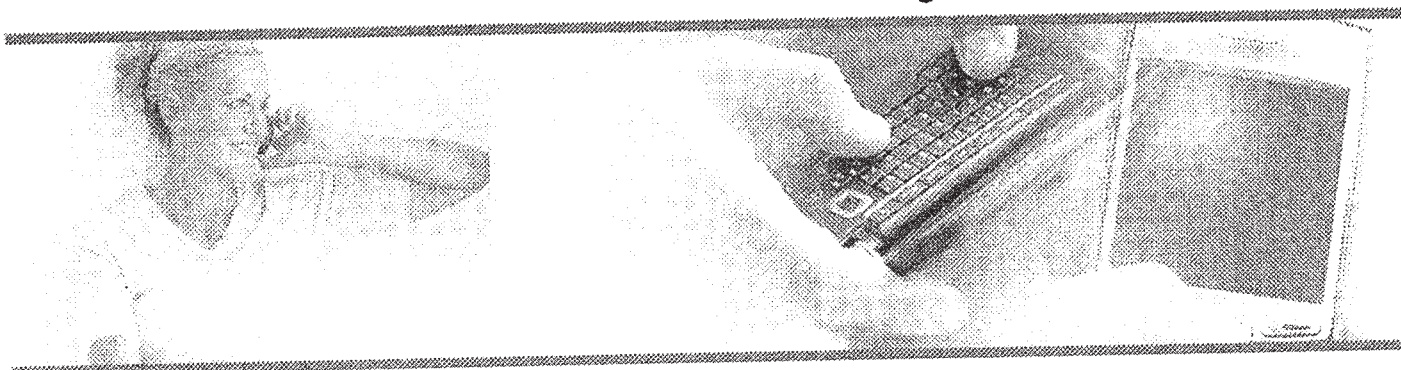




# 2011 Wireless Smartphone Satisfaction Study<sup>SM</sup>



Management Report

March 2011

*Telecommunications Department*

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**2011 Wireless Smartphone Satisfaction Study<sup>SM</sup>**  
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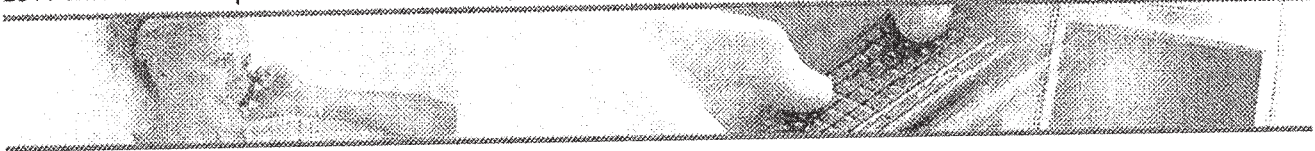
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## Table of Contents

Background	5
Key Objectives	6
Executive Summary	8
Penetration and Market Share	17
Usage Diagnostics	22
Customer Satisfaction Performance	40
Smartphone Index Results By Factor	46
Purchasing Selection Process	56
Smartphone CSI Ratings by Carrier	64
Smartphone User Profile	70
Index Results Among Smartphone Models	81
Apple	86
HTC	89
Motorola	93
Nokia	96
Palm	99
RIM BlackBerry	102
Samsung	106



## Background

During the past 19 years, J.D. Power and Associates has conducted numerous syndicated and proprietary research studies in the United States, the United Kingdom, and in Asia covering the wireline and wireless telephone, residential television, and Internet industries.

The *J.D. Power and Associates 2011 Wireless Smartphone Satisfaction Study<sup>SM</sup>, Volume 1* is based on data gathered from an Internet-based survey, while the interpretation and commentary are based on the company's expertise in the wireless marketplace.

The *Wireless Smartphone Satisfaction Study* is an independent assessment of customer perceptions and experiences with their wireless service and smartphone. The key focus is to track performance issues by smartphone manufacturers and how customer perceptions impact carrier financials as they relate to retention, repurchase intent, and market-share growth.



## Key Objectives

The five main objectives of the study are to:

- Understand attitudes, experiences, and behavioral characteristics of smartphone users to facilitate segmentation.
- Determine critical factors that impact customer satisfaction across smartphone user segments, including at the model level.
- Determine relative performance of the major smartphone manufacturers.
- Identify areas of strength and weakness for each manufacturer to develop actionable marketing programs.
- Track performance on a biannual basis to monitor progress, including market share, usage, and loyalty.



## Smartphone Manufacturers and Sample Sizes<sup>1,2</sup>

Apple	1,430	Palm	315
HTC	1,468	RIM BlackBerry	2,322
Nokia	294	Samsung	760
Motorola	577		
Others <sup>3</sup> (LG=91)			109

Total Satisfaction Evaluations = 7,275 completes

<sup>1</sup> Wireless Phone Manufacturers with 2% or more overall household penetration.

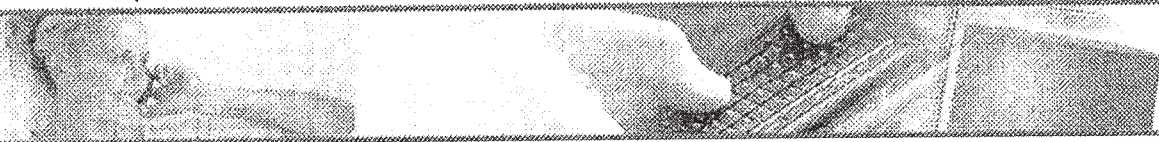
<sup>2</sup> Among handset ownership tenure <2 years.

<sup>3</sup> "Other" segment will not be publicly ranked but will be included in the report analysis.



# Executive Summary





## Executive Summary

### Industry Overview

The wireless mobile phone industry continues to be a leading sector in technology advancement. From mobile application markets to video conferencing capability, an increasing number of devices with a multitude of capabilities and new technologies continue to evolve mobile phone owners' usage patterns and increase dependence on both handset and wireless carriers. These developments have amplified differences in owners' needs for their wireless device, resulting in two main segments—traditional mobile phones and smartphones. Smartphones as a category have extended beyond the capabilities of what PDAs previously offered primarily business users. Smartphones offer convenience, mobility, function, and multitasking, qualities that make handsets attractive to a broader consumer audience than just business users. Consumer-oriented smartphones offer the additional element of expanded entertainment, educational, and lifestyle applications. The lines between primarily business smartphones and consumer-oriented smartphones, as well as their user profiles have increasingly blurred as smartphone manufacturers have made efforts to make their devices more powerful, reliable, stylish, increasingly customizable, and more easy to use.

The *2011 Wireless Smartphone Satisfaction Study, Volume 1* measures customer satisfaction with key aspects of smartphone ownership and provides insight for handset manufacturers to understand how owners perceive their handsets. The study may also help manufacturers identify future actions that would maintain and increase owner satisfaction. Satisfied owners tend to repurchase from the same manufacturer, and highly satisfied owners are even more loyal, likely to repurchase from the same manufacturer in the future, and provide positive recommendations to others.

Some highlights include:

- ✓ Smartphone satisfaction levels have changed by only a nominal margin during the past 6 months. Overall satisfaction in 2011 Vol. 1 is 761, compared to 764 in 2010 Vol. 2. After an influx of Android models manufactured by HTC, Motorola, and Samsung at the beginning of 2010, satisfaction has leveled off. Satisfaction among Motorola and HTC smartphone owners has declined by 28 and 19 index points, respectively from 2010 Vol. 2, while declines experienced by other manufacturers have not been as pronounced.



## Executive Summary

- ✓ Smartphone satisfaction is higher among younger smartphone owners. Satisfaction is 796 among owners 18 to 24 years old, compared with just 732 among owners 55 to 64 years old. This gap has widened during the past 6 months. Gender has a negligible impact on smartphone satisfaction, as index scores among males are only 3 index points higher than among females (762 vs. 759). However, it is worth noting that the trend is opposite among traditional handset owners, as females rate their device 19 index points higher than do males.
- ✓ Smartphone owners report sending and receiving 21 e-mails per day, on average, which equates to approximately 600 e-mails per month. Usage is heavier among RIM BlackBerry and Apple owners, with 25 and 22 e-mails per day, respectively.
- ✓ More than half (61%) of smartphone owners attribute call quality problems to their carrier's network, while only 10% attribute them to their device, and 29% say they are unsure of why these problems occur. The percentage attributing call quality problems to their network has increased from 55% just 6 months ago a likely result of extensive media attention and marketing campaigns. Palm owners are the most likely to attribute their network quality issues to their smartphone (16%), and Apple owners attribute these issues to their carrier's network 70% of the time. While manufacturers continue to move to improved technologies and features pertaining to data transmission, it is critical for wireless carriers to steadily improve on basic voice calling functions. As smartphone owners transition to use of 4G networks for data transmission, offloading the traffic on second- and third-generation networks should improve voice calling.
- ✓ The average ownership tenure in 2011 Vol. 1 is 1.08 years, compared with less than 1 year (0.94 years) in 2010 Vol. 1. Both HTC and Motorola owners have had their handset for notably shorter periods of time than owners of other brands (0.83 vs. 0.61 years, respectively). The overall satisfaction score among owners whose smartphones that are less than 3 months old is 787, and is notably similar for devices in use between 3 and 6 months (788). However, satisfaction declines by 51 index points among those who have owned their smartphone between 1 and 2 years.
- ✓ Attracting new customers through promotional pricing deals does not necessarily foster superior satisfaction. Satisfaction levels are higher when the handset has been selected due to such considerations as styling or particular features of the phone. Satisfaction among owners who selected their smartphone due to quality is 799, compared with 749 among those who selected due to price or cost-related reasons.



## Executive Summary

- ✓ Among owners who may purchase a new smartphone within the next 6 months, 33% consider themselves likely to purchase an iPhone model, and an additional 27% will likely purchase an HTC model. An additional 10% of shoppers indicate they are likely to purchase a Samsung or Motorola model, while 7% say they likely will choose a BlackBerry model.
- ✓ Nearly half (45%) of smartphone owners indicate they chose their model because they liked its overall design and style and 43% chose their device because it featured a touch screen for easy navigation. Simple operation is important, as 36% of owners report having chosen their handset because it is “generally easy to use.”

About one-third of smartphone owners indicate a propensity to purchase a new phone within the next 6 months. Palm and RIM BlackBerry owners have the highest likelihood of buying a new handset in the near future and therefore represent a target market for acquisition (46% and 44%, respectively). The majority of smartphone owners indicate a likelihood to repurchase their current brand—18% say they “definitely will” and 46% say they “probably will” repurchase from their current handset manufacturer. More than one-third (37%) of Apple owners say they “definitely will” repurchase the same brand, compared to just 5% of Nokia owners. It is worth noting, however, that Apple owners are currently less likely to indicate they “definitely will” repurchase than they were 6 months ago (37% vs. 41%, respectively).

Usage and spending levels are much higher among smartphone owners than among traditional mobile phone users. Smartphone owners report using 622 minutes per month, on average. HTC smartphone owners in particular report using 707 minutes per month. Increased costs are associated with high usage levels such as this. The average monthly expenditure for smartphone wireless service is \$107, an increase of \$7 from 2010 Vol. 2. Motorola owners spend \$8 more per month than industry average (\$115 vs. \$107).



## Executive Summary

### Impact of Satisfaction

Satisfaction with wireless devices may lead to positive financial results. Among highly satisfied owners, those who rate their smartphone an 8, 9, or 10 (on a 10-point scale), 78% indicate they are likely to purchase a smartphone model from the same manufacturer in the future, compared with only 55% among handset owners who say they are "indifferent" (rating of 6 or 7) or "disappointed" (rating of 1-5) with their device. Raising satisfaction levels even slightly may help retain owners who would otherwise be considered escaped shoppers, defined as those who consider a brand but purchase another brand.

Brand recommendations continue to drive market share growth. On average, smartphone owners indicate making more than six positive recommendations for their device manufacturer; however, those who rate their phone top-three box indicate making more than eight positive recommendations, compared with only three among owners who say they are "indifferent" and "disappointed." Of note are the differences in recommendation rates between top-three-box smartphone owners and owners of traditional handsets. A particularly satisfying experience with a traditional handset will result in just three positive recommendations, compared with more than eight recommendations among top-three-box smartphone owners. Highly satisfied owners also indicate paying more for their device, and therefore are likely to have a propensity to spend relatively more on future devices. Top-three-box owners spend an average of \$27 more on their device than do owners who say they are "indifferent" and "disappointed" (\$163 vs. \$136, respectively).

Garnering high levels of smartphone owner satisfaction is not only critical in driving brand loyalty, but is also instrumental in providing a highly satisfying overall wireless service experience. Owners' positive experiences with their smartphone device may positively impact the wireless experience as a whole. Owners who rate their smartphone an 8, 9, or 10 rate their wireless carrier 7.76, on average, compared with "indifferent" or "disappointed" owners, who provide a rating of just 6.04, on average. These low ratings impact loyalty, as switching intent is nearly twice as high among "indifferent" or "disappointed" owners, with 21% indicating they "definitely will" or "probably will" switch wireless carriers in the next 12 months, compared with only 13% among those who are highly satisfied with their device. More than two-thirds (68%) of owners who rate their device top-three box indicate they are likely to purchase additional services and products from their wireless carrier, presenting an opportunity for additional revenue streams, compared with just 53% of those who say they are "indifferent" or "disappointed" with their device.



## Executive Summary

Ultimately, one of the goals of smartphone manufacturers is to increase the likelihood that owners will repurchase the same brand of smartphone. Satisfaction is critical, given the direct correlation between repurchase intent and overall satisfaction with the mobile device. Ultimately, smartphone manufacturers and wireless carriers should strive to establish a symbiotic relationship where loyalty to both brands is fostered. Data indicates this relationship is achievable; however, it is important for manufacturers to provide an attractive product that meets or exceeds owners' needs and expectations and for carriers to provide a trouble-free network experience. Without maintaining all of these aspects, manufacturers and wireless carriers risk lower satisfaction with either the smartphone or wireless experience, or both.

Listed below are several key suggestions that may be utilized to achieve breakthrough customer satisfaction with smartphone devices and, therefore, may increase wireless customer satisfaction, loyalty, and acquisition.

- Limit the number of software application problems users experience, as there is a gap of 57 index points in satisfaction between owners who experience software malfunctions and those who do not. Satisfaction among owners who report their device's software freezes two to three times per week is only 687. It is imperative when software updates are available that owners actually download and install these newer, improved versions. Having a properly functioning touch screen is also critical. Satisfaction among owners who indicate they experience two to three touch-screen malfunction issues per week is just 670.
- Provide a robust, yet easy-to-use application market with relevant programs for download. Smartphone users spend \$3.94 per month, on average, for downloadable applications, although there is great variation among manufacturers. Satisfaction is 828 among owners who report spending \$10 or more per month, on average, for additional applications, compared with just 769 among owners who typically do not spend any money on these programs.
- Continue to improve software on music player programs, as owners who frequently utilize these features rate their handset considerably above average. Satisfaction is 835 among those who frequently download music to their device.



## Executive Summary

- Facilitate and support the development of location-based applications. Satisfaction is high among owners who frequently use these applications (818). The growth in location-based apps has been a focus of software developers; however, hardware may also impact LBS (location based service) utilization too, as these applications require powerful processors, batteries, and cameras.
- Be prepared for the growth in the capture of mobile video. Satisfaction is 820 among owners who currently frequently capture video on their smartphone.

### Adapting to Trends

As smartphone owners spend a growing number of hours per day utilizing their device, it will become increasingly more crucial for handset manufacturers to improve battery life. There is an ongoing trend of producing devices with display screens that are as large as possible to enhance the viewing and navigational experience. While device processors are faster than ever, allowing for larger and brighter displays, these more powerful devices require new models that will incorporate better battery technology. Between 2010 Vol. 2 and 2011 Vol. 1, satisfaction in the Battery Function factor has declined by 16 index points. In particular, the largest declines are among owners with Motorola and HTC devices (-58 and -46 points, respectively), which suggests that after several months with new Android devices, there may be some degradation of battery life. It will be imperative to monitor performance in this factor during the short term. Sufficient battery life will prove even more important as smartphone owners continue to download more video and adopt video conferencing technology. It will be critical for manufacturers to continue to improve battery technology and for owners to make adjustments to limit e-mail pushes, or dim the display or temporarily disable apps that are not being used. Satisfaction may severely decline if smartphone owners perceive the necessity to begin altering usage patterns as a result of battery limitations.



## Executive Summary

While traditional handset owners continue to migrate to the smartphone marketplace, the feature sets offered by smartphones will continue to expand in breadth and will improve in quality and reliability. The recent boom in smartphone applications made available in app marketplaces and in aggressive promotion pricing by carriers will also drive owners to the smartphone segment. Furthermore, these feature sets will increasingly be more owner-driven—many additional feature sets will be beneficial to owners in the business as well as consumer segments of the market. J.D. Power and Associates has noted an increase in feature availability across both the 2011 *Wireless Traditional Mobile Phone Satisfaction Study* and the *Wireless Smartphone Satisfaction Study*. As they have grown more familiar with how to operate their device and to further integrate it in their daily lives, owners increasingly are using the features available to them.

A majority (85%) of smartphone owners indicate they frequently view Web pages, and most of these owners are utilizing high-end full Web browsers. Utilization rates for features such as GPS and Wi-Fi will continue to grow. Currently, 34% of smartphone owners indicate they frequently use the GPS feature, an increase of 3 percentage points from 6 months ago and 15 percentage points from 18 months ago. More than one-third (39%) of owners use the Wi-Fi capability to conserve battery life and experience faster download speeds instead of connecting to a 3G network—this particular utilization rate is likely to grow as carriers begin to tier data-pricing plans and cable operators expand public WiFi footprints. Utilization of features that entertain smartphone owners or facilitate everyday tasks increase brand loyalty and repurchase intent. Music playing features are utilized frequently by one-third of smartphone owners—indicating that owners are willing to replace separate devices such as an iPod if their mobile device can offer the same features. Likewise, owners would be willing to supplant standalone navigation devices with their smartphone's GPS application, particularly as these programs grow more advanced and add features such as voice turn-by-turn directions. Features that can be integrated into the user's daily routine may further connect the smartphone user with both the manufacturer and the wireless carrier.

It is crucial for smartphone manufacturers to be in touch with their current owner's wants and needs—nearly one-fifth (19%) of smartphone owners indicate they would like to have the ability for memory expansion, particularly as they download more applications and carry more music and images on their devices. An additional 16% of owners desire touch screens. Of note, there is a lingering desire for push-to-talk capability on smartphones as 16% of smartphone owners indicate they would like to directly connect with others. In order to foster loyalty to both handset manufacturers and wireless carriers, it will be important for handset manufacturers to provide smartphone owners with the features they actually want and will use.



## Executive Summary

While an ample set of stock features are important, smartphone owners must also be able to customize their phone to suit their particular needs via mobile software and applications. Of owners who download applications, 66% report downloading third-party games, while 53% download entertainment-related applications such as those related to dining out. Additionally, 54% of smartphone owners report downloading travel-related applications, while 38% have added utility-based applications. All of these download activities suggest smartphone owners are using their device to stay connected and productive in both their business and personal lives.

Changes in usage and communication patterns dictate the drivers of satisfaction, which change over time. In 2011, 59% of smartphone owners report accessing social networks such as Facebook, Twitter, LinkedIn, and Myspace. Satisfaction is 64 index points higher among those who use their smartphone to access social networking sites, compared with those who do not. Customers are increasingly finding very rewarding the ability to share their daily experiences with friends and family while on the go.

Given the ongoing shifts in industry dynamics, understanding what influences customer expectations is beneficial to manufacturers. Additionally, knowing what is most important in the consumer decision-making process makes it possible for manufacturers to design attractive and useful products. By effectively communicating product options, manufacturers may not only retain their existing owner base but also attract new customers. Both wireless service providers and handset manufacturers must embrace a culture focused on device satisfaction, which may lead to repeat purchases, recommendations, higher-revenue owners, as well as increased dependence on, and loyalty to, their wireless service provider.





# Penetration and Market Share



## Penetration and Market Share

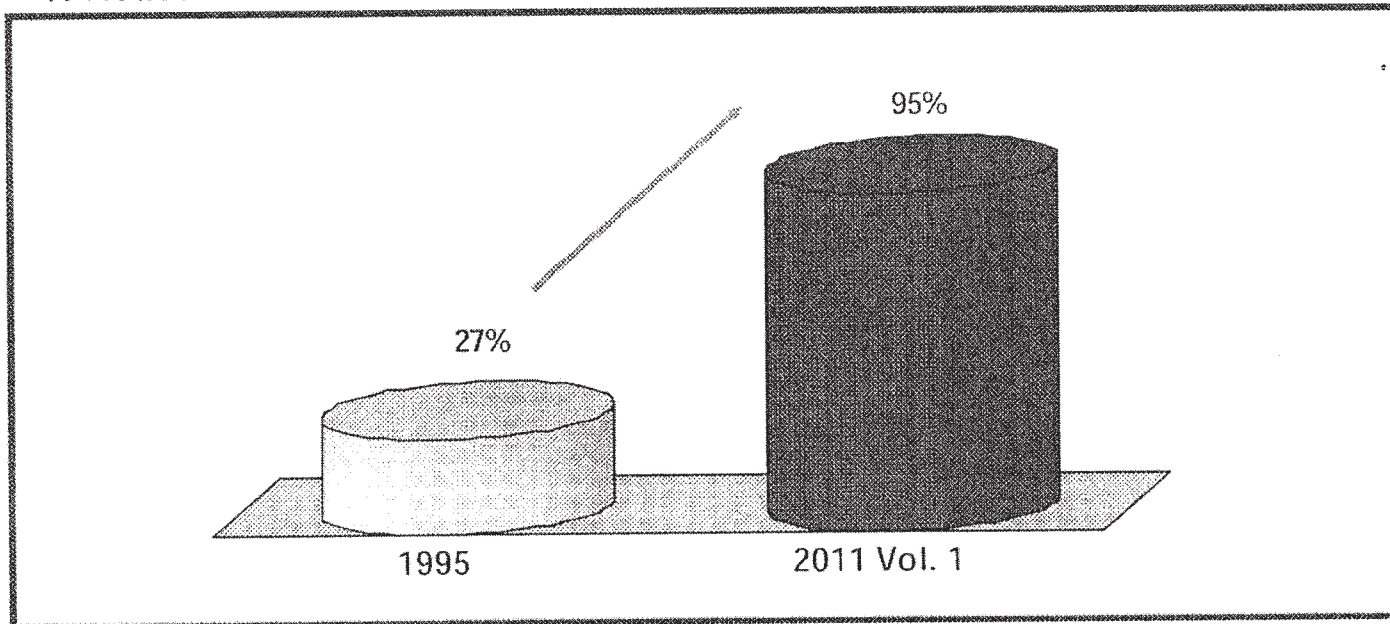
The share of smartphones comprising the mobile phone market continues to grow exponentially each year. Among smartphones in the market place regardless of tenure, Apple moves into the top spot with the largest share at 33%. After having the largest share in 2010 Vol. 2, RIM BlackBerry falls below Apple with a share of 28%, a notable decline from 35% last volume. HTC and Motorola follow with 14% and 9%, respectively. Samsung (7%), Palm (4%), and Nokia (3%) follow with smaller shares.

The majority of HTC models are owned by Verizon Wireless customers (34%), followed closely by Sprint Nextel (28%) and T-Mobile (26%). More than one-third (41%) of BlackBerry owners use Verizon Wireless as a service carrier, and more than one-half (53%) of Palm owners have service provided by Sprint Nextel. The most popular wireless carrier among Samsung users is also Sprint Nextel (43%). The iPhone continues to be AT&T's most popular smartphone— almost three-fourths (72%) of AT&T's smart devices are now Apple products.

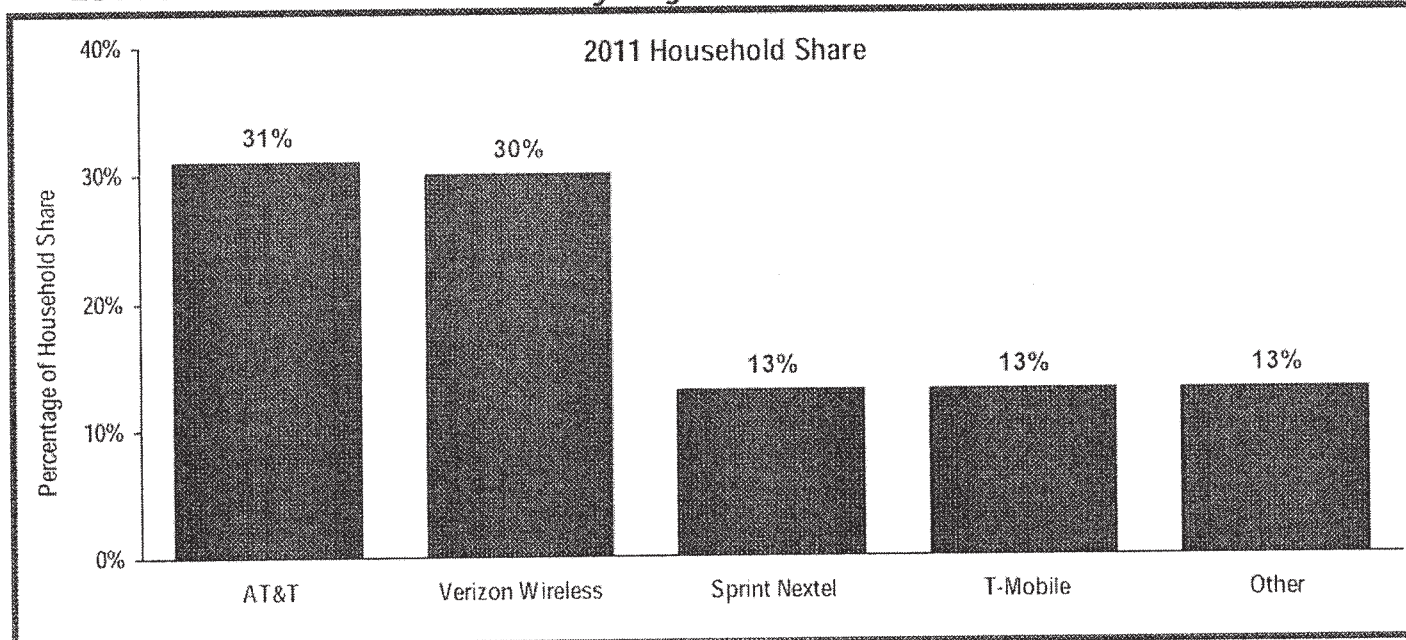


## Household Penetration<sup>1</sup>

### % Households With Wireless Service: National



## 2011 Household Penetration<sup>2</sup> by Major Carriers

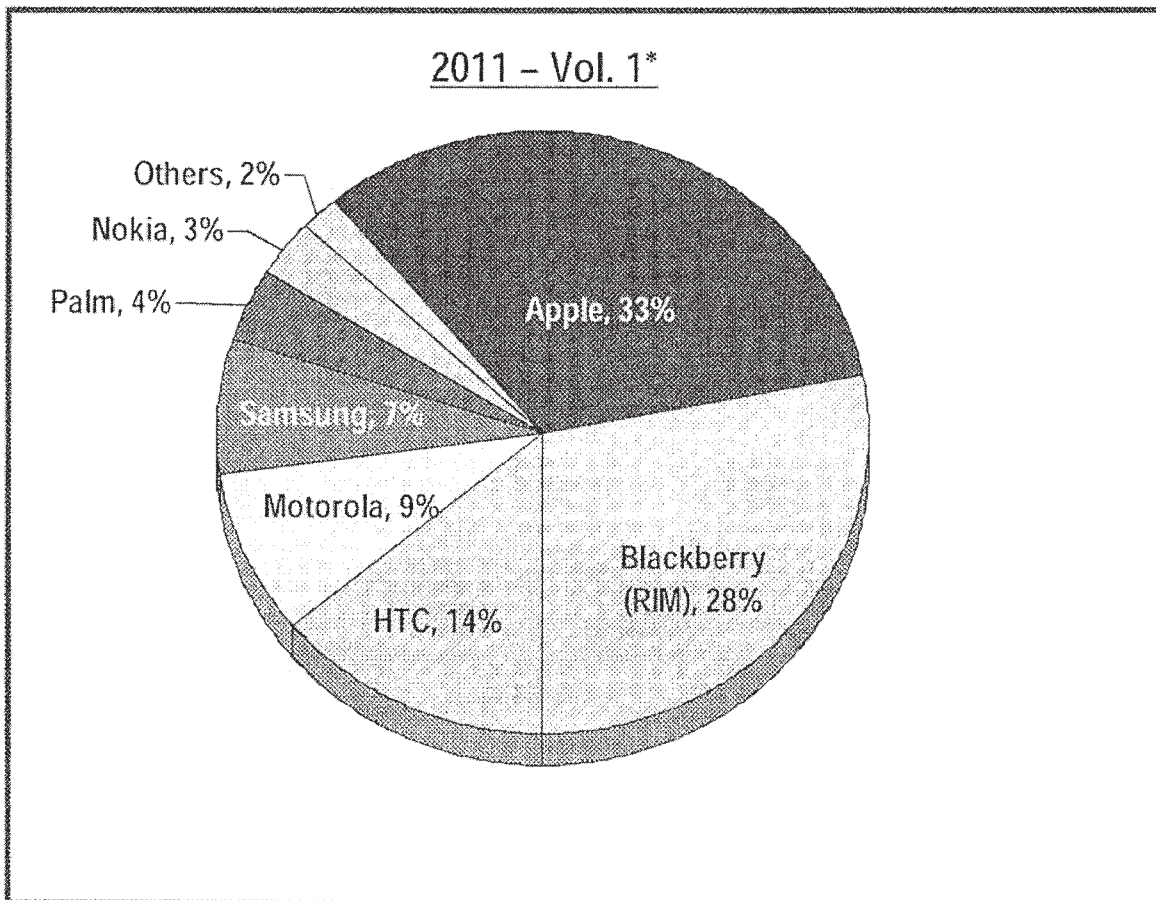


<sup>1</sup> For the 8 markets included in 1995, 13 markets in 1996, 18 markets in 1997, 21 markets in 1998, 22 markets in 1999 & 2000, 25 markets in 2001; and 27 markets in 2002 2003- 2011 are based on the national (metro and non-metro) markets

<sup>2</sup> Household penetration is the percentage of households with wireless service from a specific provider nationally. Since a household may have service from more than one wireless provider, household share for all providers sums to more than 100%. Multiple phones from one provider within a household count as only one.



### Smartphone Manufacturer Share—2011 Vol. 1



\*Among all lengths of ownership

## Smartphone Manufacturer Share by Wireless Carrier

Handsets by Carrier Used<sup>1</sup>

	AT&T	Sprint Nextel	T-Mobile	U.S. Cellular	Verizon Wireless	Other Carriers
Apple	100%	0%	0%	0%	0%	0%
HTC	9%	28%	26%	1%	34%	2%
Motorola	5%	2%	11%	0%	81%	1%
Nokia	50%	2%	33%	1%	8%	6%
Palm	12%	53%	1%	0%	33%	1%
RIM BlackBerry	23%	16%	14%	2%	41%	4%
Samsung	24%	43%	12%	2%	17%	2%
Others	27%	2%	1%	1%	68%	1%

<sup>1</sup> Percentages sum to 100% going across

## Wireless Carrier Share of Smartphone Sales

Carrier by Handset Used<sup>1</sup>

	AT&T	Sprint Nextel	T-Mobile	U.S. Cellular	Verizon Wireless	Other Carriers
Apple	72%	0%	0%	0%	0%	0%
HTC	3%	28%	35%	19%	18%	18%
Motorola	1%	1%	9%	5%	25%	6%
Nokia	4%	0%	10%	5%	1%	10%
Palm	1%	15%	0%	0%	5%	1%
RIM BlackBerry	14%	32%	37%	52%	42%	54%
Samsung	4%	22%	8%	18%	5%	9%
Others	1%	2%	1%	1%	4%	2%

<sup>1</sup> Percentages sum to 100% going downward



# Usage Diagnostics



## Usage Diagnostics

Minutes of use continue to be higher among smartphone owners than traditional mobile phone owners—currently smartphone owners report using 622 minutes per month. At the top of the spectrum are HTC owners, using 707 minutes per month, while Palm owners are on the low-end using just 564 minutes. The average monthly expenditure for smartphone users is \$107. HTC, Motorola, and RIM BlackBerry smartphone users pay more per month than average, at \$108, \$115, and \$108, respectively. On the other hand, Nokia and Palm smartphone users spend notably less than average at just \$86 and \$95 per month, respectively.

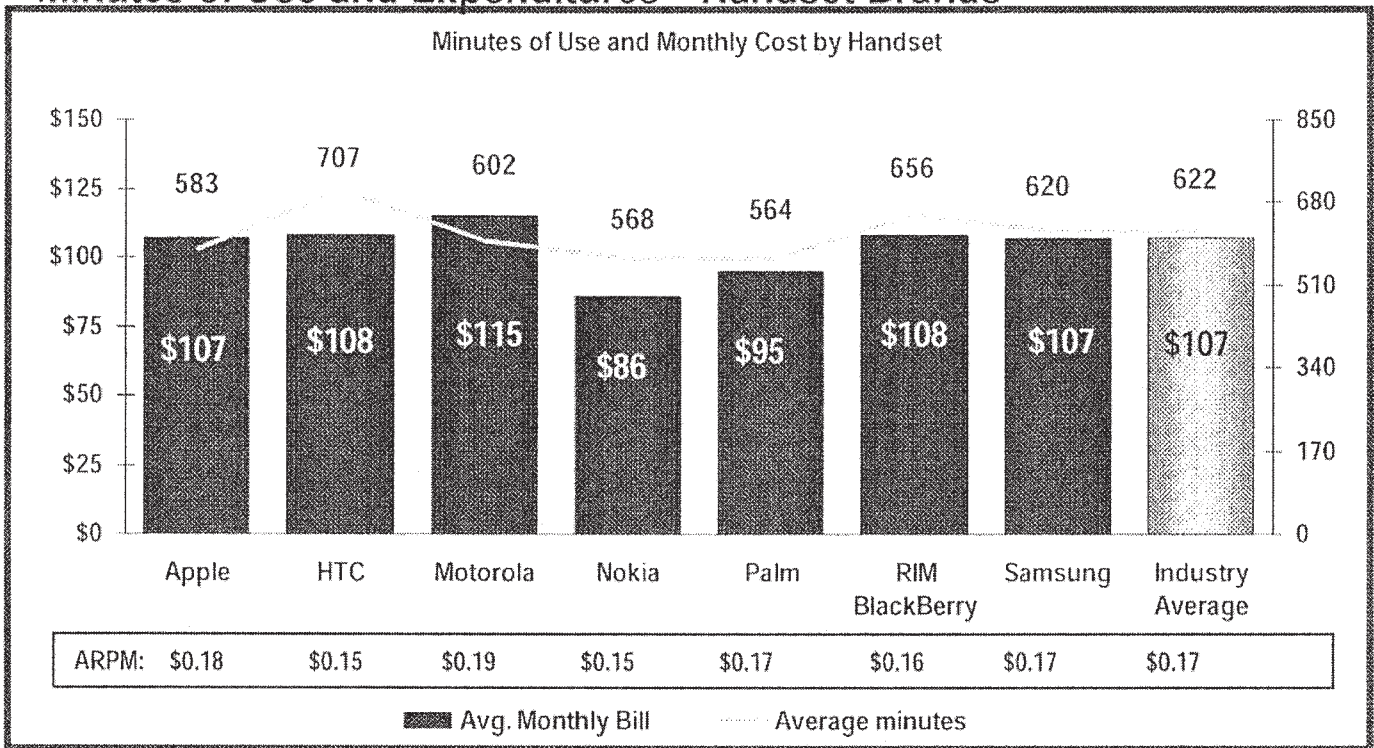
The average cost of a smartphone continues to be more than a traditional mobile phone, and, in addition, very few smartphone models are “free” after discounts and rebates. The average reported cost of smartphones among its users is \$152. Apple smartphone customers report spending the most on their smartphones in 2011 Vol. 1 (\$206), contrasted by the least expensive smartphone manufacturer, Nokia, whose handsets cost just \$98 on average. HTC and Motorola models (each \$160) are more costly than average, while RIM BlackBerry (\$100), Palm (\$103), and Samsung (\$139) are less expensive than average. More than one-third (35%) of Apple owners report paying full price for their handset compared with just 19% of owners paying full price for the industry. Only 7% of Palm owners report paying full price for their handsets, whereas Motorola and Samsung (each at 48%) report using a mail-in rebate as a discount.

Smartphone features most regularly used include e-mail (88%), internet capabilities (86%), PDA/PIM capabilities (78%), and camera capabilities (76%). This is representative of the characteristics of the highly mobile and active smartphone segment—a mix of entertainment and functional communication through e-mailing and PDA-like organization of calendars and contacts. Features desired on owners’ future devices include: memory expansion (19%), push-to-talk capability (16%), and touch screens (16%), and voice recognition (11%). There has been some decline in the features desired from smartphone owners as newer handsets are already equipped with many of these features. Apple smartphone users are least similar to the industry in terms of features desired. As Apple handsets already provide GPS capabilities and touch screens, Apple users are most interested in further developing their handset’s ability to capture and record video (19%), and have memory expansion options (37%). RIM BlackBerry handset owners have a higher desire for a touch screen (42%) than the industry as toggle and scrolling wheels dominate their model lineup with the exception of the Storm Model series.

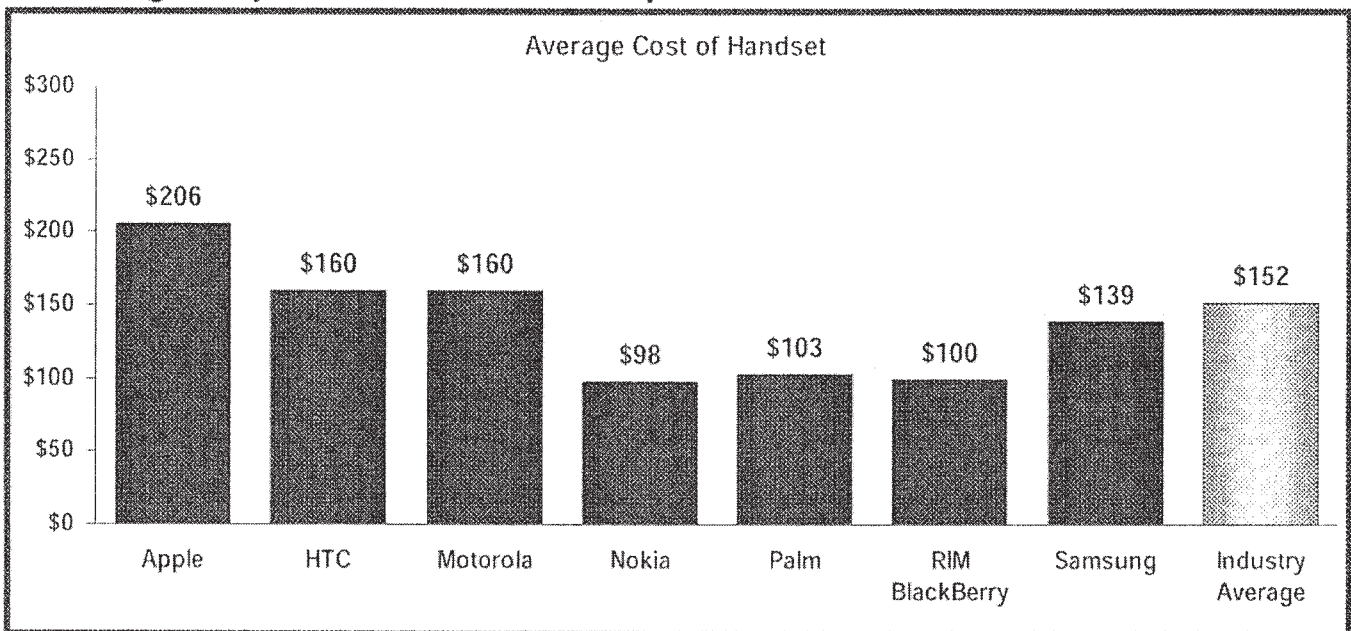
Of note is HTC owner’s propensity to desire a Qwerty keyboard (21%) which could indicate that their users are looking for something in addition to the virtual keyboards present in several of HTC’s devices. Apple users have a much higher likelihood to indicate they would like voice recognition or command dialing on their device than average (15% vs. 11%).



## Minutes of Use and Expenditures—Handset Brands



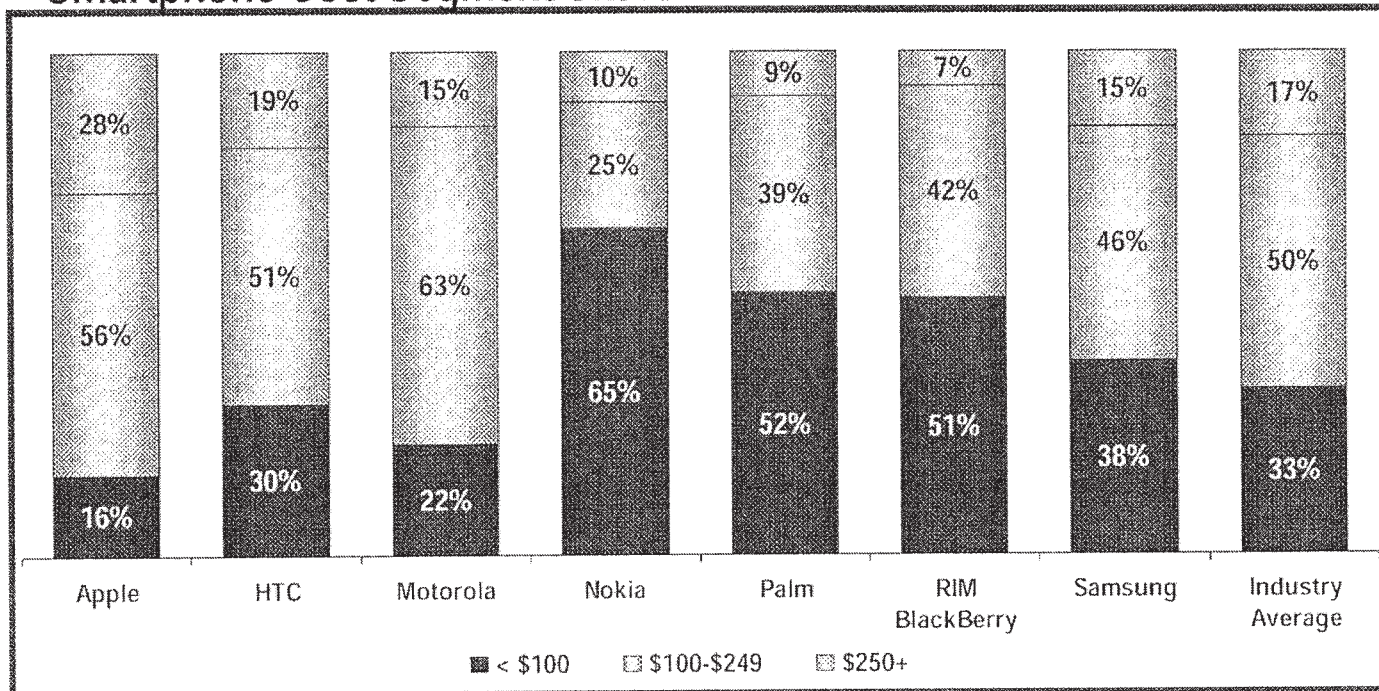
## Average Reported Cost of Smartphone



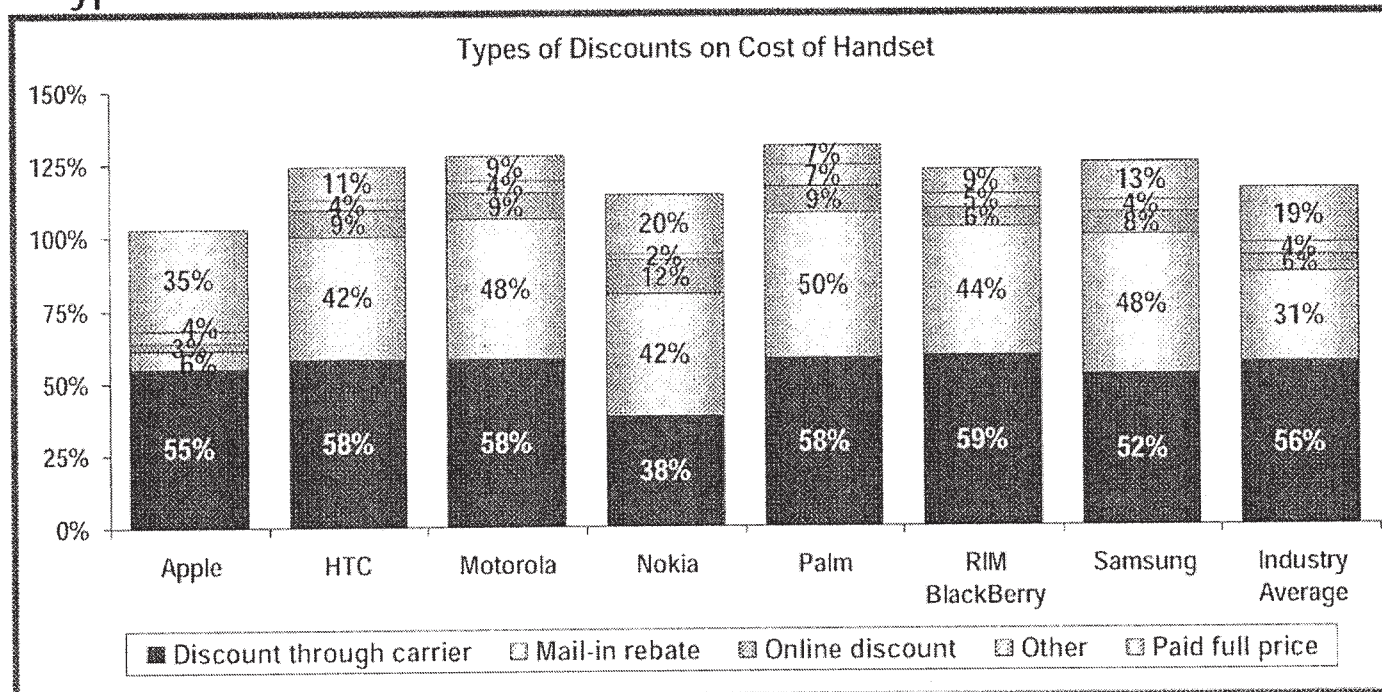
ARPM = Average rate per minute.



### Smartphone Cost Segment Share



### Type of Discount/Rebate Received<sup>1</sup>



<sup>1</sup> Will not add up to 100% because respondents are able to indicate more than one type of discount received.