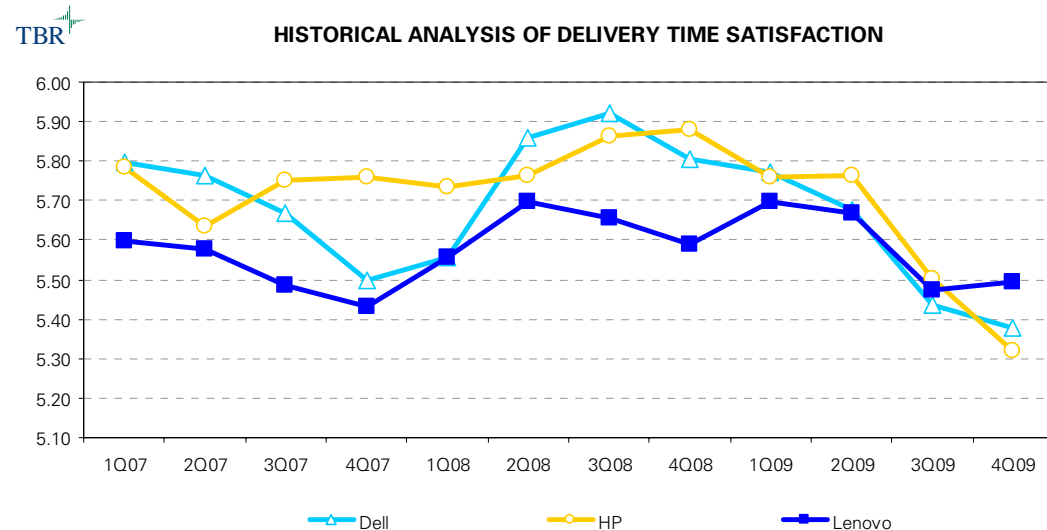
SOURCE: TBR.

*The abrupt improvement in GAP ratings for delivery time in 2Q09 & 3Q09 was a function of sharply relaxing customer requirements/expectations. Outside of TBR's shift from telephone to online data collection, it is not clear what may be driving this – other than a possible reduction in spending that would push delivery time to a lower relative level of importance versus the more immediate requirements of value and quality. What needs to be explored further at this time, however, is the abrupt drop in satisfaction ratings (see next slide).*

## Notebook Delivery/Availability

Satisfaction positions collectively decline from mid-2008 to the present

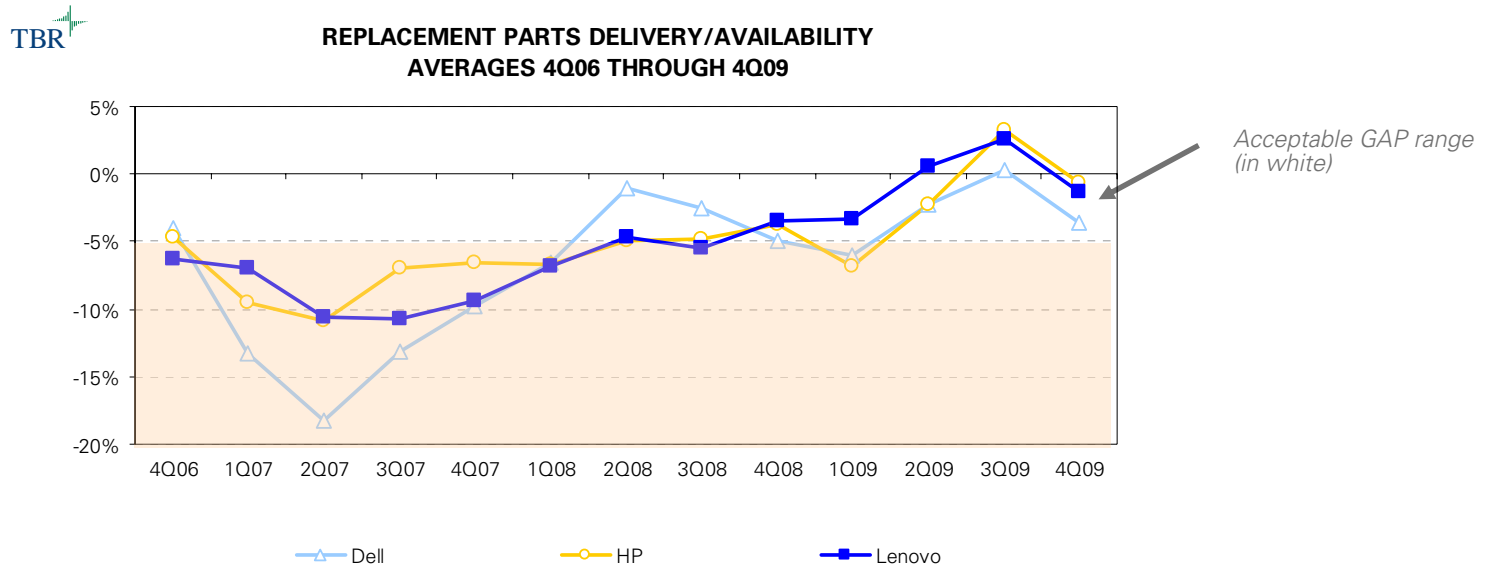
- HP's satisfaction positions ran relatively constant (versus competitors' more widely varying positions) for an extended period of time. They began a steady decline in 1Q09.
- Dell's positions have shifted in waves of relatively long duration – a long and steady decline in satisfaction from late 2006 to late 2007, with the second wave from late 2008 to late 2009.
- Lenovo's satisfaction ratings declined from late 2006 to late 2007, followed by a recovery to mid-2008, followed by a broken period of vacillating scores that ultimately ended in an overall decline in position.
- The sharp decline in satisfaction positions in 3Q09, affecting all three OEMs, initially appeared to be part of the methodology shift. However, closer examination reveals that satisfaction levels were already declining as of mid-2008. Consequently, this is likely a pattern of real satisfaction concerns for some customers. For others, delivery time has become a low-priority item (see previous slide). There have been some recent supply shortages relative to LCDs and battery packs, and this may have affected production for the OEMs, consequently affecting satisfaction positions for some customers.



*This graph represents the pure mean satisfaction ratings for delivery time, unlike the GAP positions represented in the previous slide.*

## Replacement Parts Availability

GAP scores collectively improving, emerging into the acceptable range by 2Q09



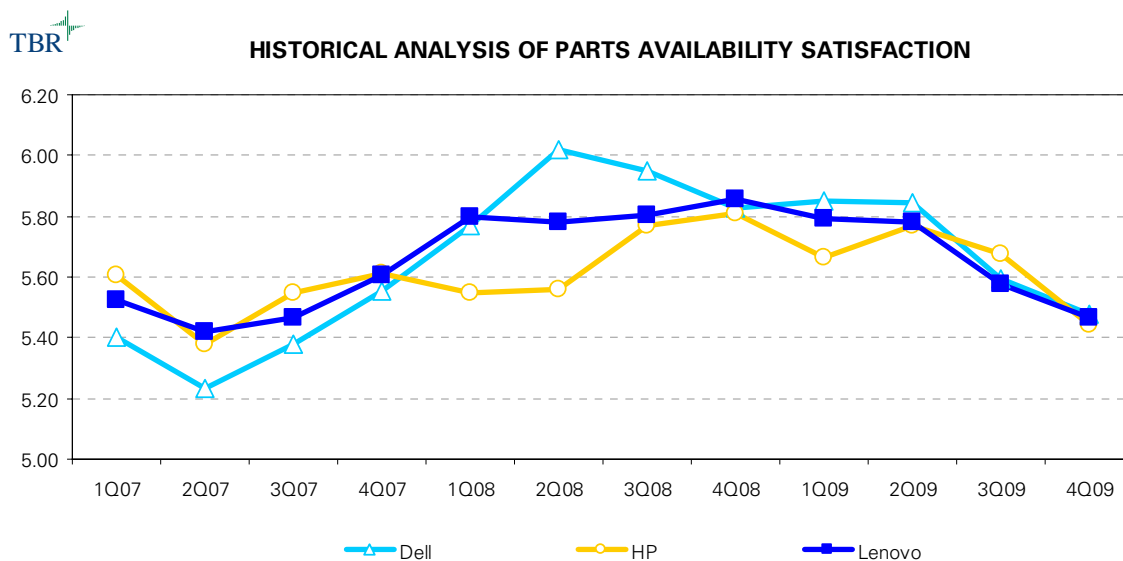
SOURCE: TBR.

- The industry encountered spare/replacement parts backlogs during 1H07, followed by a strong recovery period during 2H07.
- Dell recovered from GAP positions that extended as wide as -20% in 2Q07, marking the greatest-magnitude improvement of the competitors.
- Lenovo's positions moved back to the acceptable GAP range by 2Q08.
- HP's GAP ratings were only modestly affected back in mid-2007. Current positions remain within the acceptable GAP range.
- Since late 2007, all three OEM's GAP ratings for parts availability have been steadily rising, moving into the acceptable score range by 2Q09.

## Replacement Parts Availability

Satisfaction positions collectively improved to mid-2008, as worldwide component backlogs eased; currently declining positions could be associated with new battery recalls/LCD shortages

- In 2007, declining satisfaction positions for parts availability were the result of a number of components supply shortages. The turnaround began in late 2007, when satisfaction positions for Dell, HP, and Lenovo all increased by varying degrees. Dell's positions achieved the greatest bounce, reaching very high levels of satisfaction by 2Q08. Additionally, Dell earned competitive strengths for the first three reporting periods of 2008, and again in 1Q09.
- Battery recalls from Sony resurfaced in October 2008; yet, the effect on satisfaction ratings was minimal. By this time, notebook customers were more familiar with the concept of battery supply shortages.
- HP, however, which had been spared from the earlier battery shortages, announced a recall in March 2009. While this may have influenced the subsequent decline in scores, note that competitors' scores also declined. This new pattern is more than likely a function of TBR's methodology shift in 2Q09.



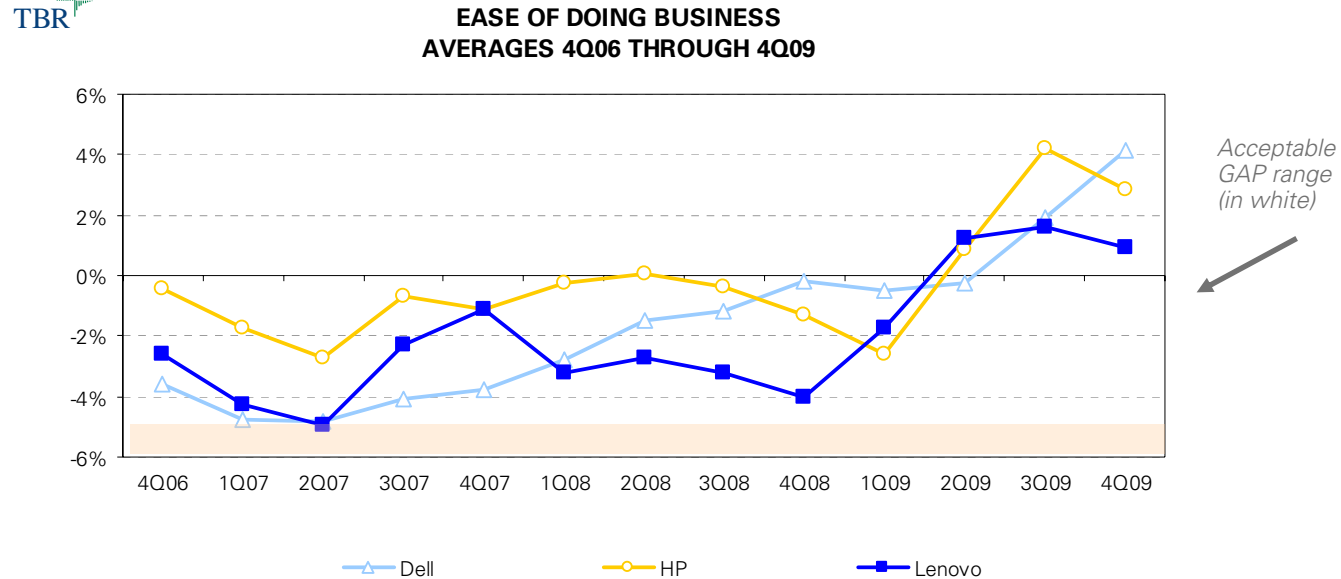
*This graph represents the pure mean satisfaction ratings for replacement parts availability, unlike the GAP positions represented in the previous slide.*

## Ease of Doing Business

Relationship issues remain indirectly powerful; most vendors are effectively meeting expectations



- Dell's GAP positions widened considerably during late 2006, followed by a complete recovery due to steadily improving GAP scores from 3Q07 to the present.
- HP's GAP positions had straddled or were just under the meeting-expectation mark until 2Q09, when its scores moved into the exceeding-expectation area.
- Lenovo has consistently achieved GAP ratings just inside the acceptable range.
- Recently improving GAP positions have been a function of easing expectations for all three customer groups.



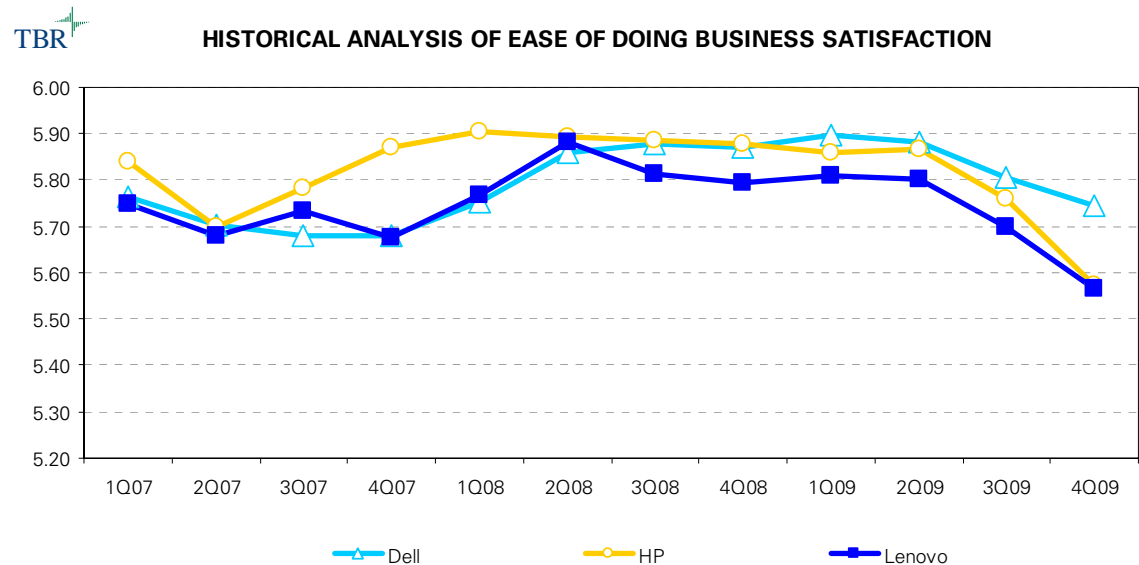
SOURCE: TBR.

*Satisfaction with ease of doing business is highly correlated with how customers perceive supply chain efficiencies (delivery time, parts availability), notebook value, and technical support.*

## Ease of Doing Business

Relationship issues remain indirectly powerful; most vendors are effectively meeting expectations

- Mean satisfaction positions for all three OEMs improved during late 2007/early 2008, followed by extended periods of stability, and a subsequent weakening during 2009.
- Because the 2009 decline in satisfaction affected all three OEMs equally, one should view this as a function of TBR's methodology shift. In 4Q09, however, Dell's score was comparatively stable while Lenovo's and HP's continued to decline.



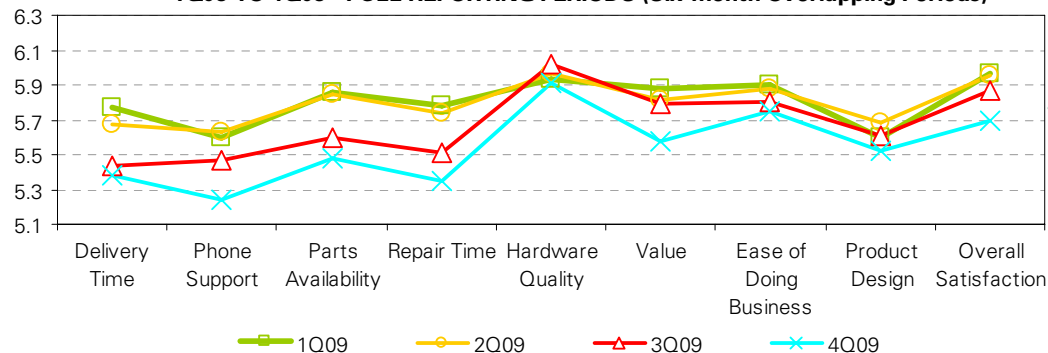
SOURCE: TBR.

*This graph represents the pure mean satisfaction ratings for notebook ease of doing business, unlike the GAP positions represented in the previous slide.*

## Analysis of the Past Four Reporting Periods

Dell's satisfaction positions decline during 2H09, but appear to be headed for recovery

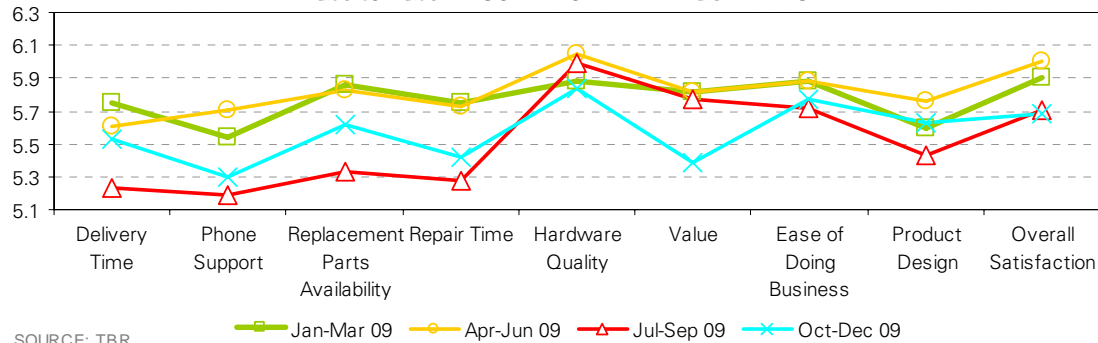
**DELL NOTEBOOK CUSTOMER SATISFACTION TREND ANALYSIS**  
1Q09 TO 4Q09 - FULL REPORTING PERIODS (Six-month Overlapping Periods)



Dell's weighted satisfaction indices declined by 2% from 2Q09 to 3Q09, and by another 2% between 3Q09 and 4Q09. With the exception of the comparatively stable hardware reliability rating, Dell's positions weakened considerably during 2H09. The most significantly affected positions were those relating to support and services, with the notebook value rating registering a reaction during the most recent reporting period.

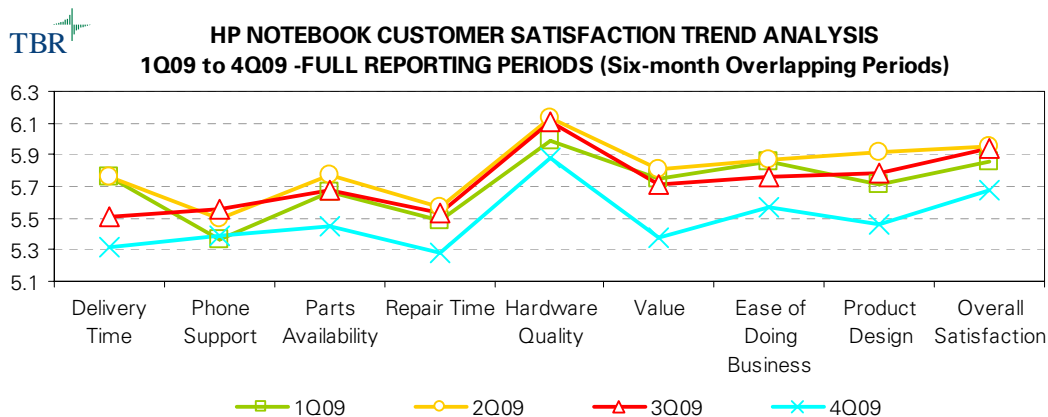
In examining the movement within discrete calendar quarters, it would appear that Dell's services satisfaction ratings are rebounding during 4Q09, while there was clearly a delayed reaction within its notebook value metric, which declined abruptly during 4Q09 after remaining constant for the previous three. This finding is not surprising, in that the value perception is dependent on several metrics. Considering the recent recovery of the services positions, along with product design, it is possible that Dell is heading toward a recovery, to be confirmed or denied in the upcoming 1Q10 period.

**DELL NOTEBOOK CUSTOMER SATISFACTION TREND ANALYSIS**  
1Q09 to 4Q09 - DISCRETE CALENDAR QUARTERS



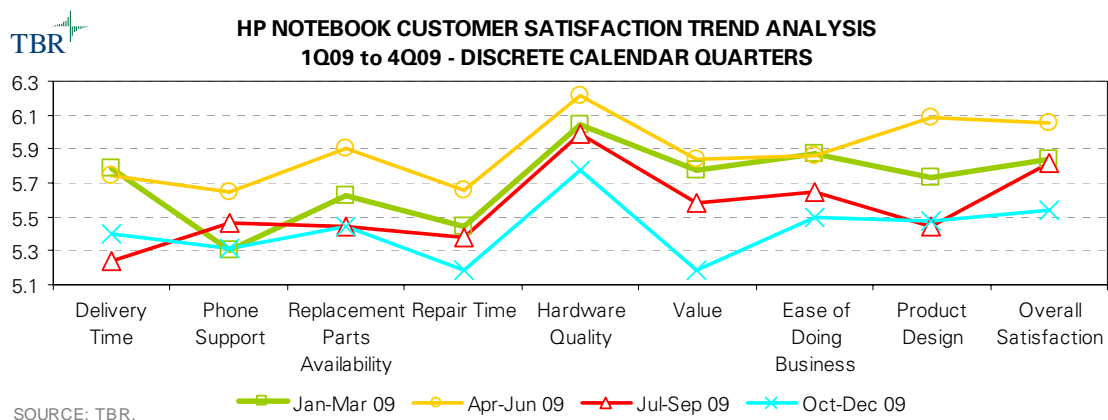
## Analysis of the Past Four Reporting Periods

HP's challenges in 2009 are being driven by customer perceptions of pricing, value and relationships



HP's weighted satisfaction index dropped by more than 4% from 3Q09 to 4Q09, following a far more modest dip of 1.5% between the preceding two periods. Scores during the first three periods of 2009 resided within rather narrow ranges and, consequently, most positions dropped abruptly and by sizeable magnitudes in 4Q09.

HP's quarterly movement exhibits far greater variability throughout the past year. Unlike Dell, HP's first two quarters were not particularly similar, other than the delivery time, notebook value and ease of doing business ratings. Overall, HP's performances improved during 2Q09, then dropped back during 3Q09, and weakened further into 4Q09. In looking for clues, TBR believes there are three areas driving the downward momentum. The notebook value and ease of doing business ratings have declined steadily during 2H09, after having previously remained constant. The range of repair time satisfaction positions has been wide during 2009. All other movement has been affected by these key metrics, which speak to HP's pricing and marketing communications efforts.



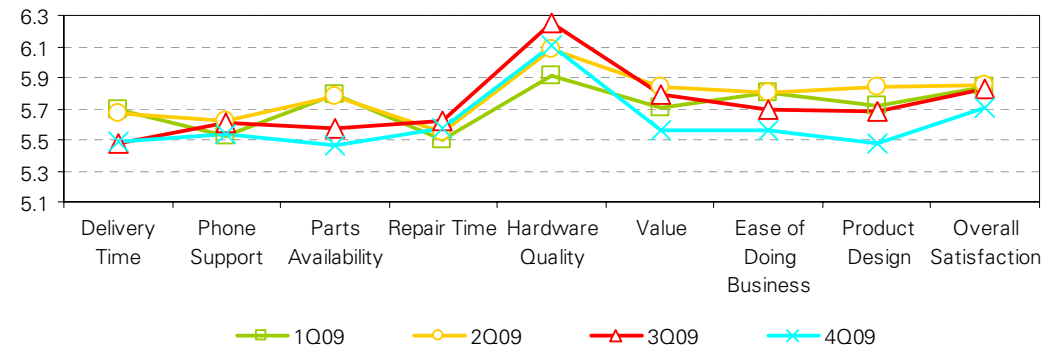
## Analysis of the Past Four Reporting Periods

Lenovo positions hold up far better than the competition under industry pressures

Lenovo's weighted satisfaction index declined by 2% from 3Q09 to 4Q09, following a very modest dip of <1% between the previous two periods. Compared to competitors, Lenovo's performances have generally held up throughout the year. In fact, satisfaction with hardware reliability has actually improved. There are a few areas that could represent concerns, with current positions well below previous high points, including notebook value, ease of doing business and product design.



**LENOVO NOTEBOOK CUSTOMER SATISFACTION TREND ANALYSIS**  
1Q09 to 4Q09-FULL REPORTING PERIODS (Six-month Overlapping Periods)

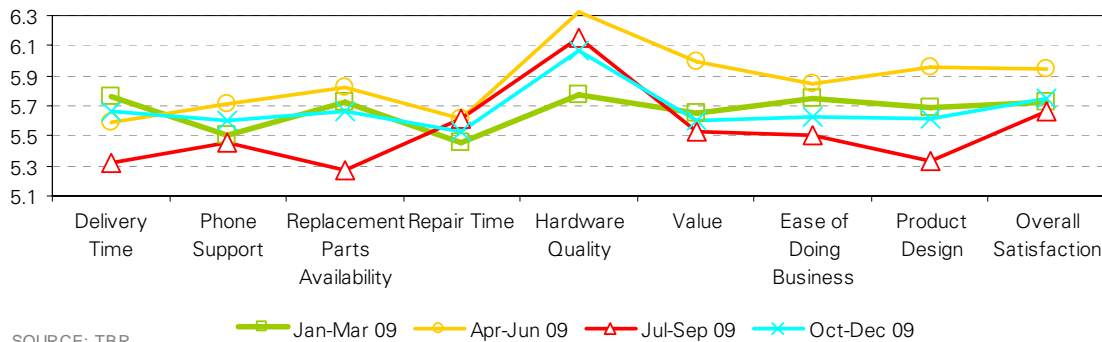


SOURCE: TBR.

Many of Lenovo's weakest performances occurred during 3Q09, when new low points were registered for all but the hardware reliability and repair time metrics. During 4Q09, just about every position improved, nearly recovering fully to previous high points across the areas of delivery time, technical support, and parts availability. Some further progress needs to take root relative to notebook value, ease of doing business and product design, where Lenovo's strong 2Q09 performances were significantly higher than in 4Q09.



**LENOVO NOTEBOOK CUSTOMER SATISFACTION TREND ANALYSIS**  
1Q09 to 4Q09 - DISCRETE CALENDAR QUARTERS

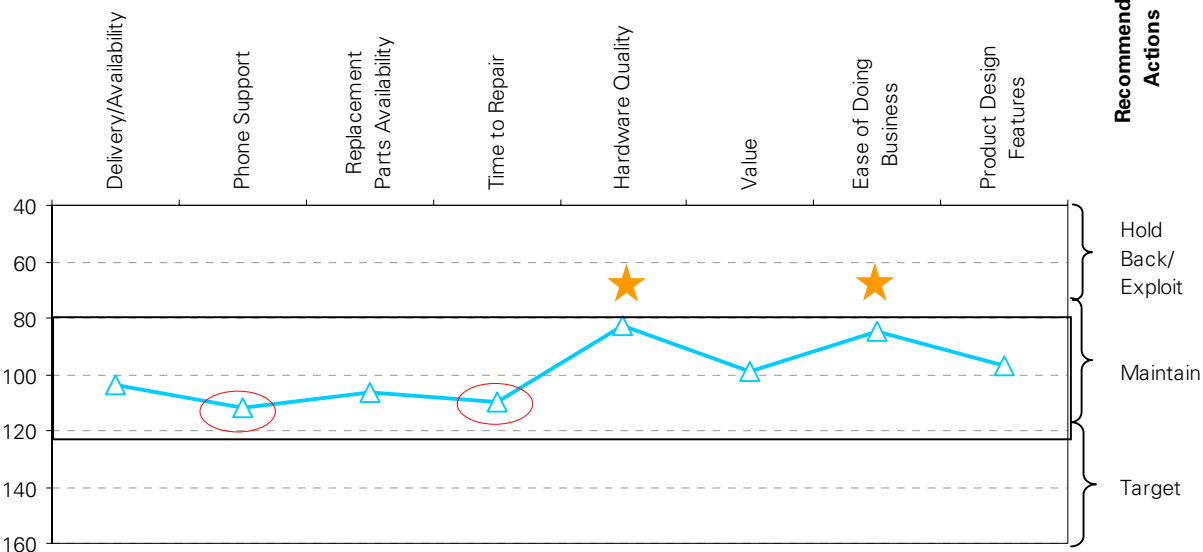


SOURCE: TBR.

## Dell Improvements GAP Analysis points to some concerns around technical support

- **Primary Area Requiring Improvement Efforts:** Phone support, repair time
- **Secondary Areas Requiring Improvement Efforts:** None in particular
- **Areas of Competency:** Hardware quality/reliability, ease of doing business

TBR **SUGGESTED AREAS OF IMPROVEMENT FOR DELL 4Q09**



*Dell's phone support and repair time GAP positions were not only wider than the average gap for Dell in 4Q09, but mean positions were significantly lower than those of Lenovo. Lenovo earned competitive strengths for both technical support areas in 4Q09. Dell was cited with a competitive warning for phone support during this period.*

*Dell's ease of doing business GAP rating was one of its strongest, and is likely associated with its exceptional customer loyalty rating.*

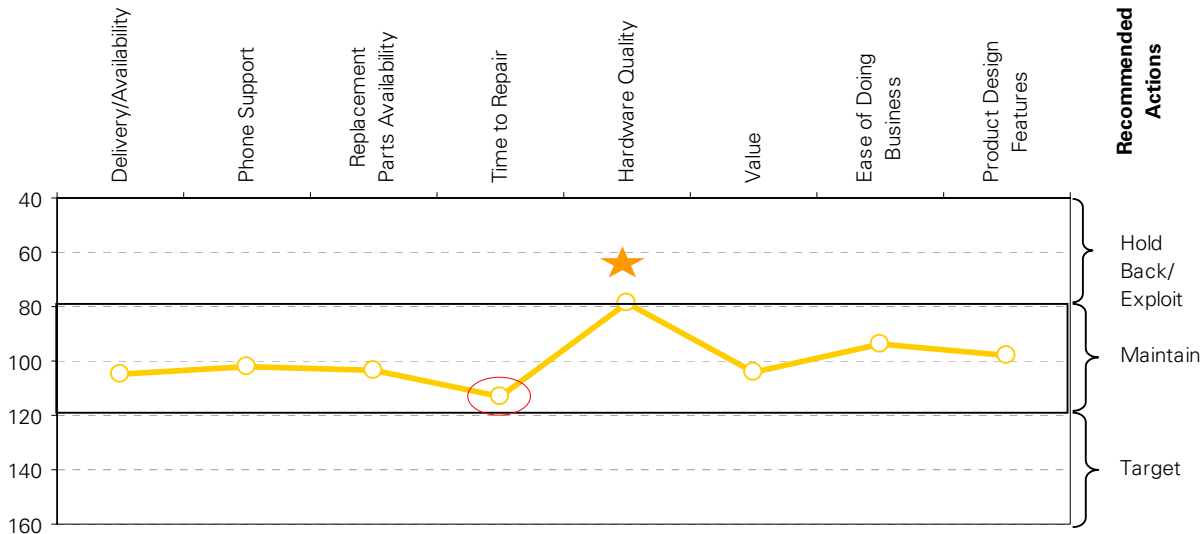
SOURCE: TBR.

## HP remains affected by recent concerns with technical support

- **Primary Area Requiring Improvement Efforts:** Repair time
- **Secondary Area Requiring Improvement Efforts:** Nothing in particular
- **Areas of Competency:** Hardware quality/reliability



**SUGGESTED AREAS OF IMPROVEMENT FOR HP 4Q09**



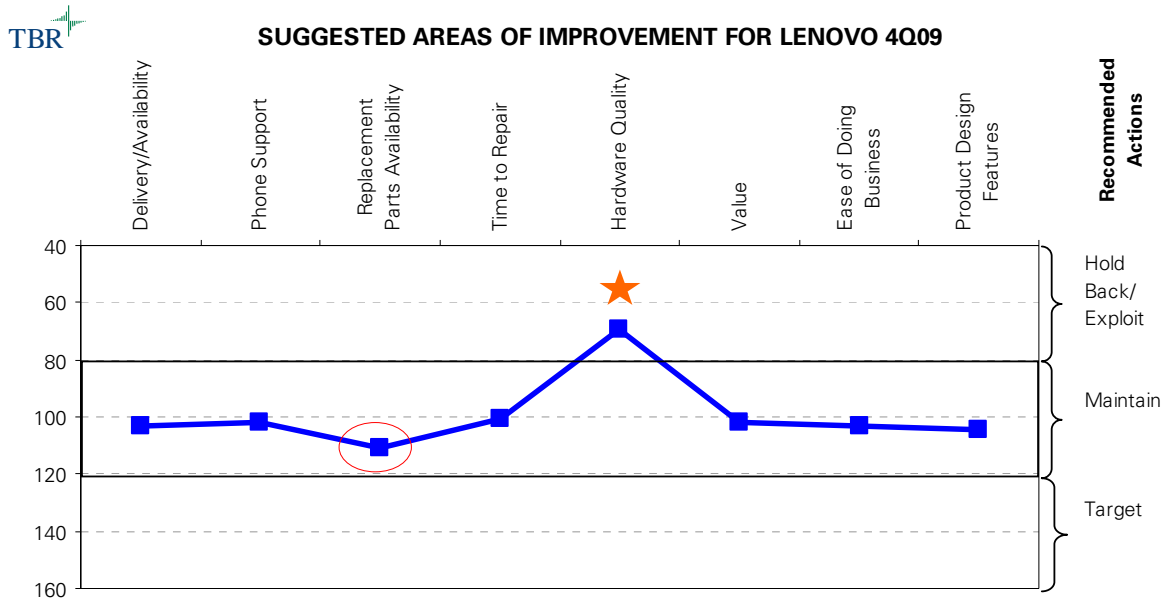
*HP's repair time GAP score was cited by the Improvements GAP Analysis as an area of concern for a third consecutive reporting period. HP's mean satisfaction rating was significantly below that of Lenovo and placed marginally behind Dell.*

*While HP's GAP score for notebook value was only marginally below average, its likelihood as a concern was overshadowed by repair time, because HP customers in the study sample understated the importance of value.*

SOURCE: TBR.

## Lenovo's Improvements GAP Analysis indicates parts availability as the leading concern area

- **Primary Area Requiring Improvement Efforts:** Parts availability
- **Secondary Areas Requiring Improvement Efforts:** Nothing in particular
- **Areas of Competency:** Hardware reliability



SOURCE: TBR.

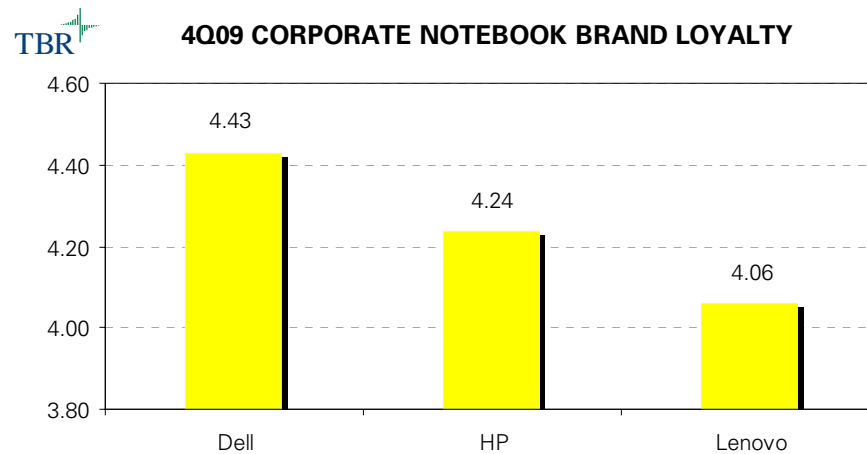
Consistent with the findings of the previous trends analysis, Lenovo's GAP positions in the Improvements GAP Analysis show notebook value, ease of doing business and product design as marginally below average. Yet, this test focused on parts availability as the leading concern, due to relatively high customer expectations.

Note Lenovo's hardware reliability rating extended well into the top portion of the graph, in contrast to competitors' scores, which were just borderline.

## Dell's customer loyalty rating remains a competitive advantage

*Dell's customer loyalty rating continued to run significantly higher than the industry average.*

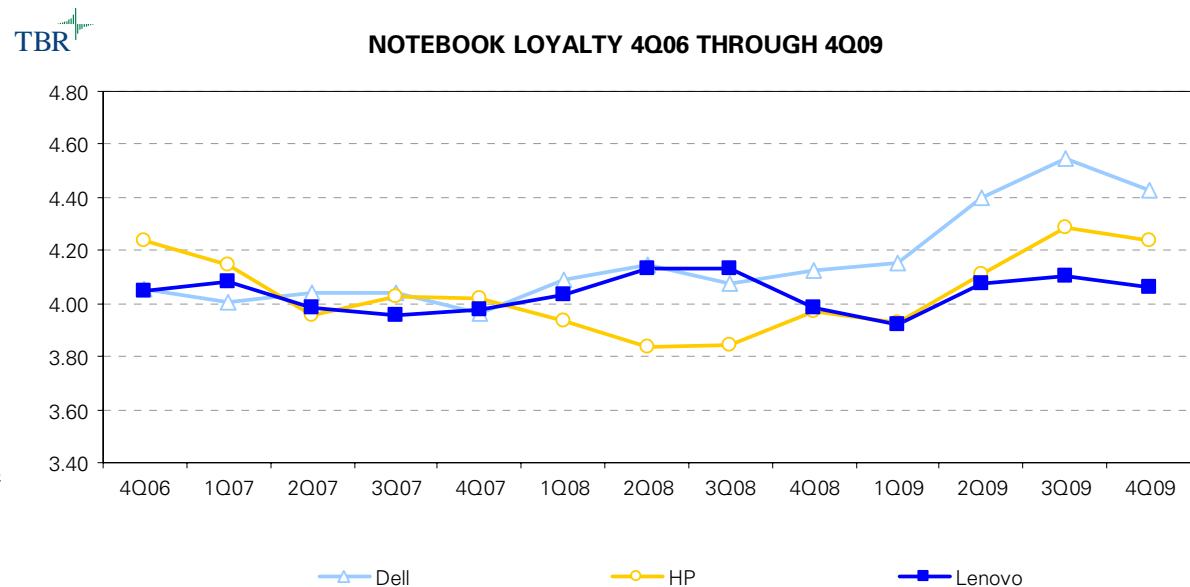
*Lenovo has been unsuccessful at transitioning strong customer satisfaction to solid loyalty.*



SOURCE: TBR.

## Customer loyalty has been strengthening at various magnitudes during the past three reporting periods

- Beginning in 4Q08, the Dell and Lenovo trendlines (previously tracking closely to one another) moved in separate directions – Dell's continued to improve, while Lenovo's dipped in both 4Q08 and 1Q09, followed by a recovery into the current reporting period.
- HP customer loyalty spiked in 4Q06, followed by a slowdown. The company's loyalty positions remained in the proximity of Dell's and Lenovo's for the following five reporting periods. In 2Q08, HP's rating fell back and remained at a disadvantage until the uptick in 4Q08. This momentum continued into 3Q09, placing HP in the midfield position between Dell and Lenovo through to 4Q09.



SOURCE: TBR.

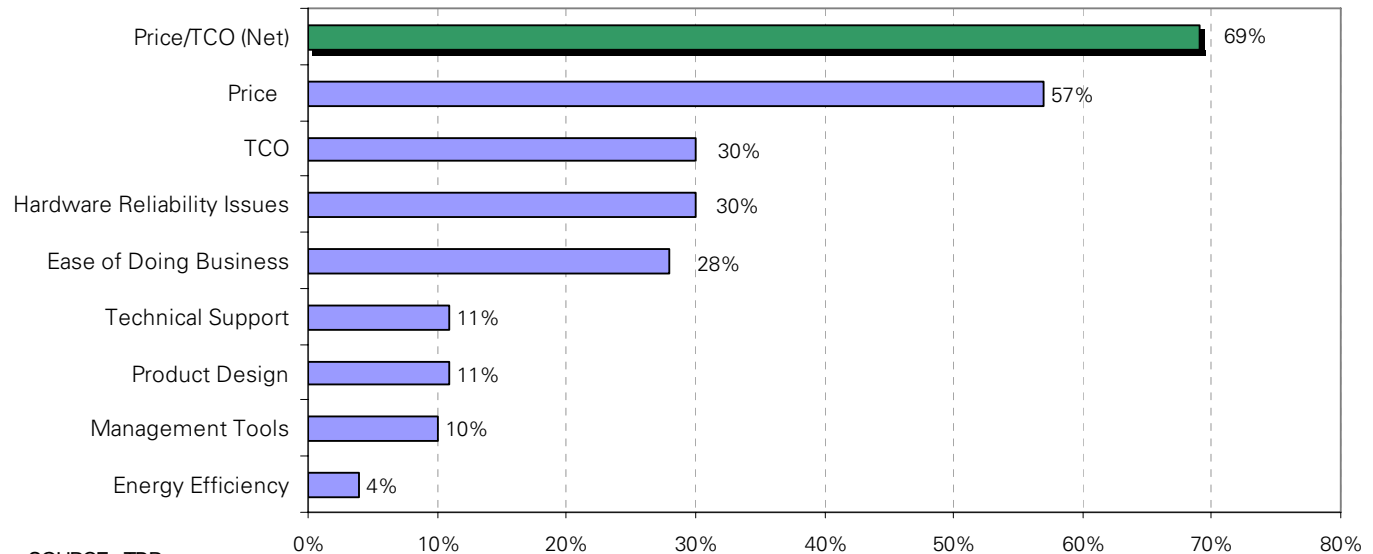
*Note that customer loyalty strengthened in 2Q09 for all three OEMs, followed by further improvement into 3Q09. The movement of Dell's ratings during 2Q09 and 3Q09 has been substantial, thus enhancing Dell's leadership positions. TBR slightly changed the wording of the question from 2Q09, so the loyalty rating is now more of a reflection of intent to continue to buy.*

## Pricing is the top reason customers would switch commercial notebook provider, followed by reliability concerns and relationship quality



- When asked which factors would be most influential in stirring customers to switch their corporate notebook OEM partner, customers focused on purchase price, the leading response by at least a two-to-one margin over other factors.
- Close behind, customers look at value propositions (TCO), hardware reliability issues, and relationships with their OEMs.

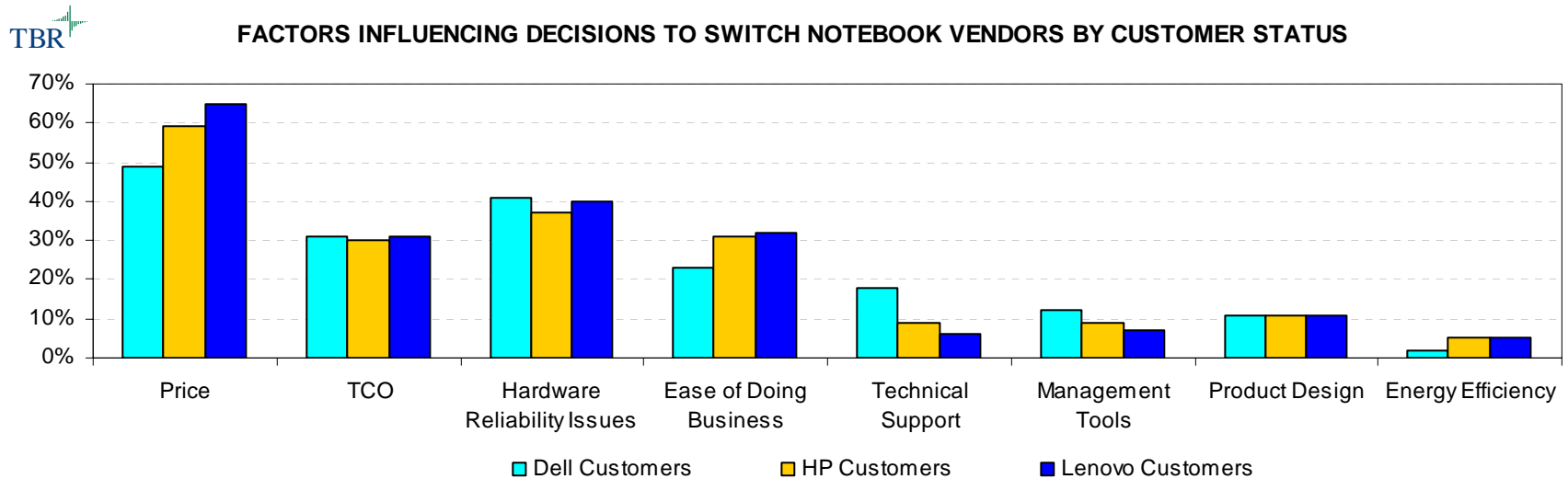
**FACTORS INFLUENCING DECISIONS TO SWITCH NOTEBOOK VENDORS**



SOURCE: TBR.

*More than two-thirds of corporate notebook customers would switch their OEM based on pricing and/or cost of ownership evaluations. These, along with concerns over hardware reliability and relationships, are the leading drivers of brand defections.*

## Dell commercial notebook customers are less likely to be looking elsewhere for better pricing or relationship quality, but some have concerns about support



SOURCE: TBR.

- Current HP and Lenovo customers were more likely than Dell customers to cite pricing as a catalyst for switching commercial notebook OEM.
- Note that TCO is an equal concern across all three customer groups.
- While Dell customers were less likely to cite ease of doing business as a rationale for brand switching, nearly 20% cited technical support, compared to <10% among HP and Lenovo customers.

# Appendix A: Analytical Graphs & Tables

## Stated relevance of satisfaction attributes continues to focus on product integrity, value, relationships and support

- **Critical:** Hardware reliability
- **Very Important:** Parts availability, ease of doing business, value, and repair time
- **Also Important:** Product design, phone support
- **Less Important:** Delivery time

### Recent Changes in Viewpoint:

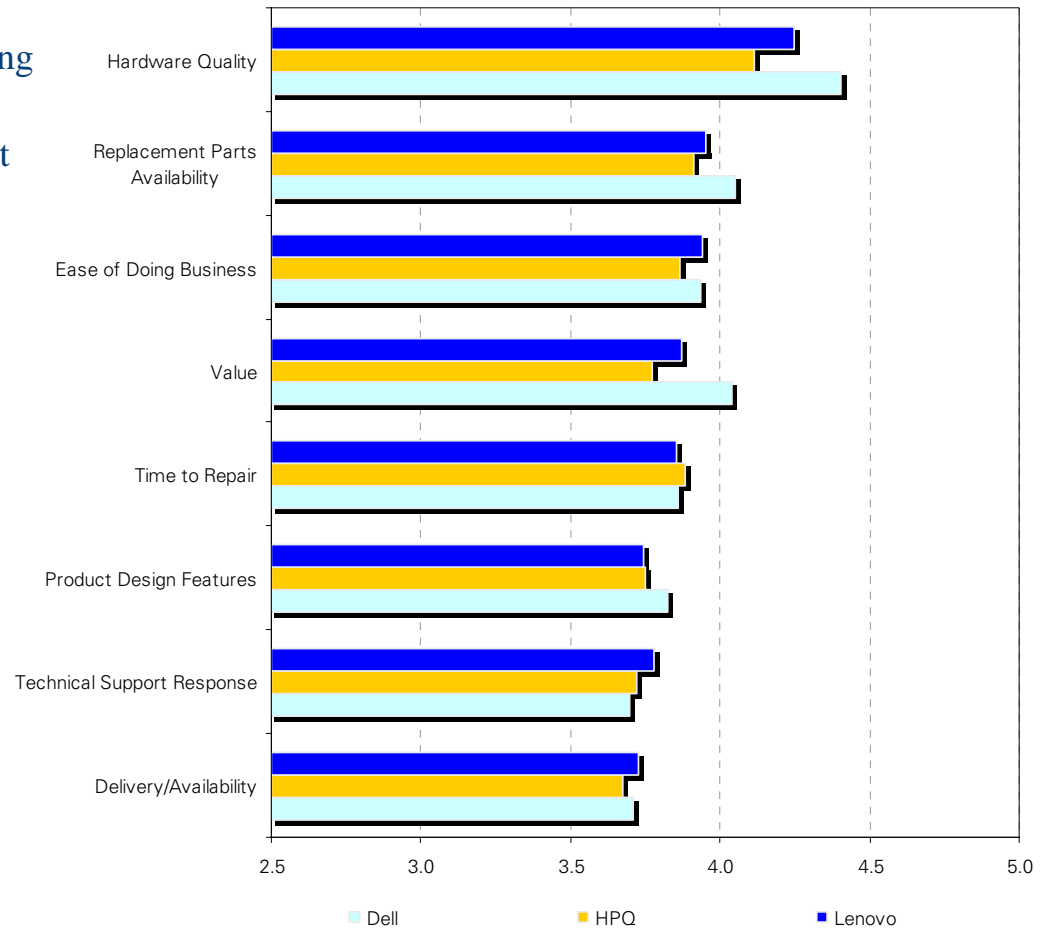
Ease of doing business has risen in the rankings as a criterion for buying decisions, satisfaction and customer loyalty. The perceived quality of the relationship between customer and OEM is now a critical component of customer satisfaction and loyalty.

Delivery time has dropped to a lower-priority concern from previous study iterations. This finding may be related to reduced spending.

Dell customers have somewhat higher expectations than average, particularly relating to quality and value.




CORPORATE NOTEBOOK IMPORTANCE RATINGS BY PRIMARY VENDOR



SOURCE: TBR.

## Statistical significance test No. 1 reveals hardware quality/reliability, repair time and loyalty as leading differentiators

This test compares each player's performances against the sum of its competitors' using standard test

TBR  Results of the Standard t-Test			
	DELL	HP	LENOVO
Hardware Quality/Reliability			↑
Product Design/Features			
Overall Value		↓	
Ease of Doing Business	↑		
Delivery Time/Product Availability			
Replacement Parts Availability			
Phone Support	↓		↑
Time to Repair			↑
Overall Satisfaction			
Customer Loyalty	↑		↓
Grand Mean		↓	↑

↔ Average score; t-test is null; ↑ t-Test is significantly higher than average of competitors; ↓ t-test is significantly lower than average of competitors. Smaller arrows represent significant differences at the 0.06 to 0.10 confidence levels.  
SOURCE: TBR.

Lenovo's singular No. 1 ranking in the 4Q09 study was driven by a substantially higher-than-average hardware reliability satisfaction rating (as observed in 3Q09) along with a new one for repair time.


These were the only satisfaction categories where TBR observed performance differentiation at a high level of statistical confidence.

At a lower level of confidence, Lenovo outperformed the group for phone support and Dell for ease of doing business; Dell underperformed the industry average for phone support and HP for overall value.

Dell continued to score substantially higher than the competition relative to customer loyalty.

## Statistical significance test No. 2 elaborates on the findings of test No. 1

This test exhibits paired comparisons using the standard test

TBR 	Results of Paired t-Tests					
	DELL VS.		HP VS.		LENOVO VS.	
	HP	LENOVO	DELL	LENOVO	DELL	HP
Hardware Quality/Reliability		↓		↓	↑	↑
Product Design/Features						
Overall Value	↑		↓			
Ease of Doing Business						
Delivery Time/Product Availability						
Replacement Parts Availability						
Phone Support		↓			↑	
Time to Repair		↓		↓	↑	↑
Overall Satisfaction						
Customer Loyalty	↑	↑	↓	↑	↓	↓
Grand Mean				↓		↑

↑ t-Test is significantly higher than the average of competitors; ↓ t-test is significantly lower than average of competitors.  
 Smaller arrows represent significant differences at the 0.06 to 0.10 confidence levels.


SOURCE: TBR.

Lenovo outscored both competitors for hardware reliability and repair time, though only its performances against HP were at high levels of confidence.

Lenovo outperformed Dell for phone support at a high level of confidence.

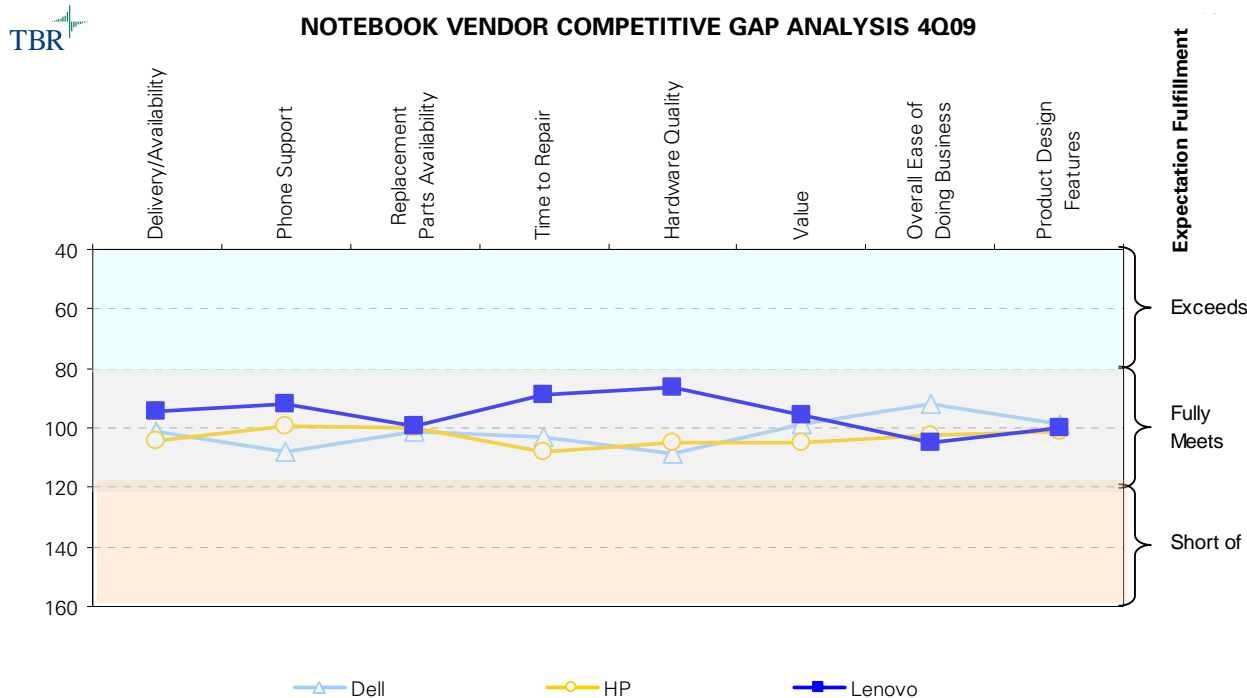
## Statistical significance test No. 3 confirms performance differentiators specified by the first two sets of tests

The Bonferroni correction test is the most stringent of TBR's applied tests

 <b>Differences Between the Vendors According to Bonferroni Correction</b>						
ATTRIBUTE	SIGNIFICANT DIFFERENCES CITED BY BONFERRONI CORRECTION	DELL	HP	LENOVO	CONFIRMATION	VERSUS 3Q09 RESULTS
Hardware Quality/Reliability	Lenovo over HP	0	-1	1	Yes	Lenovo outperformed Dell
Product Design/Features	No significant differences	0	0	0	Yes	Same
Overall Value	No significant differences	0	0	0	Yes	Same
Ease of Doing Business	No significant differences	0	0	0	Yes	Same
Delivery Time/ Product Availability	No significant differences	0	0	0	Yes	Same
Replacement Parts Availability	No significant differences	0	0	0	Yes	Same
Phone Support	Lenovo over Dell	-1	0	1	Yes	There were none
Time to Repair	Lenovo over HP	0	-1	1	Yes	There were none
Overall Satisfaction	No significant differences	0	0	0	Yes	Same
Customer Loyalty	Dell over Lenovo	1	0	-1	Yes	Dell also outperformed HP
Total Numeric Value		0	-2	2		
Without Loyalty		-1	-2	3		

SOURCE: TBR.

# The Competitive GAP Analysis points to Lenovo's hardware reliability and repair time performances as the essential performance differentiators in 4Q09



Lenovo stood apart by nearly exceeding marketplace expectations for notebook quality and repair time.


Although Lenovo also earned a competitive strength for phone support in 4Q09 while Dell received a competitive warning, neither vendor's Competitive GAP rating was close to the borderline on either side of the "meeting expectation" area. Consequently, both were assigned marginal citations (Lenovo's strength and Dell's warning) in 4Q09.

Likewise, HP was cited with a marginal citation (a competitive warning) for notebook value. Its Competitive GAP rating was within range of the competition, due to generally lower customer expectations within the HP group.

SOURCE: TBR.

## Units Installed, Purchased and Planned

On average, companies included in the 4Q09 study have an average of approximately 1,500 notebook PCs installed, and plan to purchase an additional 300 during the coming year, for a 19% replacement rate.

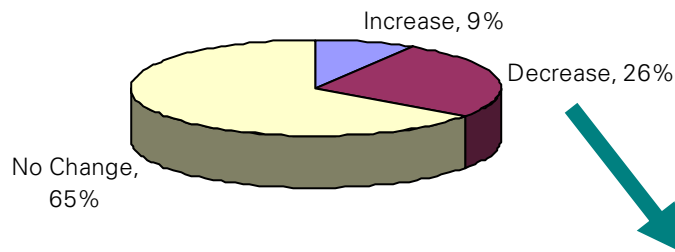
 <b>Corporate Notebook Installed Base &amp; Purchase Intent</b>			
	Average Number of Laptops Installed	Purchased Over Next 12 Months	Percent Replaced Over Next 12 Months
Dell	1,346	294	21.9%
HP	1,453	308	21.2%
Lenovo	1,867	310	16.6%

SOURCE: TBR.

## Expected Spending Pattern Shifts During the Next Year



### EXPECTED CHANGES IN CORPORATE NOTEBOOK HARDWARE PURCHASING BUDGETS, NEXT 12 MONTHS



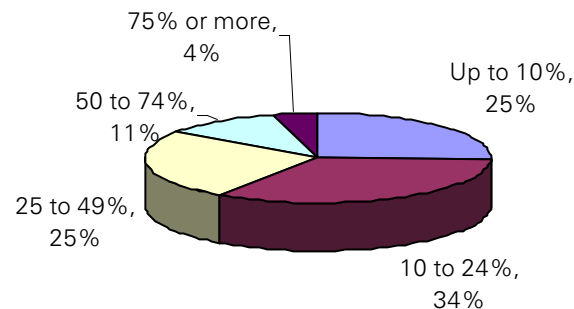
SOURCE: TBR.

The majority of corporate notebook customers expect no change in the budget that designates their notebook purchasing during the next 12 months. Yet, one in three customers expects to see shrinking budgets for notebook purchases.



### EXPECTED DECREASES IN NEXT-YEAR CORPORATE NOTEBOOK PURCHASING BUDGETS (Among Respondents Expecting Shrinking Budgets)

Among those customers expecting reduced notebook purchasing budgets in the next 12 months, an average 28% reduction is expected.

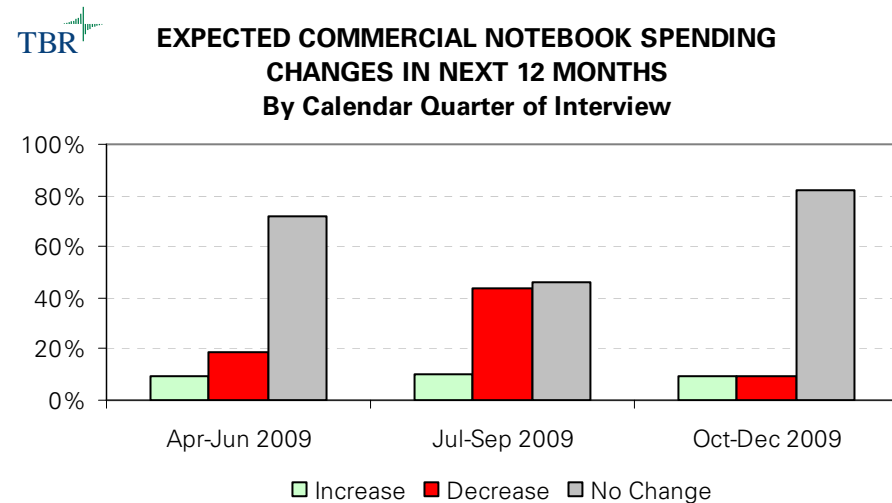


SOURCE: TBR.

## Pessimism surrounding the economy took hold during the summer of 2009; a brighter outlook emerges by fall

In viewing customer expectations for commercial notebook spending by calendar quarter, IT decision-makers started out the year with caution, with the majority indicating they would not see any significant differences in spending for the remainder of the year. However, nearly 20% were planning to reduce their spending. By the summer of 2009, however, the proportion of customers expecting a decline in spending more than doubled, with 44% stating that budgets would be cut. By the fall, customers began to see the potential for lifting budgetary restrictions, and those expecting declining budgets shrunk to a new low, just 9%.

However, midsized and large U.S. companies may not be as likely to open up their spending on notebooks to the same extent as on servers: In TBR's *4Q09 x86-based Servers: Corporate IT Buying Behavior and Customer Satisfaction Study*, we noted a clear uptick in the likelihood of increased spending on servers based on the 4Q09 interviews.

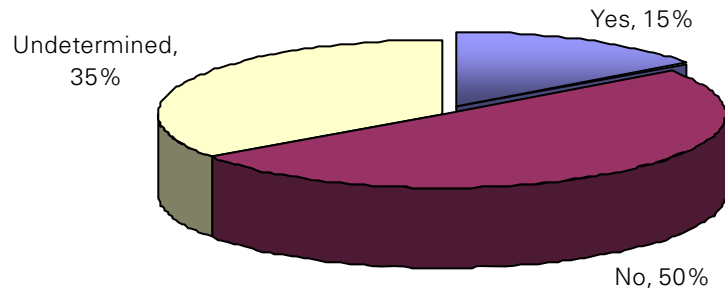


SOURCE: TBR.

## A small group of midsized and large U.S. corporations are considering, or have already purchased, netbooks

TBR

### PURCHASE CONSIDERATION FOR BUSINESS-CLASS NETBOOKS

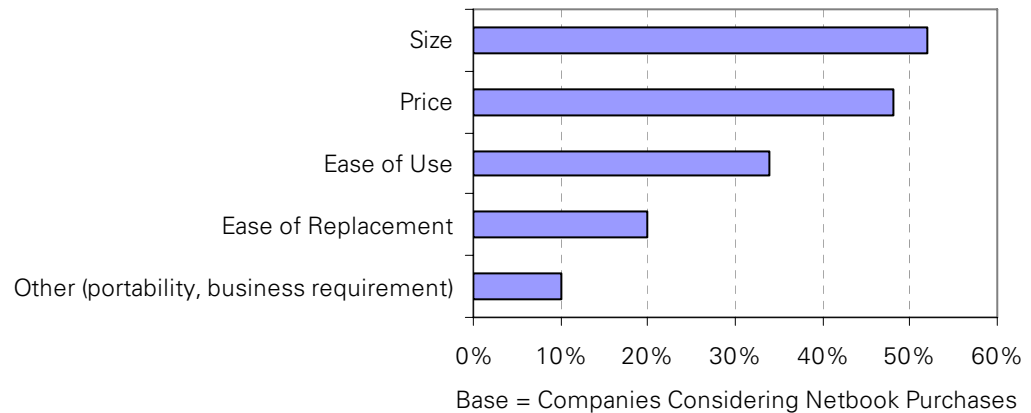


15% of our study respondents indicate they have purchased or are considering purchasing netbooks for their employees. This figure has remained constant throughout the year, suggesting interest has stabilized and is not growing.

SOURCE: TBR.

TBR

### REASONS FOR CONSIDERING BUSINESS-CLASS NETBOOKS



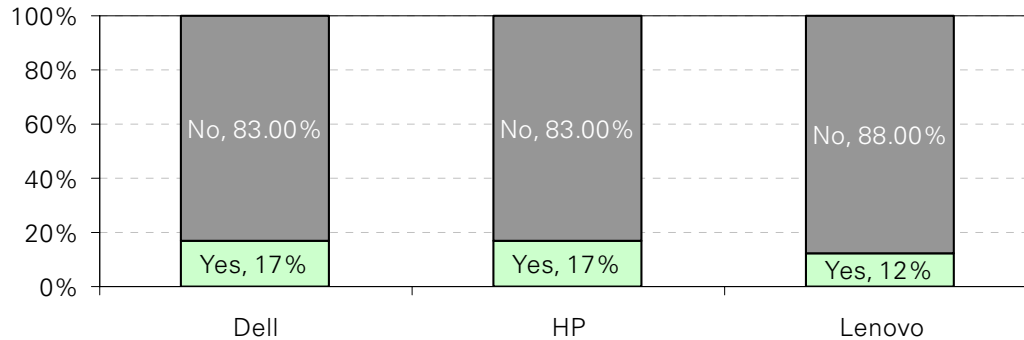
SOURCE: TBR.

Business customers are attracted to the size/weight benefits of netbooks as much as the price tag. A fair number of IT managers also cite ease of use as a buying consideration.

## Very small numbers of IT managers see commercial notebook OEMs' green initiatives as a factor in buying decisions or brand loyalty



**DO GREEN INITIATIVES OF NOTEBOOK PC VENDORS FIGURE INTO YOUR BUYING DECISIONS AND/OR LOYALTY TO YOUR NOTEBOOK OEM?**



SOURCE: TBR.

# Appendix B: Corporate Notebook Customer Satisfaction Scores: 1Q07 Through 4Q09

## 1Q07 Through 4Q09

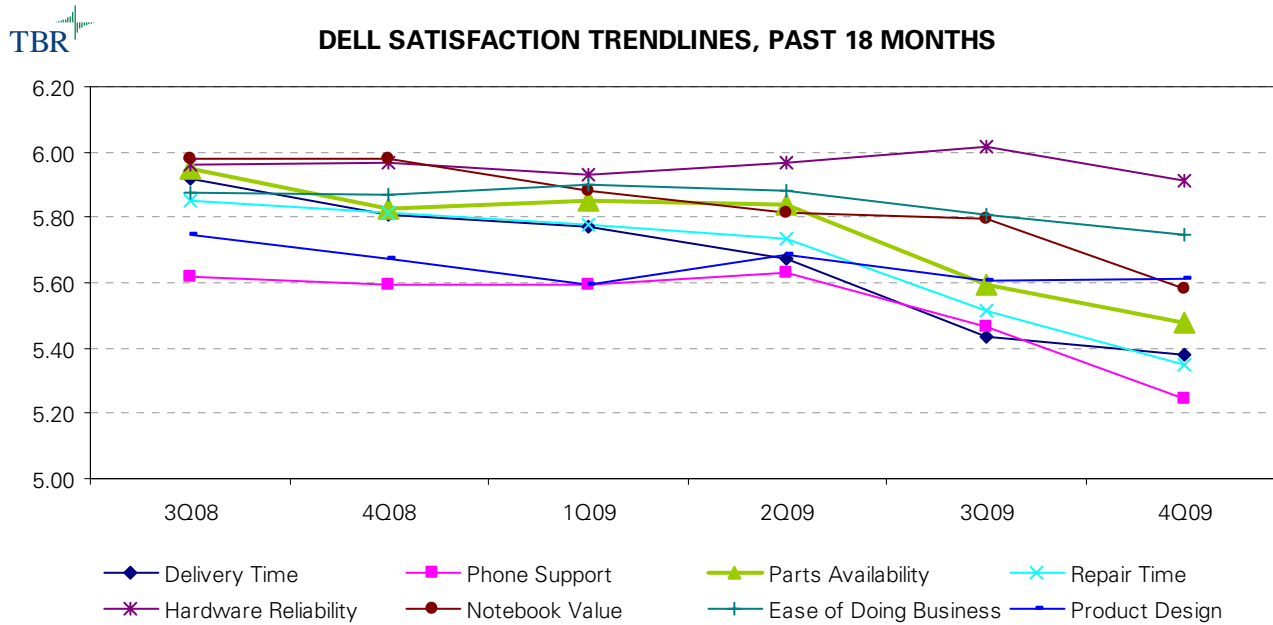
<b>Delivery/Availability</b>	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Dell	5.79	5.76	5.67	5.50	5.56	5.86	5.92	5.81	5.77	5.68	5.43	5.38
HP	5.79	5.64	5.75	5.76	5.73	5.76	5.86	5.88	5.76	5.76	5.50	5.32
Lenovo	5.60	5.58	5.49	5.43	5.56	5.70	5.66	5.59	5.70	5.67	5.47	5.49
<b>Phone Support</b>	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Dell	5.58	5.65	5.60	5.50	5.42	5.52	5.62	5.60	5.59	5.63	5.46	5.24
HP	5.60	5.52	5.56	5.57	5.39	5.27	5.47	5.52	5.36	5.50	5.56	5.39
Lenovo	5.68	5.62	5.50	5.44	5.50	5.59	5.67	5.61	5.53	5.63	5.60	5.53
<b>Replacement Parts Availability</b>	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Dell	5.40	5.24	5.38	5.55	5.77	6.02	5.95	5.83	5.85	5.84	5.59	5.48
HP	5.60	5.38	5.55	5.61	5.55	5.56	5.77	5.81	5.66	5.77	5.68	5.44
Lenovo	5.52	5.42	5.47	5.61	5.80	5.78	5.80	5.85	5.79	5.78	5.58	5.47
<b>Time to Repair</b>	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Dell	5.62	5.56	5.54	5.51	5.57	5.77	5.85	5.81	5.78	5.74	5.52	5.35
HP	5.68	5.51	5.51	5.54	5.49	5.42	5.48	5.53	5.48	5.56	5.53	5.28
Lenovo	5.60	5.50	5.51	5.45	5.58	5.62	5.72	5.63	5.50	5.55	5.62	5.57
<b>Hardware Quality</b>	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Dell	5.80	5.81	5.81	5.86	5.93	5.96	5.96	5.97	5.93	5.97	6.02	5.91
HP	5.99	5.92	6.05	6.05	5.97	5.96	6.00	5.97	5.99	6.13	6.10	5.88
Lenovo	6.06	6.04	6.03	5.99	6.03	6.15	6.05	5.97	5.91	6.08	6.25	6.11

## 1Q07 Through 4Q09

Value	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Dell	5.80	5.80	5.78	5.79	5.82	5.89	5.98	5.98	5.88	5.81	5.79	5.58
HP	5.81	5.64	5.70	5.83	5.82	5.82	5.87	5.81	5.75	5.81	5.72	5.38
Lenovo	5.81	5.70	5.70	5.63	5.70	5.82	5.80	5.73	5.71	5.84	5.79	5.56
<b>Overall Ease of Doing Business</b>	<b>1Q07</b>	<b>2Q07</b>	<b>3Q07</b>	<b>4Q07</b>	<b>1Q08</b>	<b>2Q08</b>	<b>3Q08</b>	<b>4Q08</b>	<b>1Q09</b>	<b>2Q09</b>	<b>3Q09</b>	<b>4Q09</b>
Dell	5.76	5.70	5.68	5.68	5.75	5.86	5.88	5.87	5.90	5.88	5.81	5.74
HP	5.84	5.70	5.78	5.87	5.90	5.89	5.89	5.88	5.86	5.87	5.76	5.57
Lenovo	5.75	5.68	5.73	5.68	5.77	5.88	5.81	5.79	5.81	5.80	5.70	5.57
<b>Overall Product Design/Special Features</b>	<b>1Q07</b>	<b>2Q07</b>	<b>3Q07</b>	<b>4Q07</b>	<b>1Q08</b>	<b>2Q08</b>	<b>3Q08</b>	<b>4Q08</b>	<b>1Q09</b>	<b>2Q09</b>	<b>3Q09</b>	<b>4Q09</b>
Dell	5.63	5.62	5.58	5.65	5.71	5.67	5.74	5.67	5.59	5.69	5.61	5.61
HP	5.89	5.84	5.85	5.86	5.73	5.71	5.80	5.75	5.71	5.92	5.78	5.78
Lenovo	5.99	5.89	5.88	5.96	5.91	5.90	5.86	5.75	5.72	5.84	5.68	5.68
<b>Overall Satisfaction</b>	<b>1Q07</b>	<b>2Q07</b>	<b>3Q07</b>	<b>4Q07</b>	<b>1Q08</b>	<b>2Q08</b>	<b>3Q08</b>	<b>4Q08</b>	<b>1Q09</b>	<b>2Q09</b>	<b>3Q09</b>	<b>4Q09</b>
Dell	5.77	5.81	5.80	5.79	5.82	5.91	5.96	5.97	5.97	5.96	5.86	5.69
HP	5.98	5.80	5.88	5.91	5.83	5.81	5.89	5.91	5.85	5.95	5.94	5.68
Lenovo	5.94	5.83	5.86	5.87	5.90	5.95	5.95	5.90	5.84	5.85	5.82	5.71

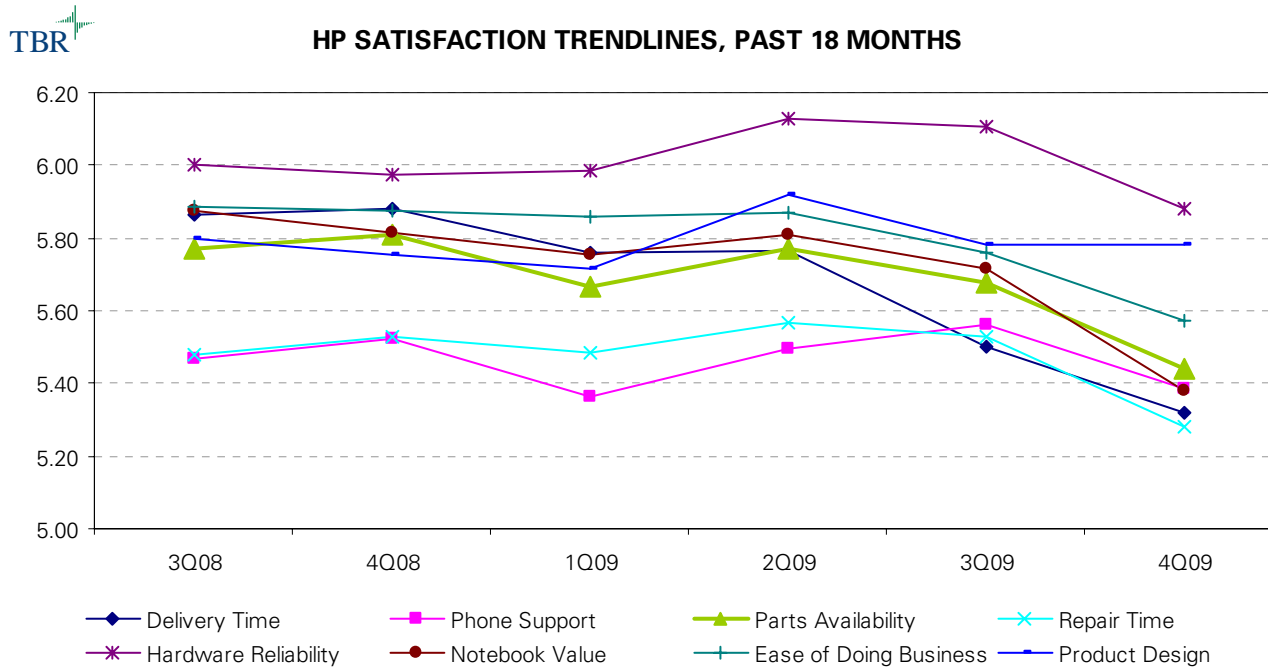
# Appendix C: Satisfaction Trends by Competitor

# Dell Historical Performances, 3Q08 to 4Q09



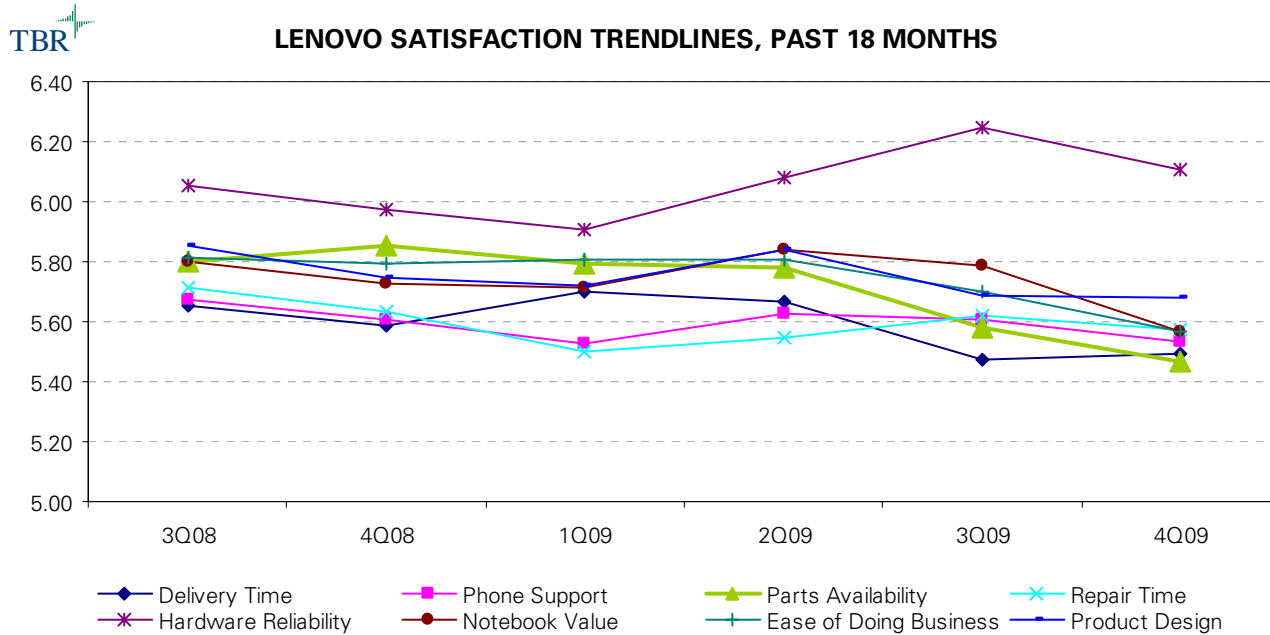
SOURCE: TBR.

# HP Historical Performances, 3Q08 to 4Q09



SOURCE: TBR.

# Lenovo Historical Performances, 3Q08 to 4Q09

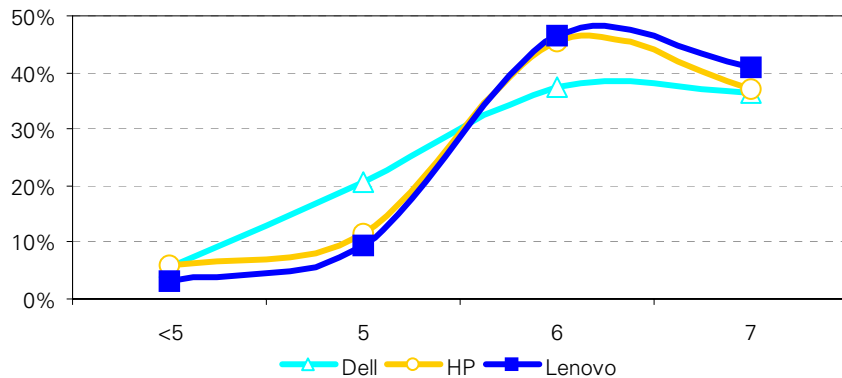


SOURCE: TBR.

# Appendix D: Categorical Responses

## Hardware Quality/Reliability

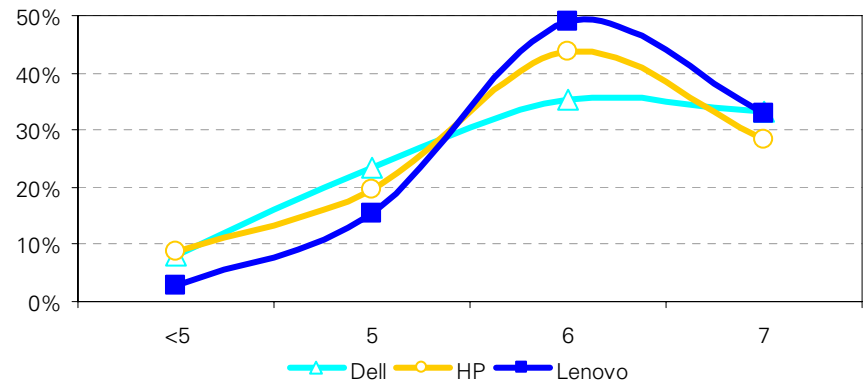
TBR **SATISFACTION WITH HARDWARE RELIABILITY BY CATEGORY**



SOURCE: TBR.

**3Q09**

TBR **SATISFACTION WITH HARDWARE RELIABILITY BY CATEGORY**



SOURCE: TBR.

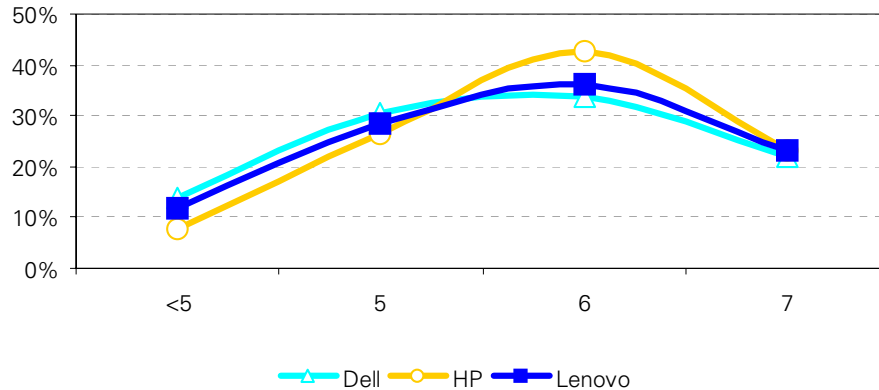
**4Q09**

All three OEM's mean ratings for notebook hardware quality declined in 4Q09. For Lenovo and Dell, this simply involved a reduction in the number of Perfect 7 ratings in 4Q09 compared to 3Q09. HP, however, gained a fair number of ratings at the lower ends of the satisfaction scale; as a result, its mean score declined by a greater magnitude than the competition's.

## Product Design



SATISFACTION WITH PRODUCT DESIGN BY CATEGORY

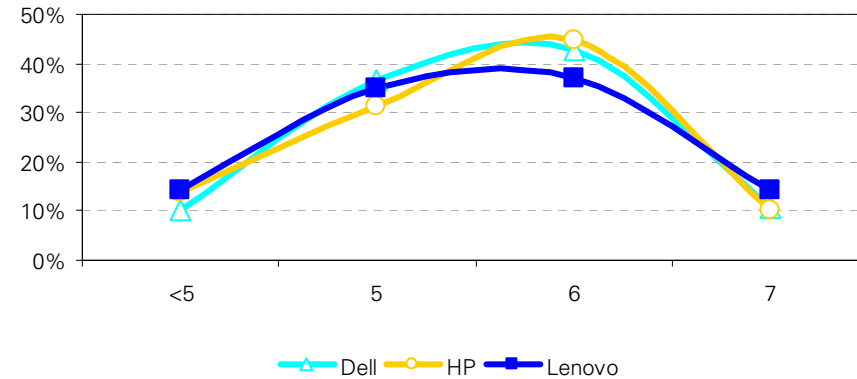


SOURCE: TBR.

3Q09



SATISFACTION WITH PRODUCT DESIGN BY CATEGORY



SOURCE: TBR.

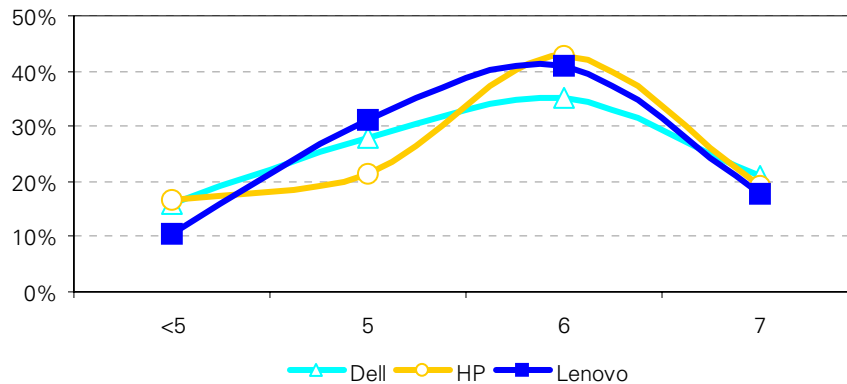
4Q09

Dell's mean product design rating was most stable between 3Q09 and 4Q09, yet a number of its previously perfect scores moved back one level on the scale. Lenovo picked up a greater number of ratings at level 5 and fewer perfect scores. HP, whose mean rating dropped most significantly, lost a substantial number of perfect scores, adding a greater number of ratings at the lower ends.

## Phone Support

TBR

SATISFACTION WITH PHONE SUPPORT BY CATEGORY

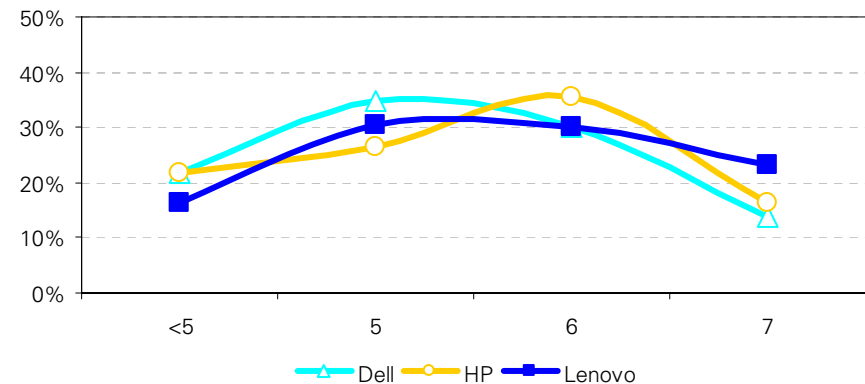


SOURCE: TBR.

3Q09

TBR

SATISFACTION WITH PHONE SUPPORT BY CATEGORY



SOURCE: TBR.

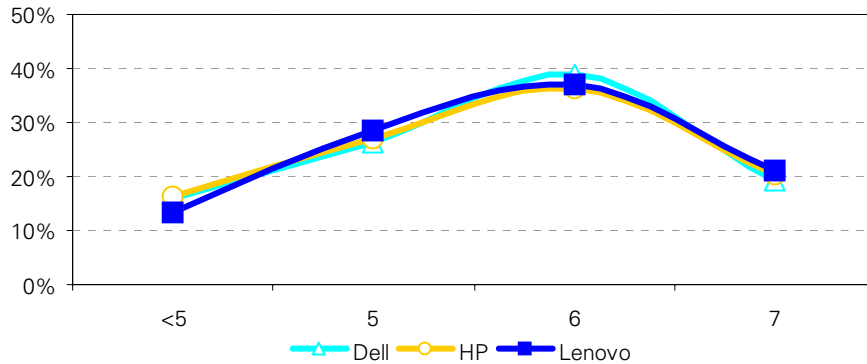
4Q09

Lenovo's mean scores remained relatively constant for phone support satisfaction from 3Q09 to 4Q09, yet the distribution curve displayed a declining number of level-6 scores. This was compensated for by an increased number of perfect scores. In the end, Lenovo's distribution curve lost its peak-like formation as customer viewpoints were significantly more spread out. This prevented Lenovo from winning a full competitive strength rather than the marginal one it was assigned in 4Q09. Both Dell and HP, whose mean scores declined significantly in 4Q09, were compromised by an increase in lower-level ratings; this was particularly evident with respect to Dell – note the downward pattern of its distribution curve in 4Q09, an unusual finding where the bulk of responses were at the lower ends of the satisfaction scale.

## Repair Time

TBR

SATISFACTION WITH REPAIR TIME BY CATEGORY

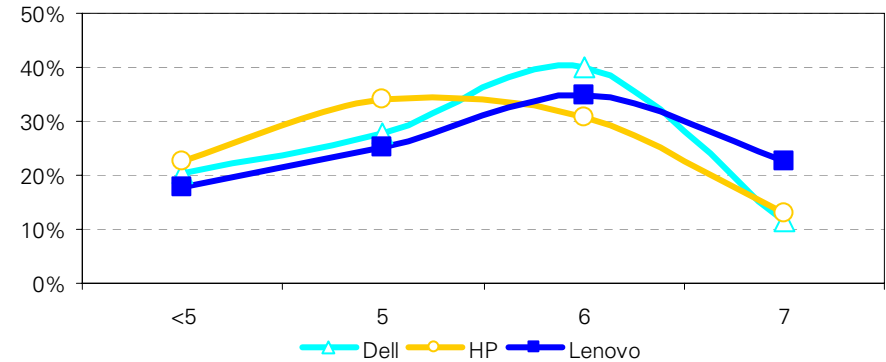


SOURCE: TBR.

3Q09

TBR

SATISFACTION WITH REPAIR TIME BY CATEGORY



SOURCE: TBR.

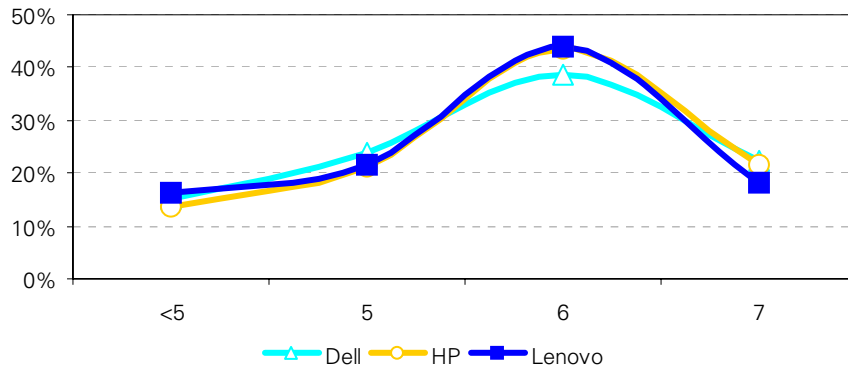
4Q09

Comparable performances across the three OEMs for repair time satisfaction in 3Q09 broke apart considerably by 4Q09, with Lenovo's score (and distribution curve as well) remaining relatively constant against sharp declines for both Dell and HP. Both Dell and HP lost a significant number of perfect ratings in 4Q09, with Dell's distribution curve peaking at level-6, while that of HP peaked at level-5.

## Replacement Parts Availability



SATISFACTION WITH PARTS AVAILABILITY BY CATEGORY

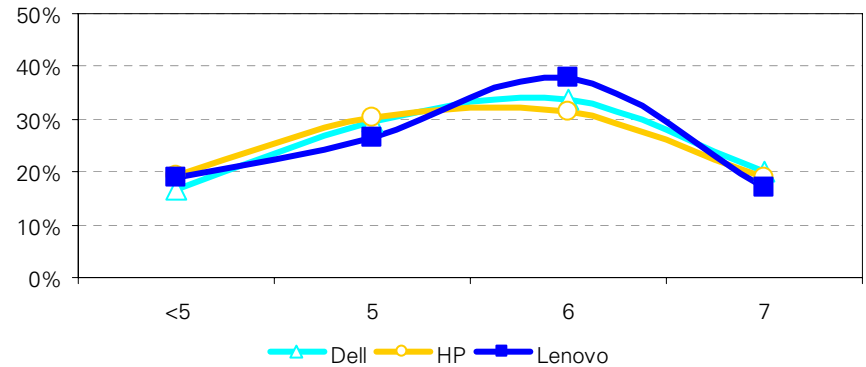


SOURCE: TBR.

3Q09



SATISFACTION WITH PARTS AVAILABILITY BY CATEGORY



SOURCE: TBR.

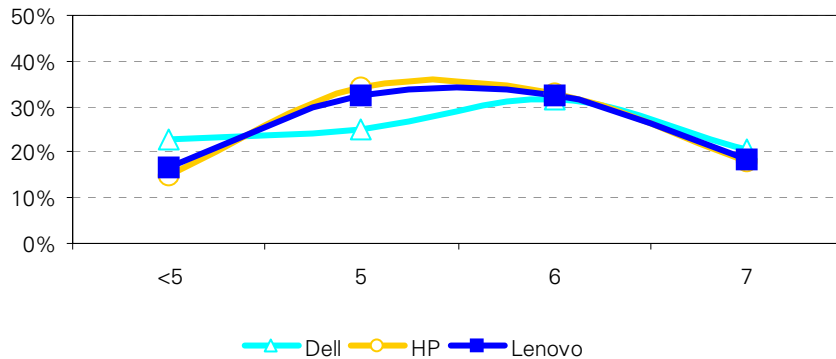
4Q09

Previously peaked distribution curves in 3Q09 collectively flattened out by 4Q09, primarily affecting HP. A larger number of scores at the lower ends of the scale affected HP's mean rating.

## Delivery Time



SATISFACTION WITH DELIVERY TIME BY CATEGORY

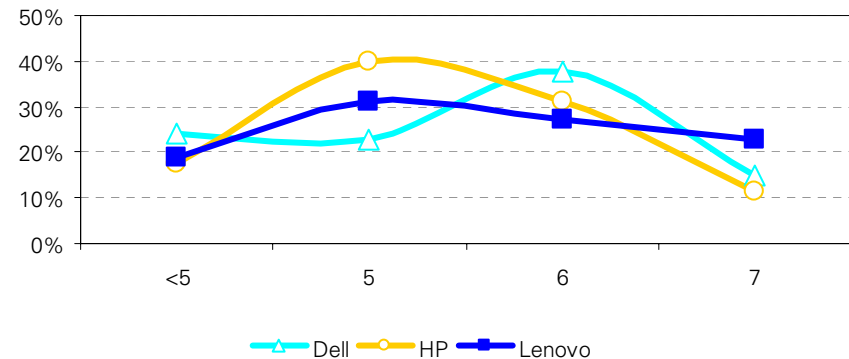


SOURCE: TBR.

3Q09



SATISFACTION WITH DELIVERY TIME BY CATEGORY

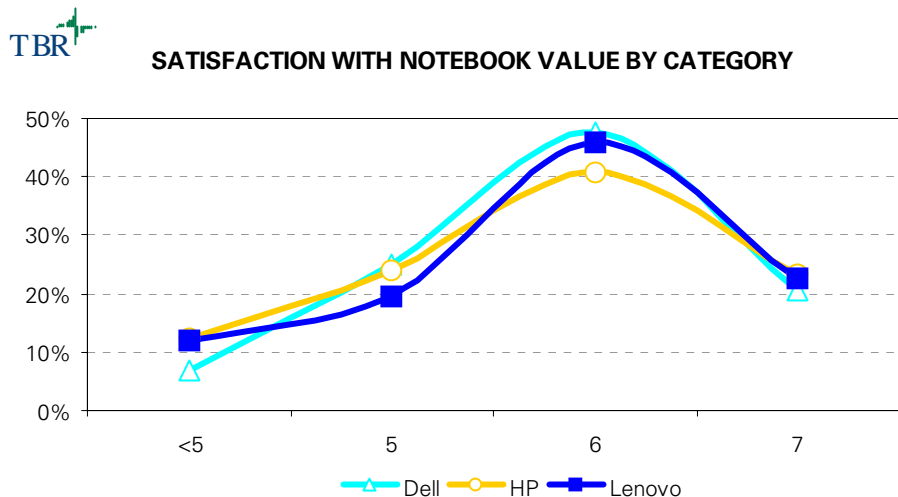


SOURCE: TBR.

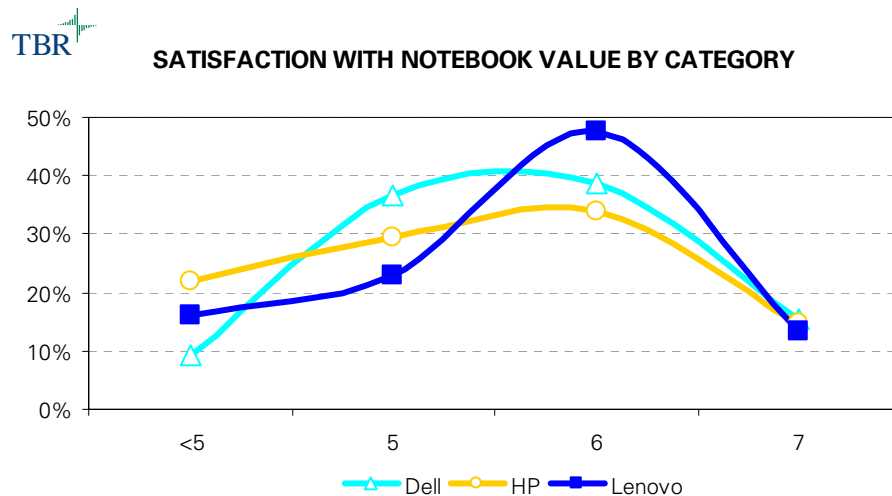
4Q09

The mean delivery time satisfaction ratings for Lenovo and Dell remained relatively constant from 3Q09 to 4Q09 and, in both cases, we continued to observe fairly spread out customer opinions. HP's mean score declined due to an increase in scores at the lower ends of the scale and a significant drop in the number of perfect scores.

## Overall Value



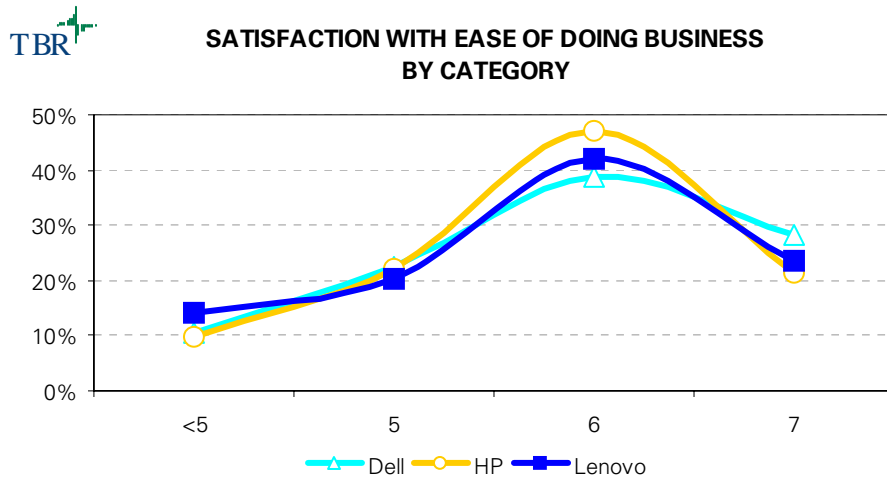
3Q09



4Q09

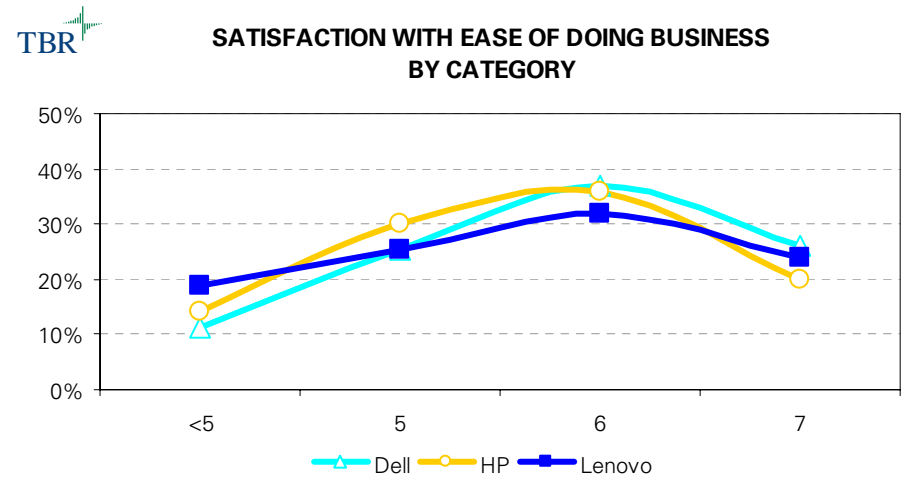
Notebook value satisfaction ratings were fairly well matched across the three OEMs in 3Q09. By 4Q09, all three OEMs experienced declining ratings. While Lenovo lost a fair number of previously perfect scores, note that its distribution curve remains in the desired pattern, peaking at level-6. Nonetheless, even Lenovo gained some disappointed customers in what appears to have been an industrywide reevaluation of notebook pricing and value propositions. Dell's mean rating was affected by an increase in scores at the "mediocre" (5) level, while scores at the highest and lowest levels of the scale were largely unaltered. HP, whose mean rating declined most substantially, lost a substantial number of ratings at the 6 and 7 levels, while gaining at the lower ends of the scale, particularly within the disappointed range of the graph (<5).

## Ease of Doing Business



SOURCE: TBR.

3Q09



SOURCE: TBR.

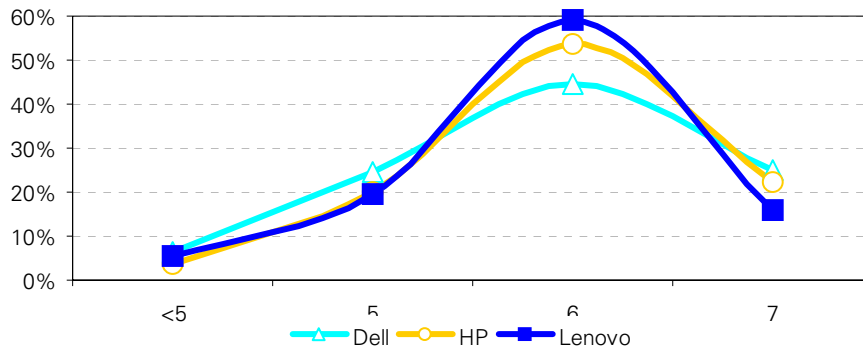
4Q09

Previously peaked patterns of distribution curves relative to ease of doing business satisfaction flattened considerably by 4Q09, reflecting a wide spread of customer opinion.

## Overall Satisfaction



OVERALL SATISFACTION BY CATEGORY

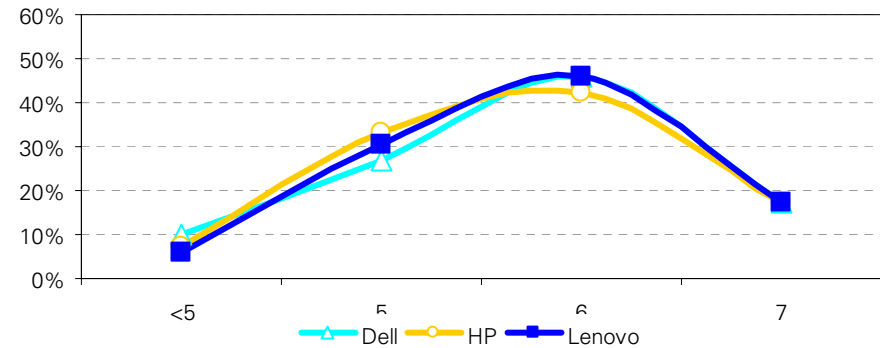


SOURCE: TBR.

3Q09



OVERALL SATISFACTION BY CATEGORY



SOURCE: TBR.

4Q09

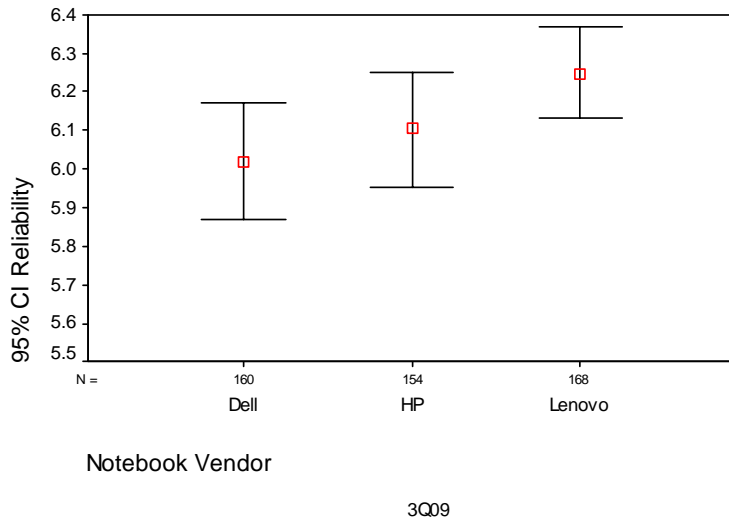
Overall satisfaction rating distribution curves flattened out somewhat in 4Q09 due to an increase in the number of level-5 scores, most of which apparently moved down one level from 6, while perfect 7 ratings were largely unaffected.

# Appendix E: Confidence Graphs

# Hardware Quality/Reliability

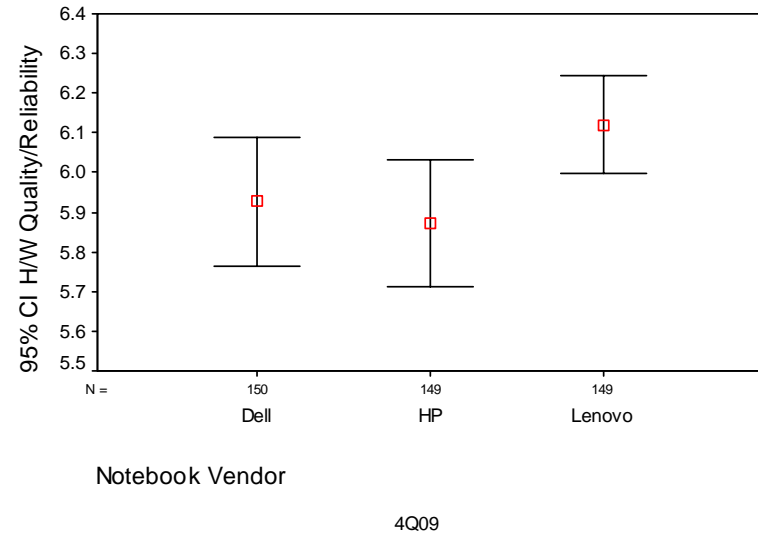
HARDWARE QUALITY/RELIABILITY SATISFACTION

95% Confidence Interval Around the Mean



HARDWARE QUALITY/RELIABILITY SATISFACTION

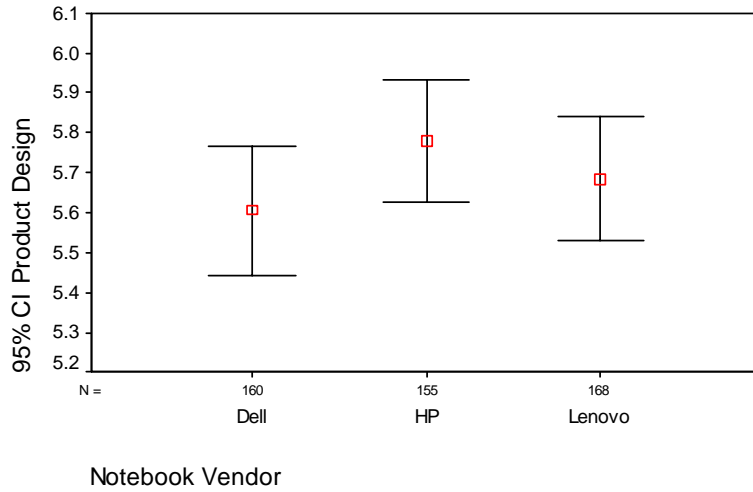
95% Confidence Interval Around the Mean



# Product Design

PRODUCT DESIGN SATISFACTION

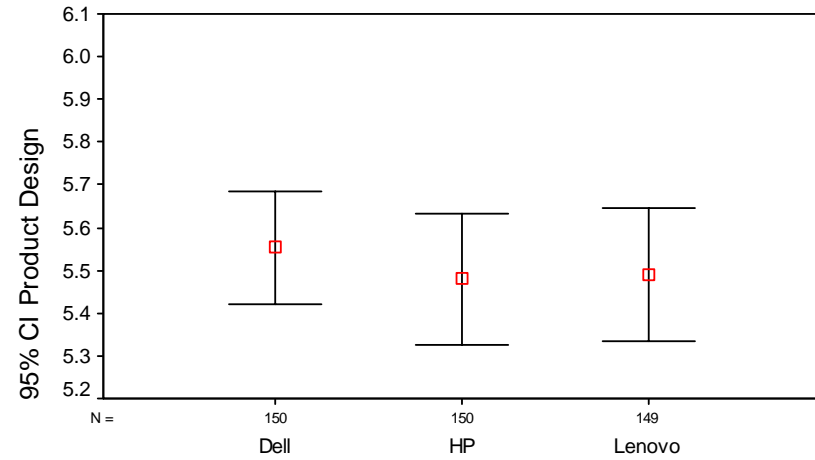
95% Confidence Interval Around the Mean



3Q09

PRODUCT DESIGN SATISFACTION

95% Confidence Interval Around the Mean



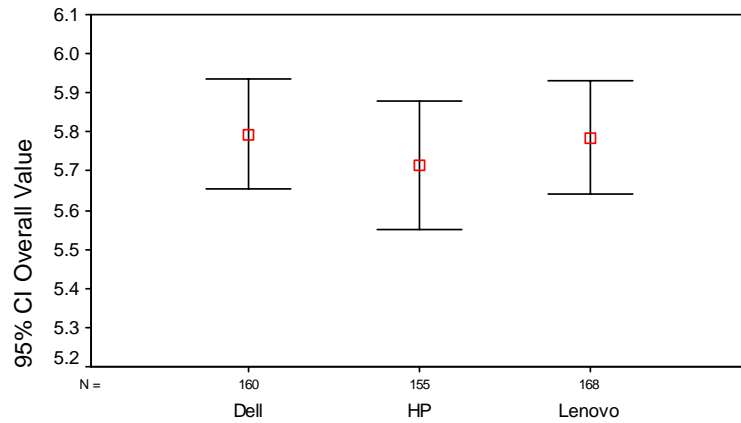
Notebook Vendor

4Q09

# Notebook Value

OVERALL NOTEBOOK VALUE SATISFACTION

95% Confidence Interval Around the Mean

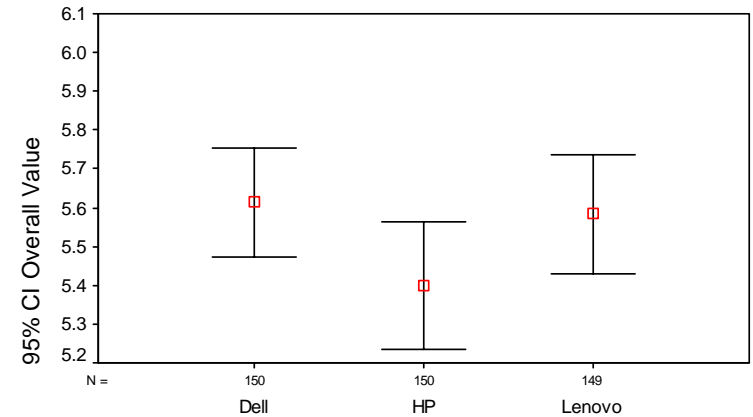


Notebook Vendor

3Q09

OVERALL NOTEBOOK VALUE SATISFACTION

95% Confidence Interval Around the Mean



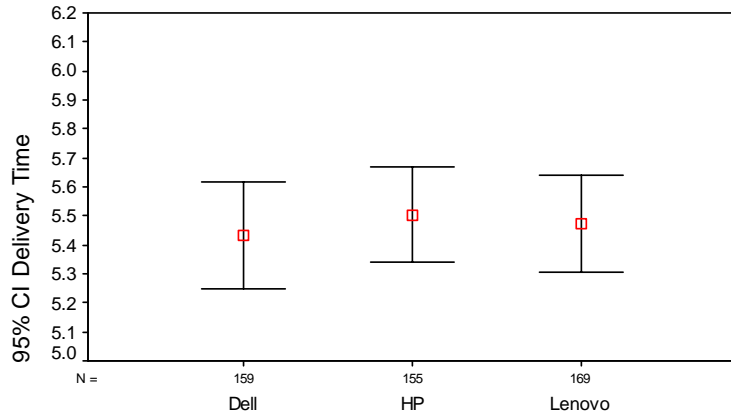
Notebook Vendor

4Q09

# Delivery Time

DELIVERY TIME SATISFACTION

95% Confidence Interval Around the Mean

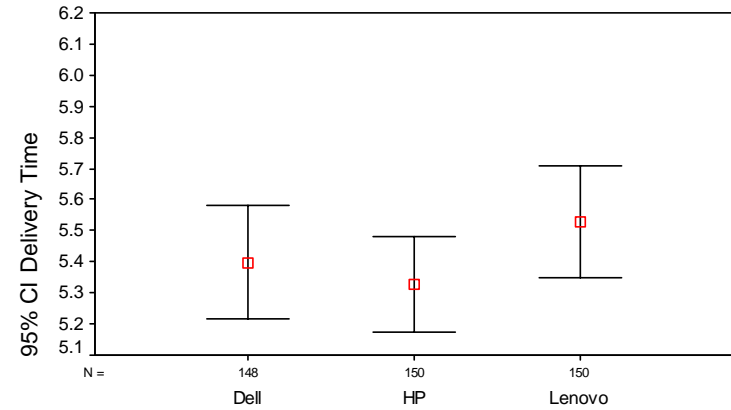


Notebook Vendor

3Q09

DELIVERY TIME SATISFACTION

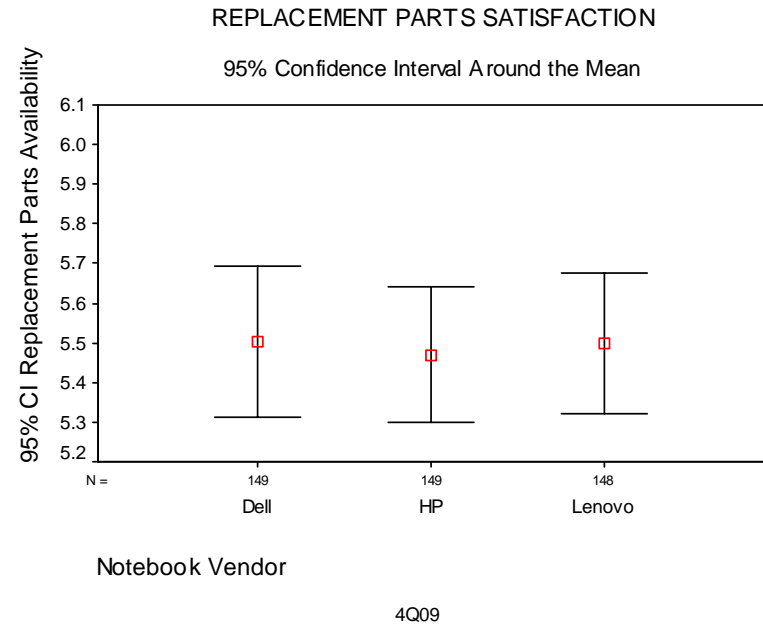
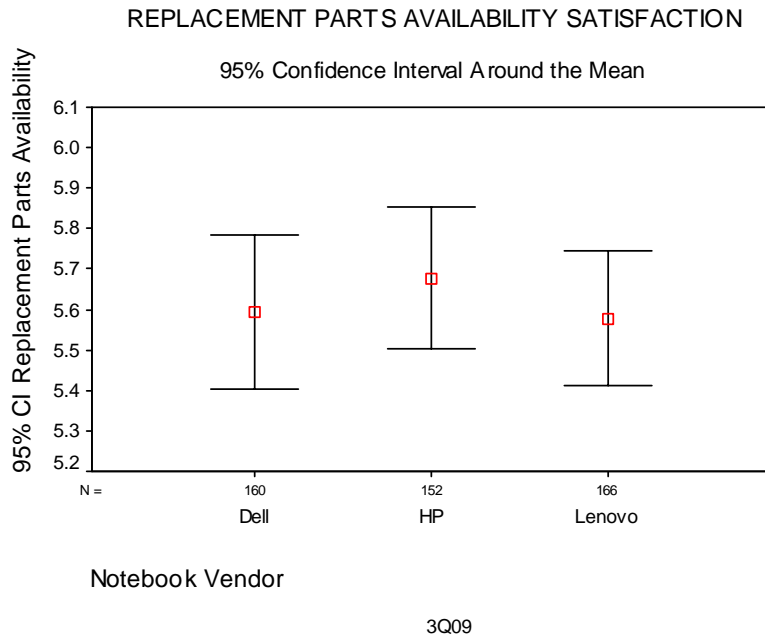
95% Confidence Interval Around the Mean



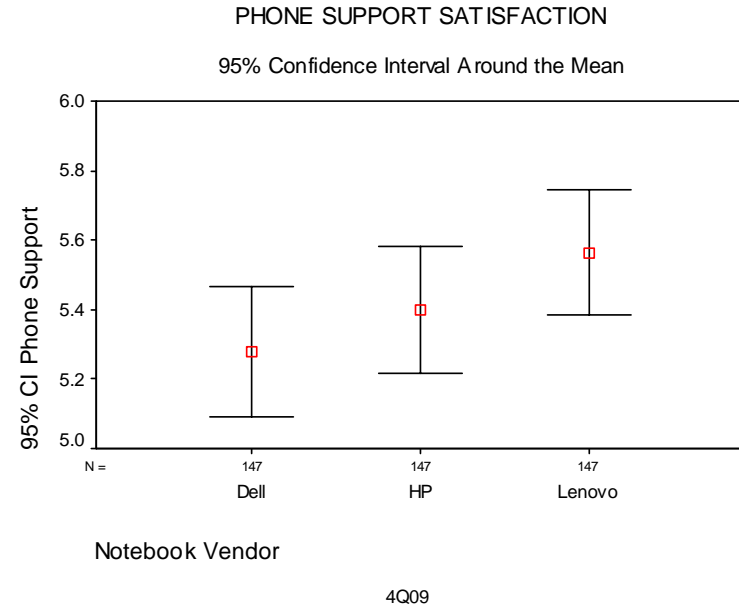
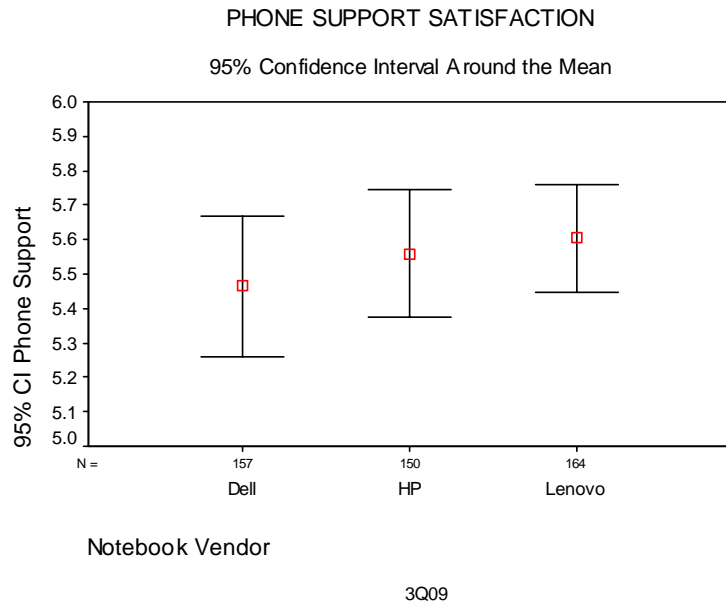
Notebook Vendor

4Q09

# Replacement Parts Availability



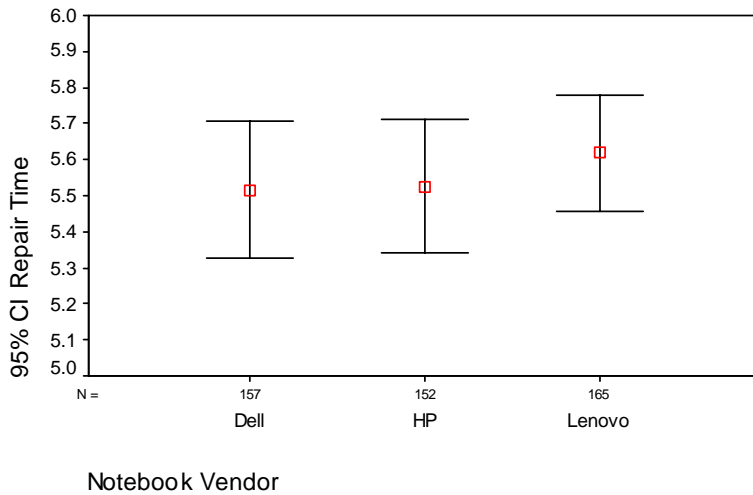
# Phone Support



# Repair Time

REPAIR TIME SATISFACTION

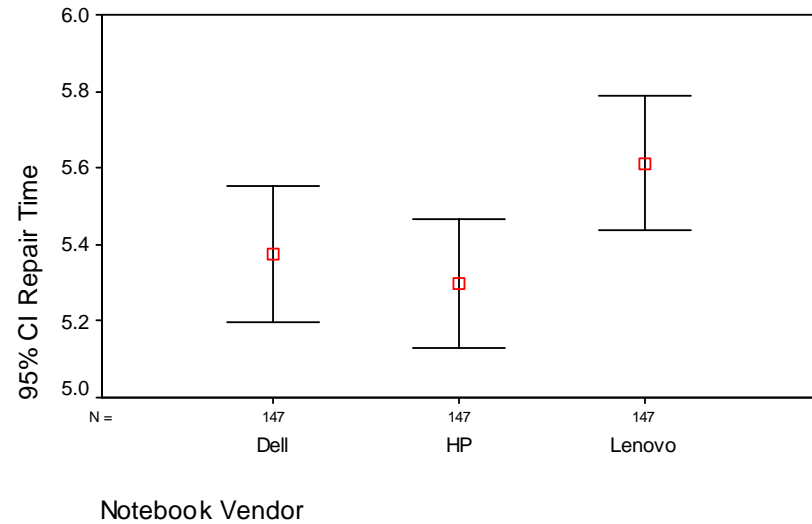
95% Confidence Interval Around the Mean



3Q09

REPAIR TIME SATISFACTION

95% Confidence Interval Around the Mean

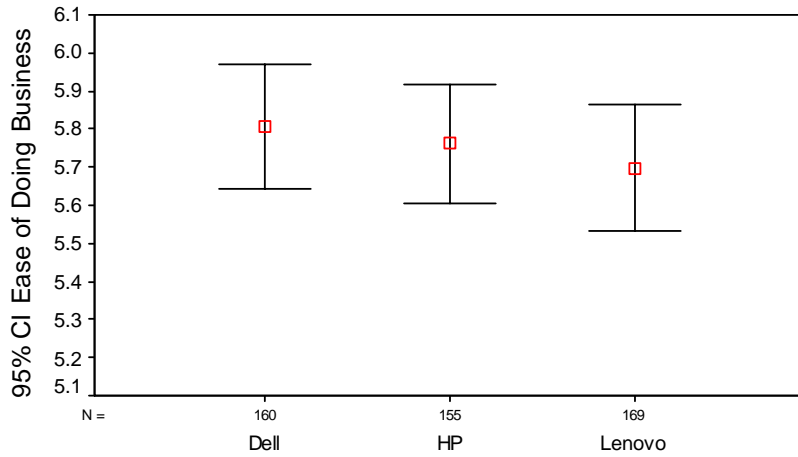


4Q09

# Ease of Doing Business

EASE OF DOING BUSINESS SATISFACTION

95% Confidence Interval Around the Mean

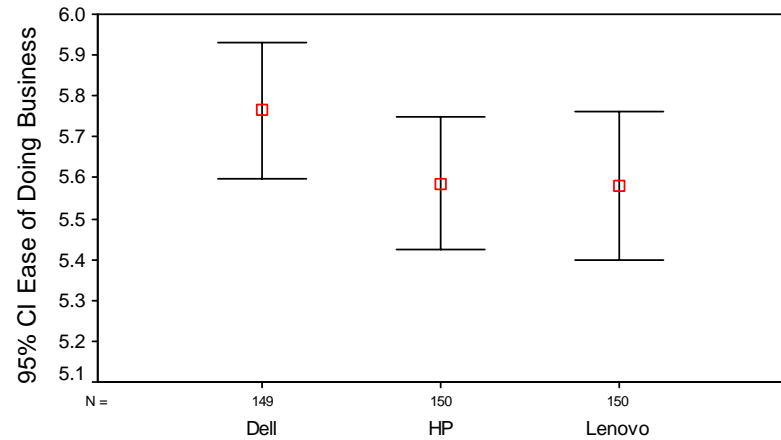


Notebook Vendor

3Q09

EASE OF DOING BUSINESS SATISFACTION

95% Confidence Interval Around the Mean



Notebook Vendor

4Q09

# Appendix F: Study Design & Methodology


## 4Q09 Sample Overview

- TBR's *4Q09 Notebooks: Corporate IT Buying Behavior & Customer Satisfaction Study* is based on interviews with qualified respondents at 440 medium and large U.S. and Canadian establishments, primarily MIS/IT, systems management and purchasing managers.
- A number of the respondents are responsible for purchasing multiple brands for their company or site and thus were interviewed twice (once for each brand).
- Consequently, 451 interviews were completed for the reporting period.
- The corporate notebook segment interviews for the reporting period were distributed as follows: 150 Dell customer interviews; 151 HP customer interviews; and 150 Lenovo customer interviews.
- Interviewing took place between July 1 and Dec. 30, 2009.


## Methodology & Sample

95% Confidence Level per Segment Average Measurements Across All Attributes		
	Corporate Notebooks	
	Sample Size	CI Interval Around the Mean (+/-)
All Vendors	451	<1.0%
Dell	150	3.0%
HP	151	3.1%
Lenovo	150	3.0%
SOURCE: TBR.		


## Number of Employees

 Average Number of Employees at the Companies Surveyed 4Q09			
Number of Employees	Dell	HP	Lenovo
<500	4.0%	3.3%	0.7%
500-1,000	18.0%	16.6%	15.3%
1,000-4,999	35.3%	45.0%	40.7%
5,000-9,999	12.7%	14.6%	14.0%
10,000-14,999	5.3%	4.6%	4.0%
15,000-19,999	8.0%	4.0%	4.0%
20,000-49,999	8.0%	4.6%	8.0%
50,000-74,999	2.7%	1.3%	6.0%
75,000-99,999	3.3%	3.3%	4.0%
100,000+	2.7%	2.6%	2.0%
DK	0.0%	0.0%	1.3%

## Type of Industry

 Types of Businesses Represented in the Study - 4Q09			
Type of Business	Dell	HP	Lenovo
Agriculture, Forestry, Fishing, Hunting	3.3%	3.3%	4.0%
Mining, Construction	3.3%	2.0%	3.3%
Public Utilities	5.3%	3.3%	2.7%
Manufacturing - Process (materials)	10.0%	7.9%	11.3%
Manufacturing - Discrete (products, machinery, computers, furniture, etc.)	8.7%	10.6%	13.3%
Pharmaceuticals	4.0%	3.3%	2.7%
Wholesale Trade	3.3%	2.6%	3.3%
Retail Trade	4.7%	4.0%	2.7%
Transportation Service	3.3%	6.6%	2.7%
Information Service (including software development)	6.0%	7.3%	6.0%
Finance, Insurance, real estate	8.0%	8.6%	10.7%
Professional, Scientific, Technical	8.7%	10.6%	10.7%
Other Services	4.0%	2.6%	6.0%
Healthcare	10.0%	11.9%	8.7%
Government	9.3%	7.3%	3.3%
Education	8.0%	7.9%	8.7%


## Job Titles/Functions

 **Respondent Job Functions/Responsibilities**

Level	MIS/IT	Networking	Systems Management	Purchasing	Other*	Grand Total
CXO (CIO, CTO)	3.0%	0.0%	0.0%	0.0%	0.2%	3.2%
Vice President	2.7%	0.0%	0.0%	0.0%	0.2%	3.0%
Director	18.9%	0.7%	0.0%	0.2%	0.2%	20.0%
Manager	54.3%	1.1%	0.9%	0.5%	0.2%	57.0%
Coordinator/Administration	8.4%	0.2%	0.7%	0.0%	0.0%	9.3%
Other	6.1%	0.5%	0.0%	0.2%	0.7%	7.5%
<b>Grand Total</b>	<b>93.4%</b>	<b>2.5%</b>	<b>1.6%</b>	<b>0.9%</b>	<b>1.6%</b>	<b>100.0%</b>

\*Computer operations, technical support, infrastructure, help desk, finance, R&D, etc.  
SOURCE: TBR.

## IT Infrastructure

 <b>Units Installed and Planned for Purchase by Form Factor</b>						
	Installed Base			Purchase Intent		
	Desktops	x86-Based Servers	Notebooks	Desktops	x86-Based Servers	Notebooks
<b>Enterprise</b>						
Sum	1,283,052	297,909	688,749	188,772	67,020	134,942
Mean	3,040	706	1,632	447	159	320
<b>Division</b>						
Sum	10,430	1,655	6,908	809	91	1,063
Mean	579	92	384	45	5	59
<b>Percent of Installed Base Replaced</b>						
Enterprise	14.7%	22.5%	19.6%			
Division	7.8%	5.5%	15.4%			

Sample for 4Q09 represents a total of approximately 700,000 installed laptops and purchase intent for an additional average of 136,000 laptops during the next 12 months.

# Appendix G: Analytical Procedures

## Satisfaction Ratings

- The customer satisfaction analysis was based on several lines of questioning. Respondents were asked to grade their vendor across a series of attributes (listed below) for each brand the surveyed corporations purchased in the most recent buying cycle. At the conclusion of the attribute testing, respondents were asked to provide a rating based on a 7-point Likert scale.

Totally Dissatisfied (Failure)			Mediocre			Totally Satisfied
Failure	Very Poor	Poor	Fair	Good	Very Good	Excellent
1	2	3	4	5	6	7

- Respondents were also asked to indicate the relative importance of each of the attributes in choosing their brand. These responses were given on a 1- to 5-point scale, with 1 meaning not at all important and 5 meaning very important. These ratings determined the gap between vendor satisfaction and importance, or how well the vendor manages expectations.
- Respondents were then asked to indicate on a 1- to 5-point scale the degree of their loyalty toward their primary vendor(s). Finally, respondents were asked whether their corporation switched from one vendor to another during the past 12 months, and if so, which vendors were involved and why a change was made.

## Measured Attributes

*Customer satisfaction and relative importance were measured for each of the following attributes.*

Delivery Time/Product Availability  
Phone Support  
Replacement Parts Availability  
Time to Repair  
Hardware Quality/Reliability  
Overall Value  
Ease of Doing Business  
Product Design/Features  
Overall Satisfaction

## Satisfaction Statistics

- A **table of satisfaction statistics** (including mean, standard deviation, standard error, range around the mean representing 95% confidence interval and standard t-test) describes customer satisfaction for each vendor in each attribute area, with special emphasis on overall satisfaction. A **series of t-tests** was performed on each vendor against the sum of its competitors, and the attribute areas where significant differences in score were indicated are marked. The t-test is a significance test that compares two means in order to determine if one mean is significantly different than the other, taking variability of response into consideration. The purpose of these tests is to determine if any of the group's mean differences observed (e.g., a group being a set of customers of one vendor) cannot be entirely explained by random or natural variation within sampled groups of customers. In other words, the observed differences are real. TBR uses an independent sample t-test assuming unequal variances, or the standard student's t-test. Those attributes with an  $\alpha$  level of 0.05 or less are cited as indicating there is a 95% chance that concluding the two means are different is correct. A t-test of the grand mean (the mean of all scores for all attributes combined) serves to determine whether any of the vendors' scores overall tend to run higher or lower than the competitors' scores.
- As a backup to the above tests, an alternate test (the Bonferroni correction) is used for confirmation purposes (e.g., one-way analysis of variation). The variation within a group of customers is first determined in these one-way ANOVA tests. These variations are then compared to the variability between the groups (e.g., between the Dell, HP and IBM customers). The between-group variation is measured by the sum of the squared differences between the sample mean of each group and the grand mean, which is then weighted by the sample size in each group. The between-group variation will be larger than the within-group variation (variation within each specific customer group) if there are meaningful differences between the means. The attributes that pass this additional test are also cited in the report. While the one-way ANOVA identifies which attributes are affected by differing means according to customer group, further tests such as the Bonferroni identify exactly which means differ from one another.

## GAP Analyses

- The competitive GAP analysis measures the gap between a vendor's customer satisfaction for each attribute area against the expectations (importance ratings) of the market (all respondents). The standard against which each vendor is measured is the average size of that gap for all notebook vendors. The GAP analysis compares vendor satisfaction per attribute against importance per attribute among the vendor's customer base relative to overall satisfaction for all vendors per attribute against overall importance for all vendors per attribute. The formula for each attribute area independently is as follows:

$$\text{GAP} = \frac{\text{Vendor Importance} * (7 - \text{Vendor Satisfaction})}{\text{Grand Mean Importance} * (7 - \text{Grand Mean Satisfaction})} * 100$$

- The product for the above is graphed on a scale where values between 40 and 80 are areas where the vendor exceeds customer expectation; values between 81 and 120 are where the vendor fully meets expectation; and values greater than 120 are where the vendor falls short of expectation.
- A second GAP analysis (the standard GAP analysis) considers how each systems vendor manages the expectations of its own customer base. For each vendor independently and for each attribute area, the mean satisfaction rating is graphed next to the mean importance rating (adjusted from a 5-point scale to the 12-point scale used for customer satisfaction). There are three possible outcomes: satisfaction meets customer expectation (bar graphs are equal or within a range where the gap is not significant); satisfaction falls short of expectation (indicating areas where the systems vendor may want to consider focusing greater efforts on raising satisfaction); and satisfaction exceeds expectation (indicating attribute areas where the systems vendor may be focusing more than is necessary).
- Yet another GAP analysis (the Improvements GAP analysis) is focused on determining the areas where the vendors need to set up improvement programs and areas where they may be able to pull back resources. It uses a similar formula to the competitive GAP analysis; however, the denominator becomes the grand mean importance and satisfaction for the vendor across all of the attributes. In this test, TBR compares the gaps for each of the individual attributes against the average gap for the vendor. Areas where the gaps measure wider than the average are areas where the vendor most urgently needs to focus its improvement efforts.

## Trend Analysis & Multiple Regression Analysis

- A trend analysis compares each vendor's customer satisfaction scores for the current reporting period separately against those from both the preceding reporting period and the reporting period prior to that. By comparing against both reporting periods, TBR is able to determine if any changes are indicative of a real change in historical pattern. This graph uses a 95% confidence-interval technique; the scores for each vendor are represented with the mean indicated in the middle from which the lines extend in both directions the distance of the standard error around the mean. This analysis is used to determine the reasons a vendor may move up or down in the rankings from previous reporting periods: Is it because the vendor improved or because the competition declined in customer satisfaction? The analysis also is used to pinpoint potential problem areas or areas where marked improvement is evident.
- A multiple regression analysis is run for each form factor and for each vendor in order to determine the principal drivers of overall satisfaction. Each of the attributes is specified as independent variables and measured against the dependent variable: overall satisfaction. The attributes selected are the best predictors for overall satisfaction. The analysis uses a stepwise multiple regression with missing values handled in one of two ways: the missing values are replaced by the mean or pair-wise comparisons are made. TBR advises the reader to consider the results of this analysis with a measured amount of caution because many of the attributes are highly correlated with one another and can be as highly correlated with one another as they may be with the overall satisfaction attribute. The smaller sample sizes encountered when broken down by vendor also detract from the reliability of the results.

## Vendor Loyalty Ratings

- Loyalty ratings are provided by the respondents for their primary vendor(s) on a scale from 1 to 5, where 1 means little to no loyalty and 5 means solid loyalty. The means for each vendor are represented against one another and against the grand mean. The loyalty ratings are becoming less reliable indicators of true customer satisfaction because strong levels of loyalty are often established higher up within an organization as corporation mandates. They are not necessarily related to customer satisfaction as feedback from the actual users within the organization.
- Levels of vendor loyalty are confirmed by determining from the respondents whether they have switched from one vendor to another during the past 12 months. In addition to determining the proportion of companies that have switched brands, the study determines which brands were involved and the principal reasons for the switch.

## Numeric Weighting Model

1. A numeric weighting model is applied in order to provide a ranking of the vendors and a means for tracking overall change in customer perception over time. Where N represents the total number of attributes, AI the importance score for each attribute and AS the satisfaction score for each attribute, the formula applied for calculating the weighted satisfaction index, on an individual respondent basis is:

$$\text{Weighted Satisfaction Index} = \left( \frac{\sum_{i=1}^N AS_i AI_i}{\sum_{i=1}^N AI_i} \right) / 7 * 100$$

*Note: The total number of attributes for the notebook segment = 8*

The above has been calculated for each respondent, with missing values (Don't Know or Not Applicable responses) having been replaced with the mean value for the attribute for the vendor group. The weighted satisfaction index for each vendor is the mean of the respondents' weighted scores. The calculation for the individual satisfaction index is as follows.

Where S = the sum of the satisfaction rating times the corresponding importance rating across the total attributes; and where I = the sum of the importance ratings across the attributes:

$$\text{Weighted Satisfaction Index} = \frac{\left( \frac{S}{I} \right)}{7 * 100}$$

## Vendor Ranking Positions

- Vendor ranking positions are determined primarily based on the average weighted satisfaction index positions, with a minimum distance of 1.0% generally required in order for TBR to assign separate ranking positions to any two vendors. The determination of ranking positions does not end here, however. Additional factors such as number of competitive strengths versus weaknesses also play into the final decision, which is a team effort by TBR principals. Consequently, less than a 1% distance can occur between two vendors' weighted satisfaction index positions, yet they may be assigned separate ranking positions based on the additional factors stated above.

## Competitive Strength & Weakness Table

- A competitive strength and weakness table is the final result of all the above analyses. The table points to the attribute areas that are definite strengths or weaknesses for each vendor. Areas of neutrality are those attributes where the vendor's customer satisfaction performance is about average. The formula utilized for the determinations is: each attribute receives a score of 0 for neutrality, +1 for a positive and -1 for a negative. Three analyses are reviewed: the t-test analysis (0 for null, +1 for significantly higher scores and -1 for significantly lower scores); the competitive GAP analysis (0 for meeting expectation, +1 for exceeding and -1 for falling short); and the vendor GAP analysis (same as above). The standard t-test results are compared to those of the more stringent "Bonferroni analysis" and those passing both tests are noted with an extra point. The three scores for each attribute are summed up. Any attribute with a total score of +2 or -2 is cited as a strength or weakness; total scores between these ranges are cited as neutral areas. Those with scores of +3 or -3 are areas of particularly strong strength or weakness. Marginal determinations (warnings or marginal strengths) come about when the determination is borderline, e.g., only the first t-test was passed, or the t-test was passed as a potential area of strength but a poor GAP rating negated it.

# Appendix H: Survey Instrument

## 4Q09 Survey Instrument

In evaluating notebook PCs for purchase, what is your current priority regarding purchase price vs. total cost of ownership? Are you more focused on...	Negotiated Purchase Price (including discounts applied, bundled offerings, etc.)	TCO	Other	Specify Other	
	1	2			
And does this view differ from the way you made purchasing decisions 18 months ago?	Yes	No			
	1	2			
If yes, how so?	Open Ended				
When selecting notebook PCs for your organization, do you focus more on...	Battery life per session	Battery longevity (lifetime)	Other		
	1	2	3		
Do the green initiatives of notebook PC vendors figure into your buying decisions and/or loyalty to a specific primary vendor?	Yes	No			
	1	2			
Has this view changed during the last 18 months?	Yes	No			
	1	2			
If green strategies are important, which primary vendor do you feel has the strongest value proposition around its green initiatives?	Dell	HP	Lenovo	Other	Specify Other
	1	2	3	4	

## 4Q09 Survey Instrument

Has your organization purchased, or is it considering purchasing, notebook PCs commonly referred to as netbooks (a streamlined mobile device with a lower power x86 compatible processor, designed for Internet connectivity on the go)?	Yes	No	Undetermined		
	1	2	3		
If yes, why are you considering netbooks?	Yes	NO			
Price	1	2			
Size	1	2			
Ease of Use	1	2			
Ease of Replacement	1	2			
Other	1	2			
How important is it to you that your primary vendor fully meets your expectations across each of these areas?	Not at all	Not Very Important	Somewhat Important	Very Important	Very Important/Critical
Overall Hardware Quality/Reliability	1	2	3	4	5
Product Design/Features	1	2	3	4	5
Overall Value	1	2	3	4	5
Delivery Time/Product Availability	1	2	3	4	5
Replacement Parts Availability	1	2	3	4	5
Phone Support	1	2	3	4	5
Repair Time	1	2	3	4	5
Ease of Doing Business	1	2	3	4	5

## 4Q09 Survey Instrument

BRAND RATED	DELL	HP	LENOVO		Satisfaction				
	Failed	Very Poor	Poor	Average	Good	Very Good	Excellent	Not Applicable	Don't Know
How satisfied are you with your primary vendor across the following categories?	1	2	3	4	5	6	7	8	9
Overall Hardware Quality/Reliability	1	2	3	4	5	6	7	8	9
Product Design/Features	1	2	3	4	5	6	7	8	9
Overall Value	1	2	3	4	5	6	7	8	9
Delivery Time/Product Availability	1	2	3	4	5	6	7	8	9
Replacement Parts Availability	1	2	3	4	5	6	7	8	9
Phone Support	1	2	3	4	5	6	7	8	9
Repair Time	1	2	3	4	5	6	7	8	9
Ease of Doing Business	1	2	3	4	5	6	7	8	9
Overall Satisfaction	1	2	3	4	5	6	7		
How did you purchase your notebook PCs from your primary vendor?	Direct from Vendor		Through a Reseller						
	1		2						
How likely is it that your organization will continue purchasing notebook PCs from your primary vendor during the next 12 months?	Not at all Likely		Somewhat Likely		Extremely Likely				
	1	2	3	4	5				

## 4Q09 Survey Instrument

Which factors would most likely influence you to switch primary notebook PC vendors? Please check up to three of the following.					
	Yes	No			
Hardware Reliability Issues	1	2			
TCO	1	2			
Price	1	2			
Ease of Doing Business	1	2			
Management Tools	1	2			
Product Design/Particular Features					
Tech Support	1	2			
Energy Efficiency	1	2			
Other	1	2			
How might your notebook PC hardware budgets for the next 12 months compare to those for the previous 12 months?					
	Increase	Decrease	No Change		
	1	2	3		
Please provide the range by which your budget is expected to increase/decrease					
	Up to 10%	10-24%	25-49%	50-74%	75% or more
	1	2	3	4	5
Approximately how many of your organization's installed notebook PCs are Centrino 2 (vPro) enabled?					
	%				