

# *No wires attached*

## Changes and trends in the North American wireless industry

A survey for 2011

*March 2012*

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Entertainment, Media, and  
Communications Practice*

### **At a glance**

Highlights of key industry performance measures and insights into reporting policies and practices of wireless carriers in the US and Canada

# Acknowledgments

The PwC 2011 North American wireless industry survey was led by Pierre-Alain Sur, PwC's Global Communications and US wireless industry leader; Shara Slattery; Christopher Glass; Luke Mahan; and Sarah Smart and represents the efforts and ideas of many members of the firm's Entertainment, Media and Communications Industry group. The principal contributors were Shailabh Atal, Austin Bowlin, Michael Gibbs, Daniel Hays, Ellen McCready, Eli Orlofsky, Hall Reynolds, Katherine Sample, Michael Sitler, Azure Wiegghaus, and Dominic Wong. PwC also thanks the companies that contributed topics and participated in the survey. Their support for this project and their candid responses are much appreciated. Together we have created this survey to provide valuable insight into the operations and challenges of the wireless industry.

## **About this survey**

The 2011 survey is an annual publication covering the financial and operational reporting policies and practices of wireless telecommunications service providers. The 2011 survey includes companies in the United States and Canada. The survey is conducted by PwC's Entertainment, Media and Communications Industry group, which prepares the survey questions, solicits company participation, and compiles and analyzes the survey results. The survey period covers information as of December 31, 2010, as well as certain information available as of June 30, 2011. Companies participate voluntarily, and individual survey results are kept confidential by PwC.

PwC has taken reasonable steps to ensure that the information contained in this publication accurately summarizes the survey responses received from the participating companies; however, PwC has not performed any procedures to verify the accuracy of the survey responses. The survey provides a summary of the participating companies' financial and operational reporting policies and practices and does not purport to render accounting guidance or any other type of professional advice. If such advice is required, readers should contact their local PwC office.

PwC's worldwide office directory is accessible at [www.pwc.com](http://www.pwc.com).

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## *Executive Summary*

We are pleased to publish the 15th annual PwC Wireless Industry Survey. This survey is based on detailed data and operating practices provided by major wireless network operators in the United States and Canada.

We hope this survey (1) helps companies better understand industry performance measures and their evolution, (2) provides insight into the policies and procedures utilized by responding companies, (3) offers clarity to the comparability of financial statements within the industry, and (4) enables the identification of potential operational and financial performance improvement opportunities for wireless network operators. We also aim to address general financial accounting and reporting practices in the industry and identify emerging trends or issues related to technology, service offerings, and customer experience.

The survey has become an annual resource for many wireless communication industry executives. It has evolved with the changing businesses and trends in the industry and is based on feedback received from participating companies each year. This Executive Summary provides highlights of the 2011 survey results. We hope you find this year's survey results informative, pertinent, and stimulating.

The 2011 survey results reflect the participation of eight US companies, including three of the four largest wireless operators by revenue and subscriber base, as well as four major Canadian wireless companies, including the three largest. The breadth of coverage and participation enables the survey to provide the most representative summary of industry performance, policies, and practices available for North America.

We invite you to explore these highlights from this year's results, which cover 2010 year-end metrics and certain 2011 metrics.

### *Revenue and performance measures*

The sale of smartphone devices to new postpaid subscribers continues to grow, representing 48% of device sales as compared to 30% in the 2010 survey. The trend towards smartphones is also seen with those customers who upgrade their devices. The percentage of customer upgrade phone sales relating to postpaid smartphones was 51% which compares to 36% in the 2010 survey.

Just as the sale of smartphones has increased, the number of total postpaid subscribers using a smartphone increased to 37% as compared to 23% in the 2010 survey. The percentage of prepaid subscribers using smartphones has historically lagged behind postpaid users and was 8% of prepaid users in the 2011 survey.

The average revenue per user for postpaid customers remained consistent at \$56 as compared to \$55 in the 2010 survey. Given the data service component for smartphone service plans, the average revenue per user for smartphone plans remained significantly higher than the average revenue per user for postpaid customers and was \$86 and \$83 in the 2010 and 2011 surveys, respectively.

Releases of operating results and statistics by the operators in the fourth quarter of 2011 indicate that these trends have done nothing but continue to accelerate.

The results seen for 2011 are representative of a significant, ongoing paradigm shift for the North American wireless industry. As the industry continues to mature, prepaid and mobile broadband services represent increasingly-important revenue opportunities for operators. Prepaid plans, including prepaid plans with data service components, represent a significant and growing portion of revenue as consumers continue to trend towards less expensive, no-commitment wireless plans. In addition, the expanded use of smartphones, which offer higher revenues per user as compared to non-smartphone plans has required wireless companies to change the metrics for which they compete to emphasize data speed and available bandwidth.

While the move to higher-priced, data-centric pricing plans is benefitting carriers, the challenge for the future will be balancing slowing subscriber growth and pricing pressure while funding much-needed network improvements required to enable the broader move to smartphones.

On average, 29.2% of total service revenue was generated by prepaid plans as compared to 22.5% in the prior year survey for all responding companies. While the percentage of total service revenue attributed to prepaid plans has been increasing, the average revenue per user slightly declined to \$25 as compared to \$26 in the 2010 survey. Similarly, prepaid revenues from SMS text data significantly decreased as a percentage of total prepaid data revenue to 36% from 54% in the 2010 survey. The decline was offset by significant increases in smartphone based email and Internet access from handsets, premium SMS data, laptop cards, Wi-Fi services, and mobile computing revenue streams.

### Property, plant, and equipment

As the demand of subscribers continues to evolve into being more focused on data intensive services and the speed of data availability, the importance of network upgrades and investments to support such progression has resulted in significant capital expenditures by wireless companies.

On average, capital expenditures approximated 24% of service revenue, which is an increase from 20% in the 2010 survey. With the rise in capital expenditures, depreciation expense as a percentage of service revenue significantly increased from 13% in the 2010 survey to 23% in the current year survey, also due to accelerated depreciation or impairments. This acceleration is believed to be due in part to ongoing and future network upgrades to 4G technologies which are accelerating the retirement of legacy 2G and 3G network assets.

In the 2011 survey, 82% of responding companies indicated that at least 90% of their subscriber base was covered by 3G technology compared with only 67% in the 2010 survey. As noted in the prior year survey, companies continue to transition to 4G technology to support the increasing demand for mobile broadband solutions for various devices such as laptops, smartphones, tablets and to support the demand for new services such as video chat and mobile TV. In the 2010 survey, only three companies were utilizing 4G technology as compared to seven companies in the 2011 survey. Of the five companies that were not utilizing 4G technology at the time the survey was conducted, two companies expected to begin using it before the end of 2011 and the other three in 2013.

With the changes and transitions to new technologies, more than half of responding carriers indicated that they had recorded an impairment or accelerated depreciation on an individual or group of assets within the last 12 months. The impairments or accelerated depreciation was largely due to equipment being replaced due to technological updates that rendered the equipment obsolete, strategic decisions or due to divesting of markets.

We hope you find this survey useful, and invite you to explore the in-depth results in the full report.

# *Participating company information*

The 2011 survey represents 12 wireless companies in North America, compared with the 18 participating carriers that participated in the annual Wireless Industry Survey in the early 2000s. The decline in the number of participating carriers is due to consolidation in the industry. The following pages provide the demographics, general corporate data, and structure of the responding carriers, including:

Names of participating companies  
Company type and subscriber base  
Annual service revenue  
Employee base  
Internal Audit  
Sales locations  
Outsourcing  
Inventory management  
Customer care

## Participating companies:

### ***United States***

Clearwire  
Leap Wireless  
MetroPCS  
NII Holdings  
Sprint Nextel  
T-Mobile USA  
US Cellular  
Verizon Wireless

### ***Canada***

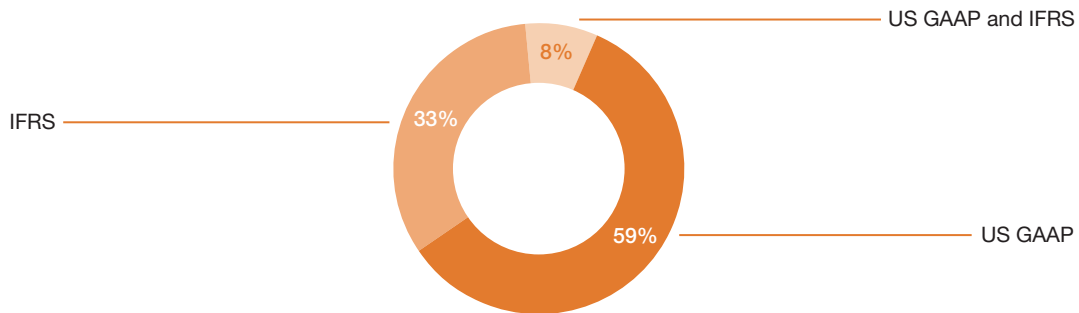
Bell Mobility  
Rogers Wireless  
TELUS Mobility  
Wind Mobile

## Company type and subscriber base

All of the companies surveyed are listed on stock exchanges and therefore were required to file interim and/or annual financial statements, either individually or through their parent company.

The responding companies prepare their financial statements under US Generally Accepted Accounting Principles (US GAAP) and/or International Financial Reporting Standards (IFRS). As compared with the prior year survey, IFRS is now mandatory for Canada reporting, thus increasing the percentage of respondents reporting under IFRS.

### Generally accepted accounting principles

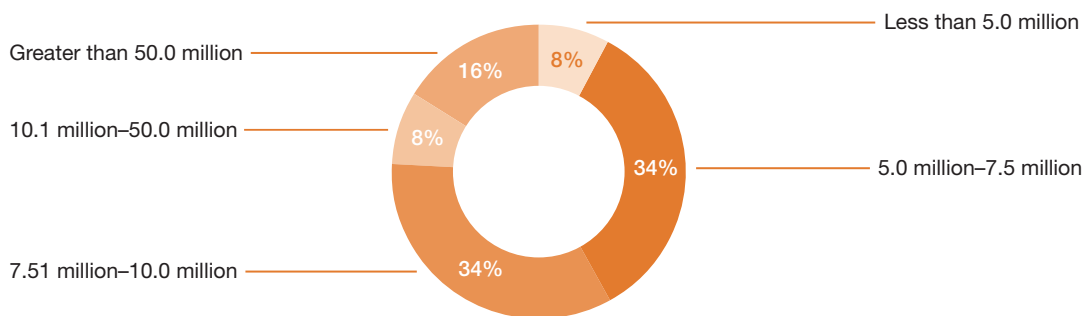


The industry continues to experience subscriber growth as more and more people utilize wireless devices as a substitute for traditional wireline service. Of the respondents with revenue greater than \$5 billion, subscribers averaged 50.4 million, while the respondents with revenue less than \$5 billion averaged 6.6 million subscribers.

Forty-two percent (42%) of responding carriers externally report their subscriber numbers counted through resellers (third-party companies) or mobile virtual network operators (MVNOs) compared with 64% in the 2010 survey.

The following chart shows the responding companies' reported subscribers as of June 30, 2011.

### Wireless connections as of June 30, 2011

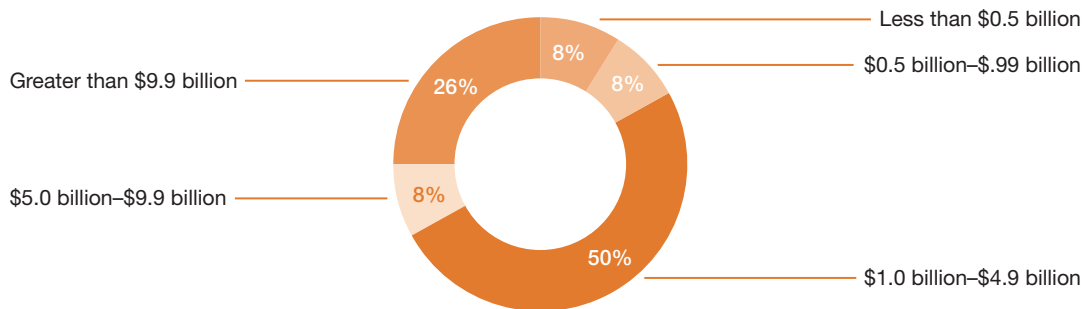


## Participating company information

### Annual service revenue

The following chart illustrates the responding companies' service revenue reported for the most recent fiscal year, which ended December 31, 2010, for all respondents. The average service revenue was \$26.8 billion for carriers with revenue greater than \$5 billion and \$3.1 billion for carriers with revenue less than \$5 billion.

#### Annual service revenue

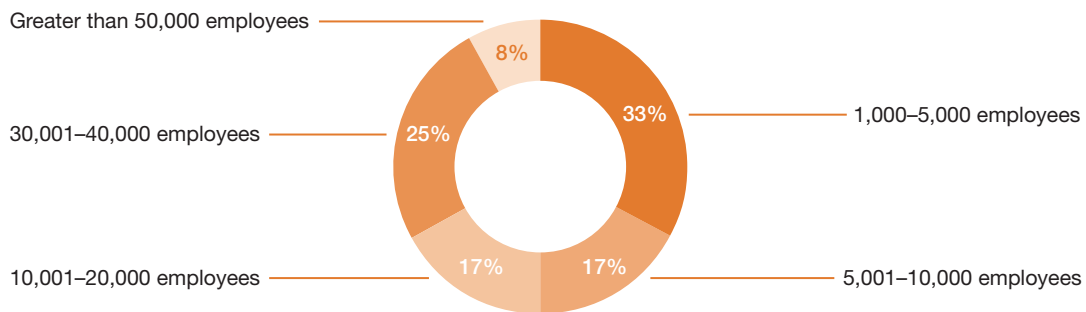


The average equipment revenue, for all respondents, represented 8% of total company revenue, while the average other revenues were 5% of total company revenue.

### Employee base

The following chart represents the number of full-time employees as of June 30, 2011.

#### Full-time employees



No responses were received in the 20,001–30,000 and the 40,001–50,000 employees categories.

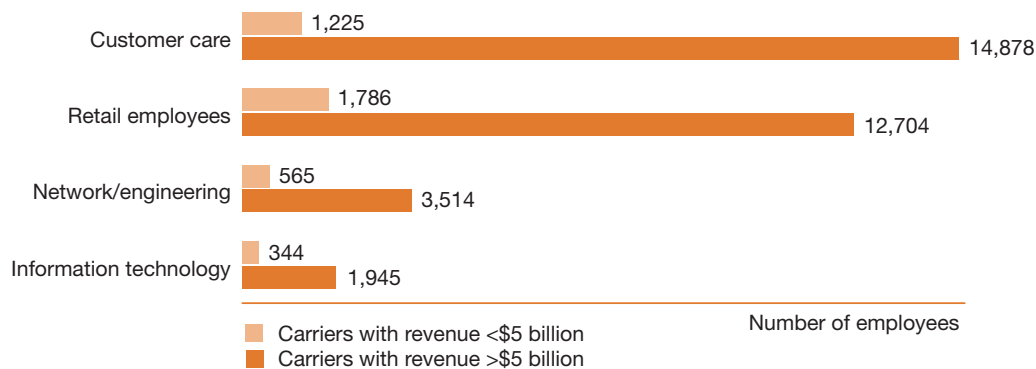


## Participating company information

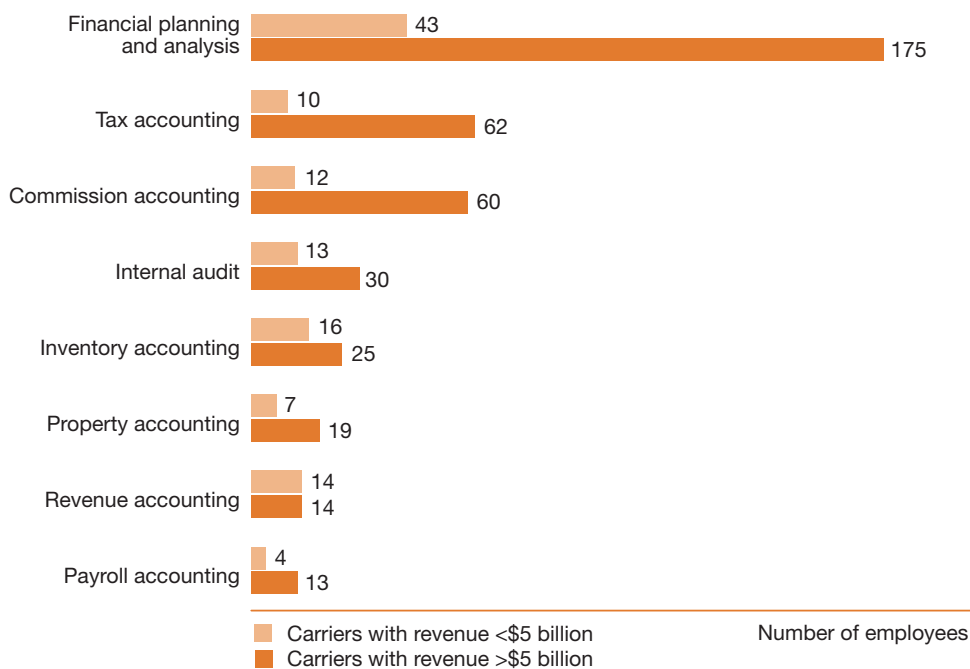
Carriers with revenue greater than \$5 billion had more than 10,000 full-time employees and averaged 42,849 employees; that is down from an average of 46,565 employees reported by respondents in the 2010 survey. Carriers with revenue less than \$5 billion had 10,000 or fewer full-time employees, averaging 9,284 employees; that is up from an average of 5,774 employees reported by respondents in the 2010 survey.

The following charts depict the number of full-time employees in each functional category as of June 30, 2011. The responding companies were split between carriers with revenue greater than \$5 billion and carriers with revenue less than \$5 billion.

### Average employee per functional position



### Average employee per functional accounting and finance position

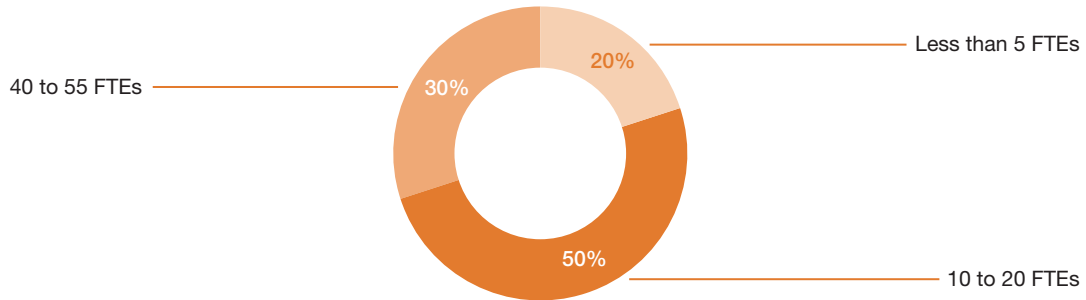


## Participating company information

### Internal audit

The following chart depicts the number of full-time equivalents (FTEs) that are dedicated to the internal audit function within the respondents' organizations.

#### Number of full-time equivalents for internal audit function

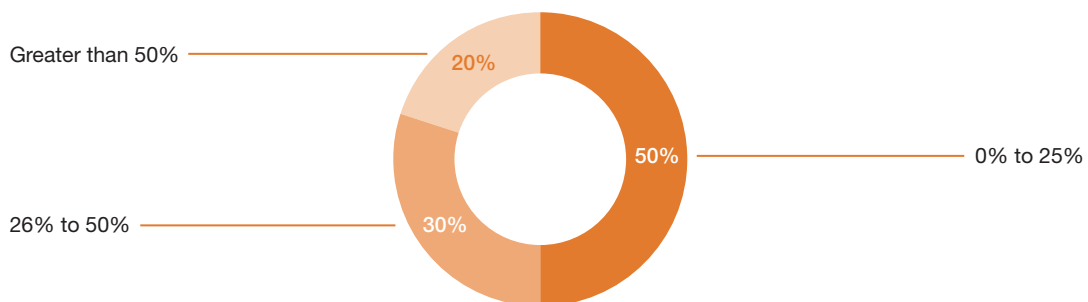


No responses were received in the 5–10 and 21–39 FTE categories.

The average number of FTEs for all respondents was 18. Carriers with revenue less than \$5 billion reported an average of 13 FTEs compared with 30 FTEs for carriers with revenue greater than \$5 billion. The average number of individuals in internal audit per \$1 billion of revenue was 3.1, according to survey respondents.

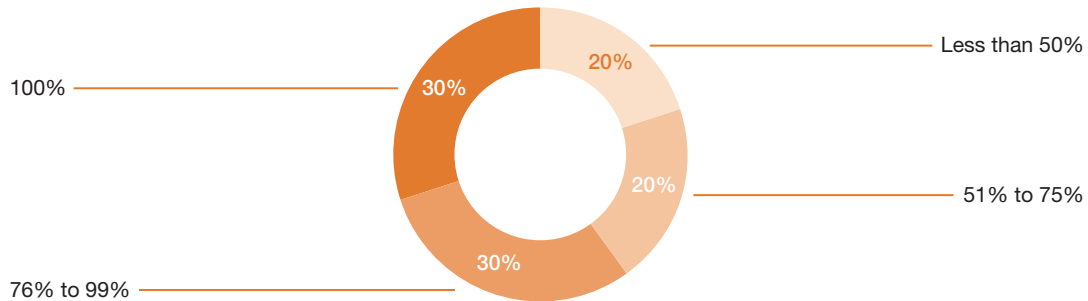
The following charts depict the percentage of internal audit staff with graduate degrees and certifications, such as CPA and CFA.

#### Percentage of internal audit staff with graduate degrees



## Participating company information

### Percentage of internal audit staff with certifications



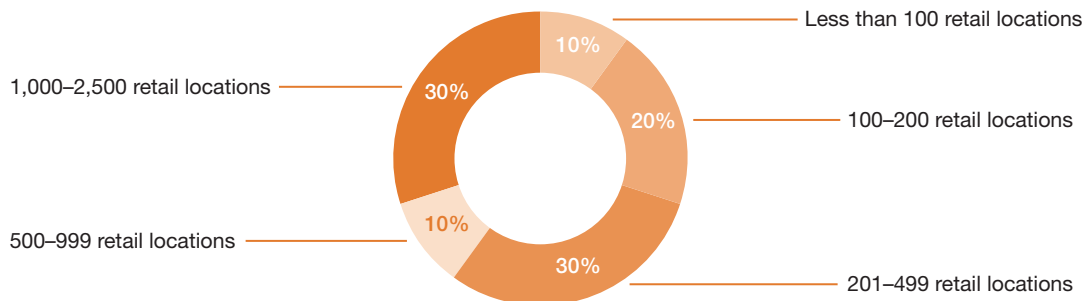
The average years of audit experience per internal audit employee is 7.7 and the average years of business experience per internal audit employee is 9, according to survey participants. We asked survey participants to report the average number of fraud cases (fraudulent financial reporting or misappropriation of assets) identified by internal audit for the 12-month period ending June 30, 2011. The average response was 7 (with a high of 37 and a low of zero).

Incidentally, 83% of survey participants reported that their company supports an ethics hotline. Survey participants indicated that the total number of ethics hotline contacts (i.e., individuals) in their companies as of June 30, 2011, averaged 8 (with a high of 34 and low of two). The number of ethics hotline reports released during the last 12 months averaged approximately 700 among survey participants.

## Sales locations

All of the responding carriers reported using company-owned retail and kiosk locations to sell and provide services for customers. The following chart depicts how many company-owned retail and kiosk locations the responding companies reported.

### Company-owned retail and kiosk locations

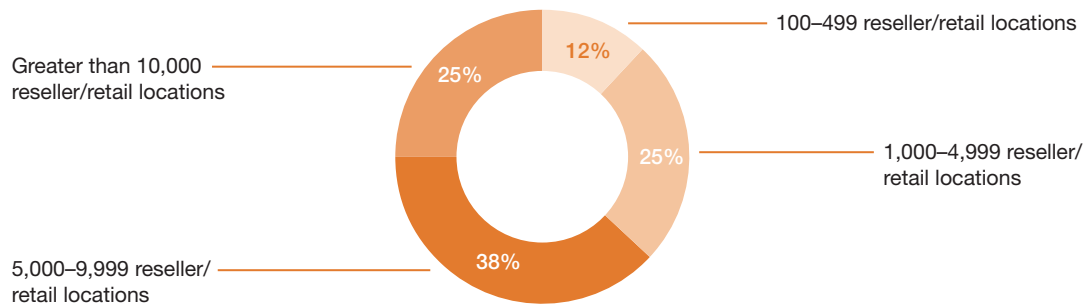


## Participating company information

The average number of company-owned retail and kiosk locations decreased over the prior year for carriers with revenue greater than \$5 billion from 1,592 to 1,387. Carriers with revenue less than \$5 billion reported an average increase from 299 to 326 for retail and kiosk locations.

The numbers of reseller/retail locations (third-party companies) and branded franchise locations that sell each carriers services are shown in the following two charts.

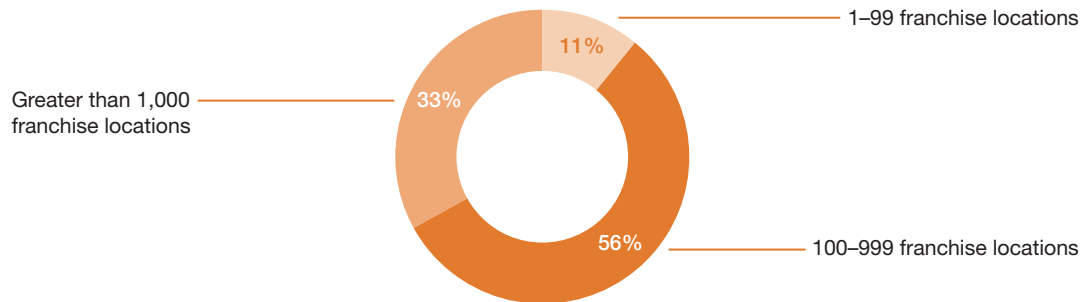
### Reseller/retail locations



No responses were received in the less than 100 and 500-999 reseller/retail locations categories.

The average number of reseller/retail stores (third-party companies) that sell services for carriers with revenue greater than \$5 billion was 11,109 (up from 10,286 in the 2010 survey). For carriers with revenue less than \$5 billion it was 4,573, compared with 5,703 in 2010 survey.

### Franchise locations

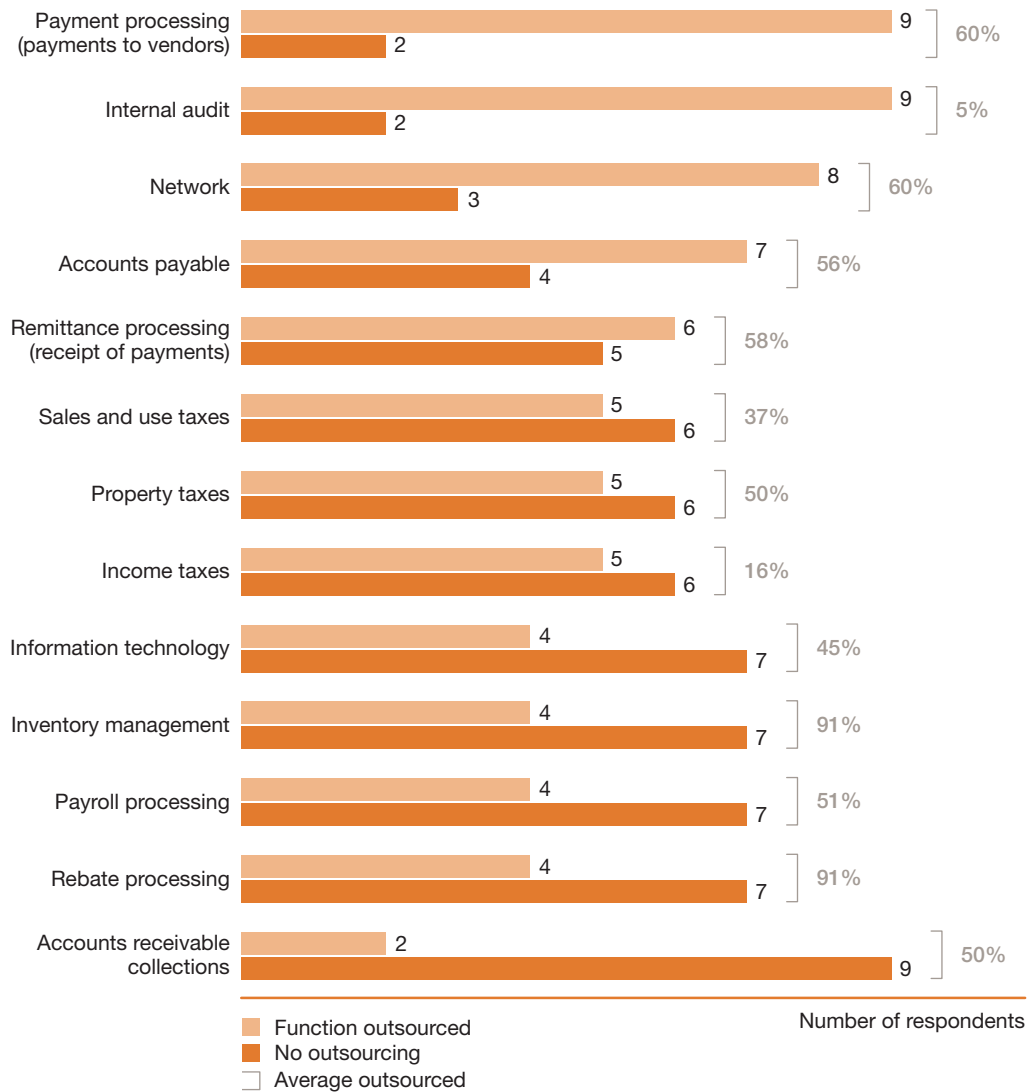


Branded franchise locations represent branded stores that are independently owned by third parties. The average number of branded franchise locations that sell services for carriers with revenue greater than \$5 billion was 1,373 compared with 2,621 in the 2010 survey, a significant decrease. For carriers with revenue less than \$5 billion, the number was 1,363, up from 1,026 in the 2010 survey.

## Outsourcing

All respondents reported that they outsource certain business functions. The following chart depicts the nature of outsourced functions, excluding the customer care function, among survey participants.

### Outsourcing



The outsourced activities are all performed at a domestic location (country of primary operation) except for income taxes (two respondents), accounts receivable collections (two respondents), and accounts payable (one respondent). Information technology (three respondents) and rebate processing (one respondent) utilize both international and domestic locations.

## Participating company information

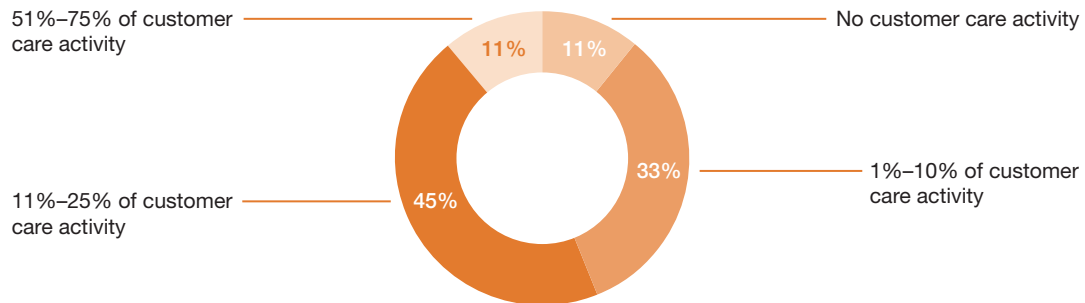
### Inventory management

Twenty-five percent (25%) of responding companies indicated that they utilize vendor-managed inventory (VMI) to maintain the inventory levels within their distribution networks (down from 36% in 2010). Of the carriers that utilize VMI, an average of 32% of inventory was managed by vendors.

### Customer care

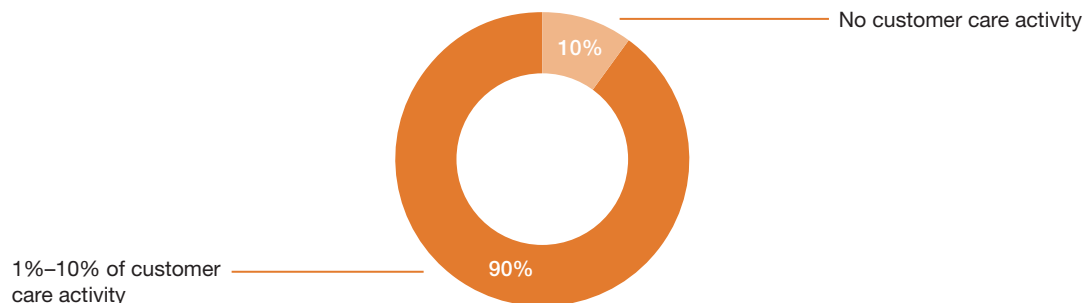
The next charts depict the responding carriers' percentages of customer care activity provided for postpaid and prepaid subscribers, categorized by the source.

#### Customer care via Internet transactions (postpaid)



No responses were received in the 26%–50% and the 76%–100% of customer care activity categories.

#### Customer care via Internet transactions (prepaid)

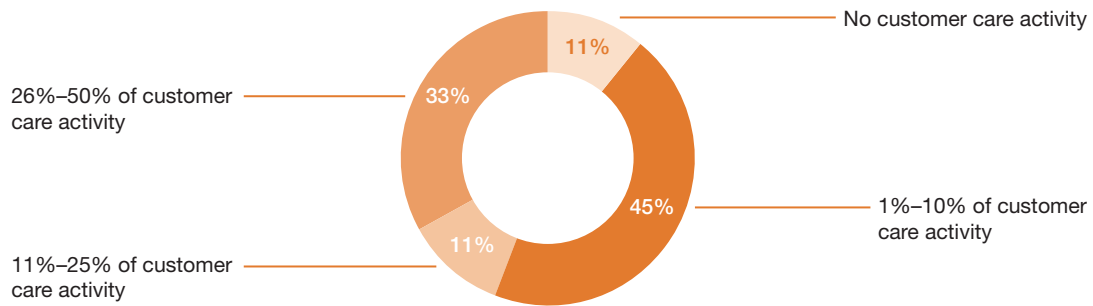


No responses were received in the greater than 10% category.

## Participating company information

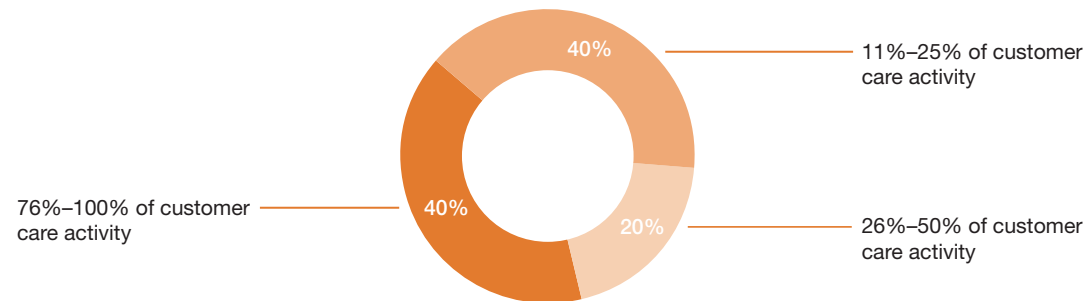
For carriers with revenue greater than \$5 billion, the average customer care activity via Internet transactions was 30% for postpaid subscribers and 6% for prepaid subscribers, which was a slight increase from the 2010 survey of 27% and 5%, respectively. For carriers with revenue less than \$5 billion, the average customer care activity via Internet transactions was 11% for postpaid subscribers compared with 12% in the 2010 survey and 4% for prepaid subscribers, down from 10% in the 2010 survey.

### Customer care via interactive voice response (postpaid)



No responses were received in the 51%–100% of customer care activity category.

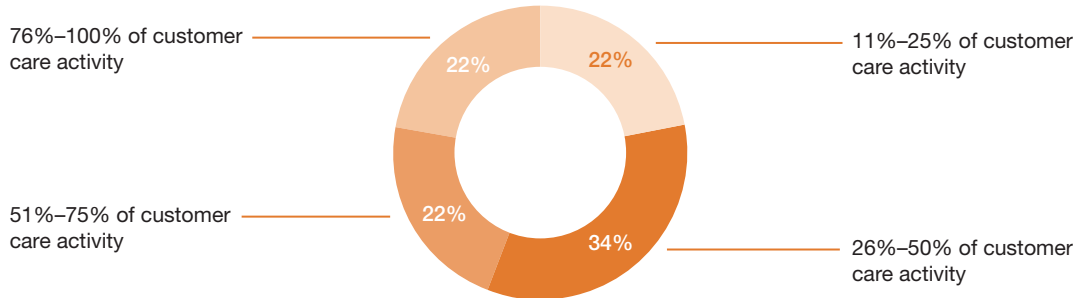
### Customer care via interactive voice response (prepaid)



No responses were received in the 1%–10% and the 51%–75% of customer care activity categories.

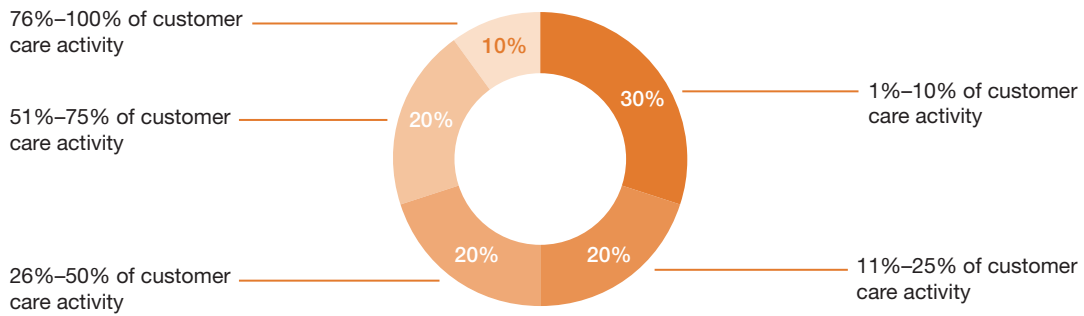
## Participating company information

### Customer care via live customer service representative (postpaid)

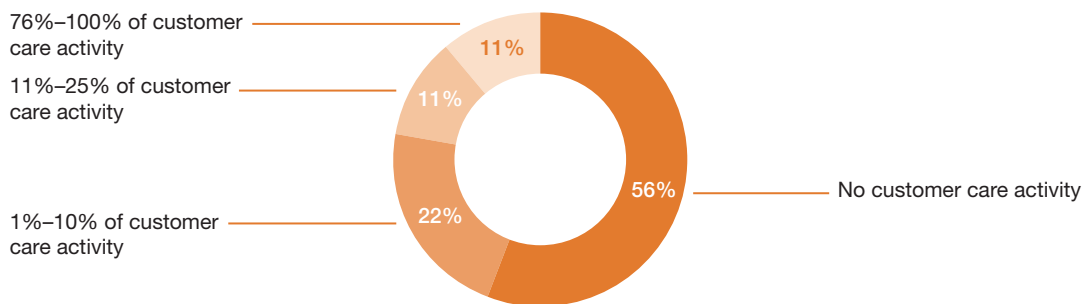


No responses were received in the 1%–10% of customer care activity category.

### Customer care via live customer service representative (prepaid)



### Customer care via handset (postpaid)

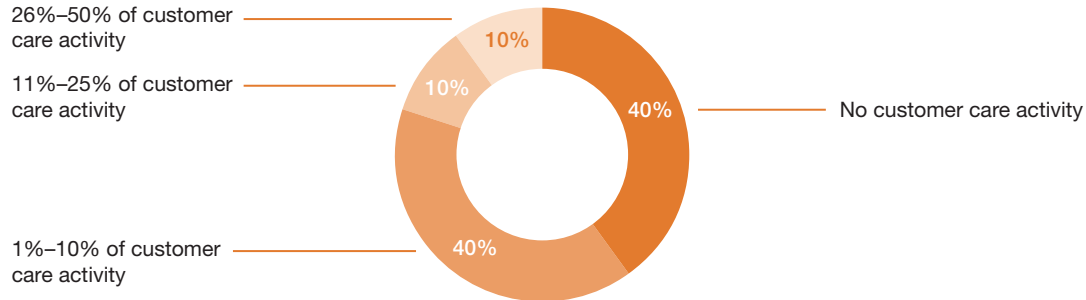


No responses were received in the 26%–75% of customer care activity category.



## Participating company information

### Customer care via handset (prepaid)



No responses were received in the 51%–100% of customer care activity category.

The average customer care activity via interactive voice response (IVR) for all carriers was 20% for postpaid customers and 6% for prepaid customers. Carriers with revenue greater than \$5 billion completed 21% of customer service via IVR for postpaid and 61% for prepaid subscribers compared with 31% and 53%, respectively, in the 2010 survey. Carriers with revenue less than \$5 billion completed 23% of customer service via IVR for postpaid and 40% for prepaid subscribers. In 2010, those same carriers also utilized IVR 23% of the time for postpaid subscribers and 40% for prepaid subscribers.

Customer care via live customer service representative was utilized 49% of the time for postpaid and 31% for prepaid subscribers. Customer care via live customer service representative averaged 45% for postpaid and 15% for prepaid carriers with revenue greater than \$5 billion compared with 42% postpaid and 25% prepaid in the 2010 survey. Customer care via live customer service representative for the carriers with revenue less than \$5 billion averaged 52% for postpaid and 40% for prepaid; in the 2010 survey it averaged 65% and 43% for postpaid and prepaid subscribers, respectively.

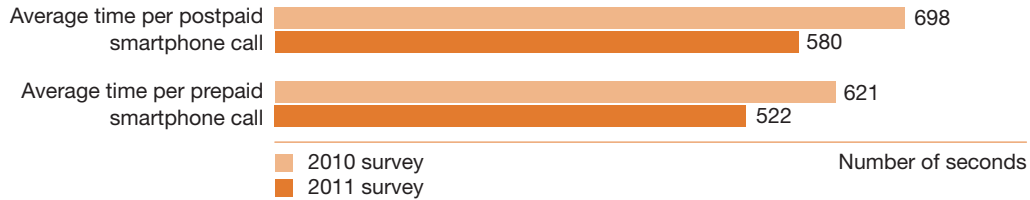
In addition, prepaid customers utilized their handsets to complete 8% of customer care transactions on average compared with 6% in the 2010 survey. This year among postpaid subscribers, an average of 11% of all customer care was completed via a subscriber's handset.

We asked companies to indicate the average number of call transfers that a subscriber experiences before an issue is resolved. According to respondents, the average number of call transfers before the issue or inquiry is resolved is less than one. The 2010 survey respondents indicated an average of two transfers before issue resolution.

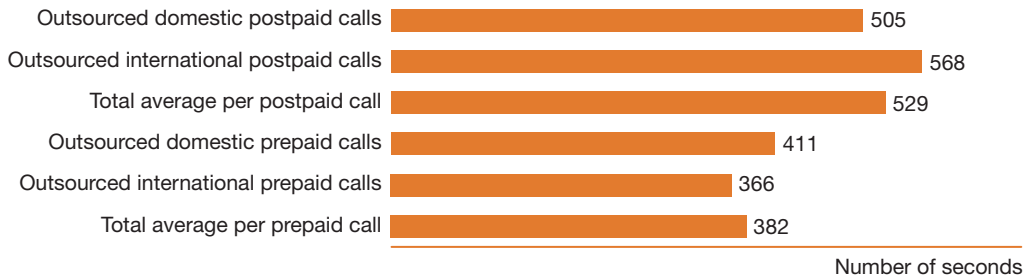
## Participating company information

The charts below represent the average handle time per call received at customer care centers for smartphones and non-smartphones. Handle time was defined as time incurred from the point when the customer call was first answered (either via the automated directory or by a person) to resolution of the issue.

### Average handle time per smartphone call



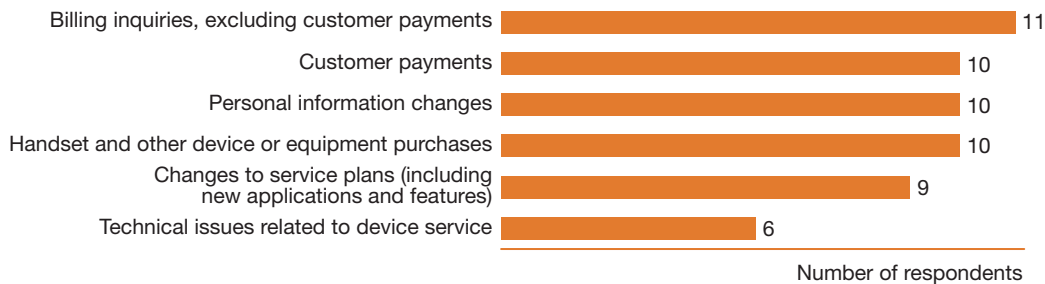
### Average handle time per call



In the 2010 survey, the average for handle time was 517 seconds per postpaid call and 329 seconds for prepaid calls.

The following chart shows the types of customer care activities available to subscribers over the Internet.

### Activities over the internet

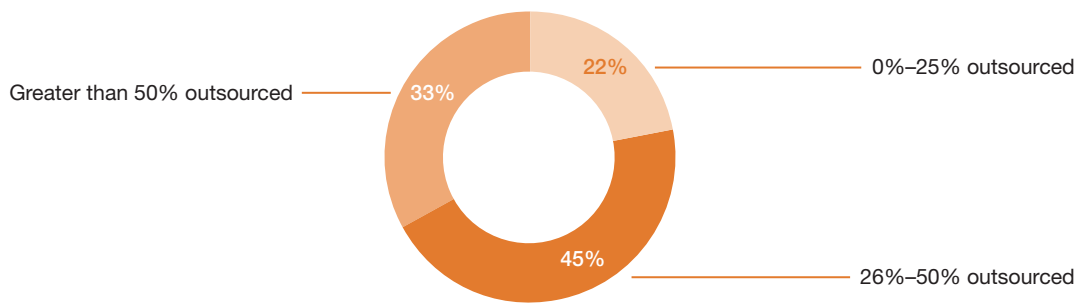


## Participating company information

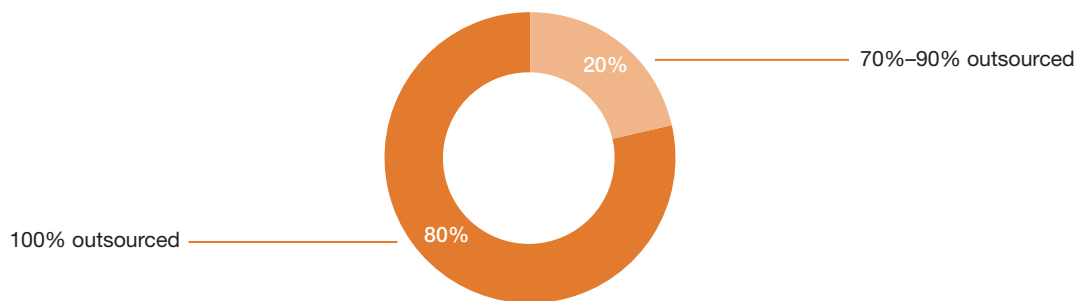
We asked companies to indicate the level of customer care activities that are outsourced to third parties. Consistent with previous years, all of the responding companies reported outsourcing at least a portion of their customer care call volume. We noted that carriers were generally inclined to outsource more of their prepaid call volume than their postpaid call volume. Eighty-three percent (83%) of the responding companies outsource at least some portion of postpaid customer care activity, while 67% of the companies outsource all of their prepaid customer care activity.

The following charts depict the percentage of outsourced call volume for postpaid and prepaid subscribers (excludes carriers that do not outsource).

### Outsourced customer care activity (postpaid)



### Outsourced customer care activity (prepaid)



No responses were received in the 0%–69% and 91%–99% customer care activity categories.

## Participating company information

The following charts indicate the average annual cost per subscriber for outsourced and in-house customer call centers.

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### Average annual cost to subscriber for outsourced customer call centers

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### Average annual cost to subscriber for in-house customer call centers

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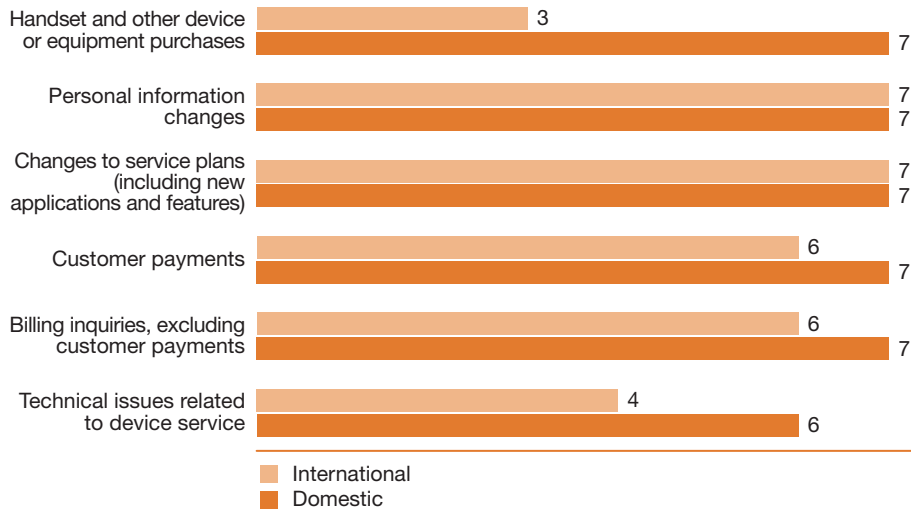


The high average cost for in-house call centers reported per subscriber was \$75, and the lowest cost per subscriber reported was \$1.76. Outsourced call centers reported a high average cost of \$60 per subscriber, and the low average cost was less than \$1.00 per subscriber.

## Participating company information

The following charts show the types of activities carriers outsource for both postpaid and prepaid customer care activities.

### Postpaid customer care services outsourced



The chart sums to greater than the number of respondents because multiple responses were allowed.

### Prepaid customer care services outsourced

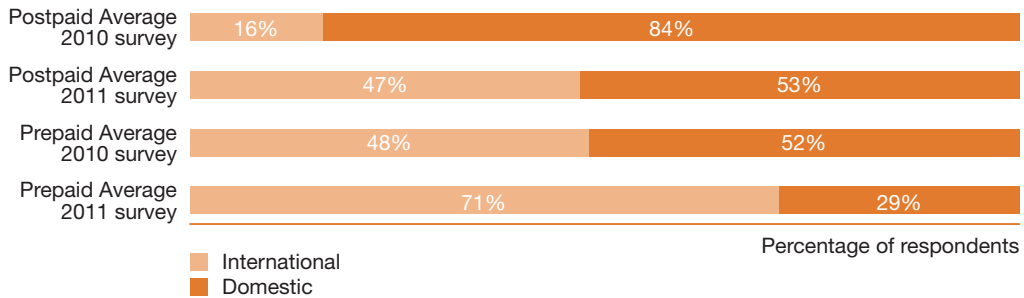


The chart sums to greater than the number of respondents because multiple responses were allowed.

## Participating company information

The following chart reflects the percentage of outsourced volume that was handled domestically (primary country of operation) or internationally. Responding carriers indicated a fairly significant shift toward international outsourcing for both prepaid and postpaid customer care compared with the 2010 survey.

### Domestic versus international outsourcing



Outsourced locations for postpaid customer care activities included Canada, Mexico, Philippines, Dominican Republic, Colombia, India, Panama, Guatemala, Barbados, El Salvador, and Egypt. In addition to the postpaid locations, prepaid customer care activity was also outsourced to Jamaica and Nicaragua.

Respondents indicated that 100% of postpaid and prepaid customer care that is not outsourced (customer care activity performed by company employees) is handled domestically.

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# *Postpaid revenue*

The following pages cover wireless company practices in the area of postpaid revenue. Data service revenues continue to be an area of focus and to grow as a percentage of revenue, driven largely by strong growth in smartphone adoption. Compared with the 2010 survey, the service revenue that smartphones generate increased 9% to comprise 27% of all service revenue for the responding carriers.

## **Postpaid revenue sections**

Service contracts and family plans

Termination fees and bad-debt expense

Data services

Mobile advertising

Features revenue

Wi-Fi data services

Customer retention and rebates

Other revenue activities

Revenue assurance and fraud management

Customer billings and payments

Subscriber information



## Service contracts and family plans

Of the responding companies, 75% indicated they have postpaid service contracts with their subscribers. In combination with device subsidies and offsetting termination fees, the use of postpaid service contracts continues to be a popular mechanism for attracting and retaining subscribers who do not wish to make large, up front investments in costly smartphones. Of the eight total respondents, six offer one-year contracts, eight offer two-year contracts, and six offer three-year contracts.

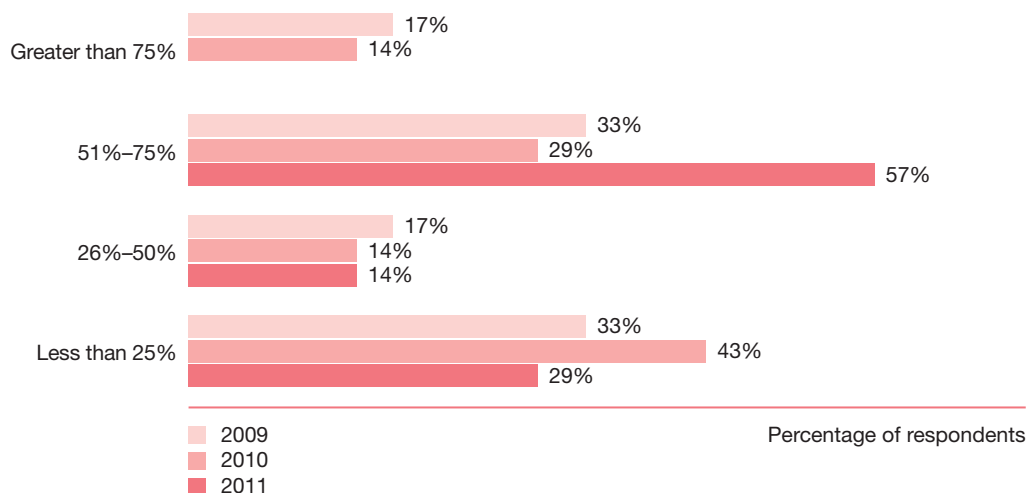
The following chart illustrates the responding companies' terms of postpaid service contracts and the approximate percentage of subscribers on each contract term, including a comparison of the 2011 average to the 2010 survey data.

Percent of subscriber base by contract length

	Carrier A	Carrier B	Carrier C	Carrier D	Carrier E	Carrier F	Carrier G	2010 average	2011 average
30 days								1%	
One year	6%		3%		2%	3%	7%	2%	3%
One-and-one-half years	69%	73%	78%	11%	7%	11%	82%		48%
Two years	1%			73%	81%	78%		51%	33%
Three years	24%	27%	18%	16%	10%	8%	11%	31%	16%
Out of contract			1%					15%	

A large number of companies continue offering family plans to their customers. Seventy-eight percent (78%) of responding companies offer family plans to their postpaid subscribers. The following chart shows the percentage of postpaid subscribers who are enrolled in family plans compared with the 2009 and 2010 surveys. On average, 46% of subscribers are on family plans in 2011 and in the 2010 survey compared with 48% in the 2009 survey.

Percentage of postpaid subscribers on family plans



No responses were received in the Greater than 75% category in 2011.

## Postpaid revenue

While family plans can be a slight drag on average revenue per unit (ARPU), they are an effective means of deterring churn since they require the conversion of an entire set of devices and customers in order to effect a change. We also believe that family plans may also yield significant secondary benefits, particularly in terms of lower rates of bad debt and reduced per-user customer care costs.

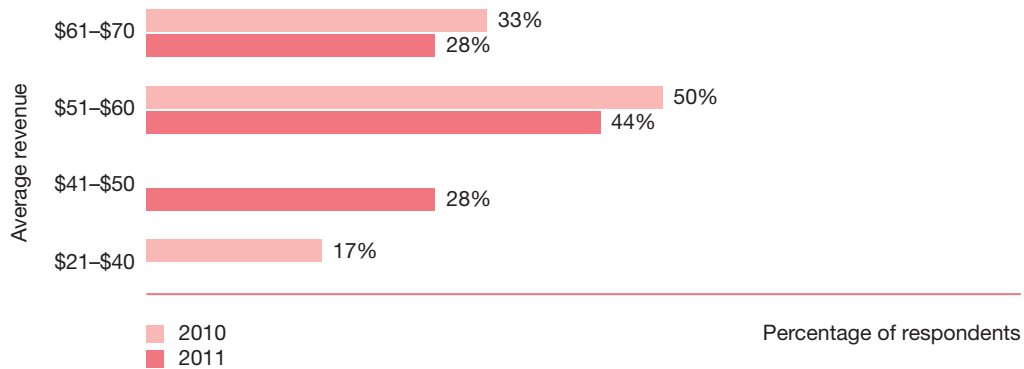
Less than 30% of responding companies include the use of wireless cards, wireless data dongles, or embedded devices such as tablets as part of postpaid family plan accounts. As carriers begin to offer more incentives for multidevice users to subscribe to 3G and 4G services, we expect the percentage to increase in 2012.

Forty-four percent (44%) of respondents said average revenue per family plan subscriber ranged from \$51 to \$60. In the 2010 survey, 50% of respondents cited an average revenue range from \$51 to \$60 for family plan accounts. Based on the chart below, the ARPU in family plans is in decline, consistent with the trend for overall industry ARPU and the general move towards more marginal and lower-value subscribers.

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### Average monthly family plan subscriber revenue per user

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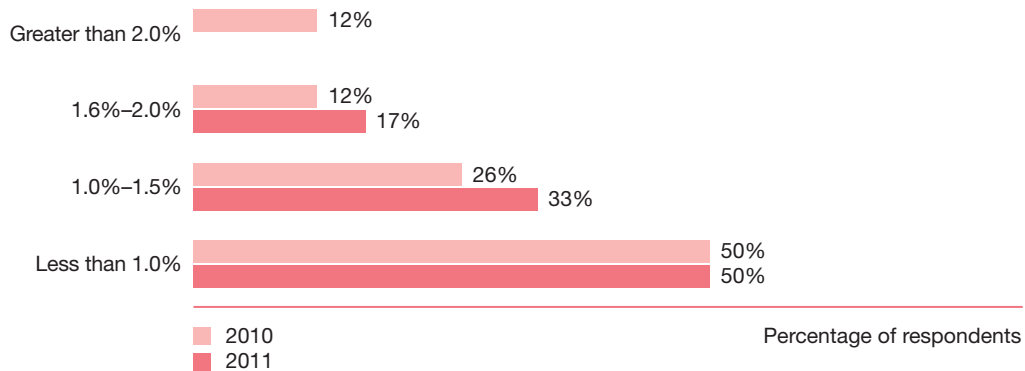
No responses were received in the \$41-\$50 category in 2010 or the \$21-\$40 category for 2011.

## Postpaid revenue

To add subscribers to family plans, many of the responding companies charged for each additional subscriber enrolled. Twenty-five percent (25%) of the respondents charged \$10 or less per additional subscriber on family plans; the remaining 75% charged \$10 to \$30.

The chart below reflects churn rates for postpaid family plan accounts.

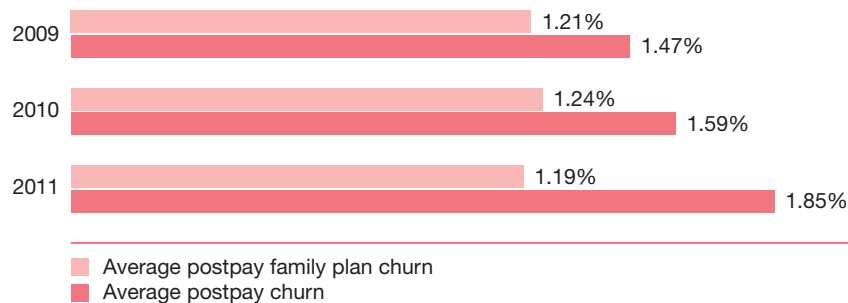
### Churn associated with family plan accounts



No responses were received in the Greater than 2.0% category in 2011.

In general, family plans appear to be an effective way to increase the length of subscriber relationships and reduce churn; churn continues to trend down for family plan customers. The following chart compares the churn between family and total postpaid subscribers for the current year compared with the 2009 and 2010 surveys.

### Comparison of churn for family plan postpaid subscribers compared to postpaid subscribers in total

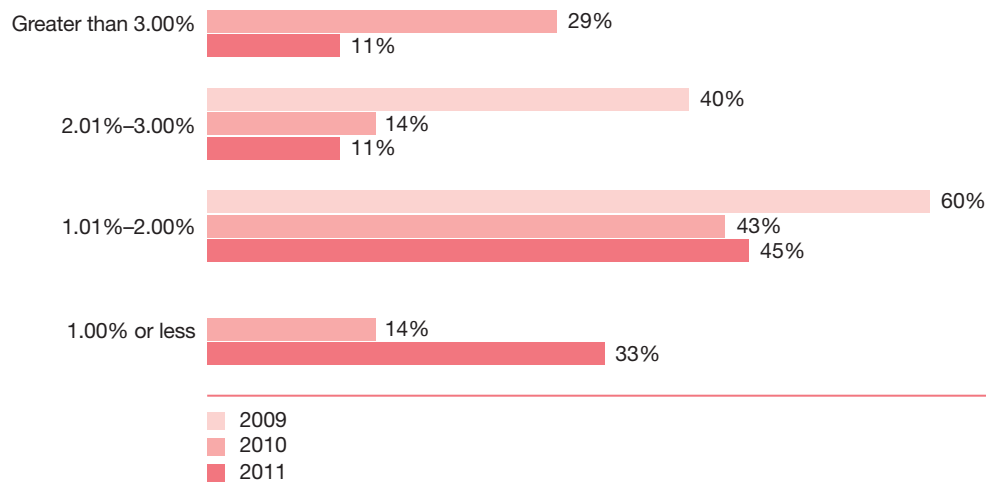


### Termination fees and bad-debt expense

The responding companies use two methods to record revenue related to termination fees. Seventy-eight percent (78%) of respondents record as revenue only the portion of the billed termination fee that is expected to be collected, and they record any additional bad-debt expense against this amount, representing net reporting of revenue. The remaining 22% of respondents do not record revenue until the amount billed is collected, representing reporting revenue on a cash basis.

The next chart illustrates bad-debt expense related to postpaid receivables as a percentage of total postpaid revenues.

#### Postpaid bad-debt expense



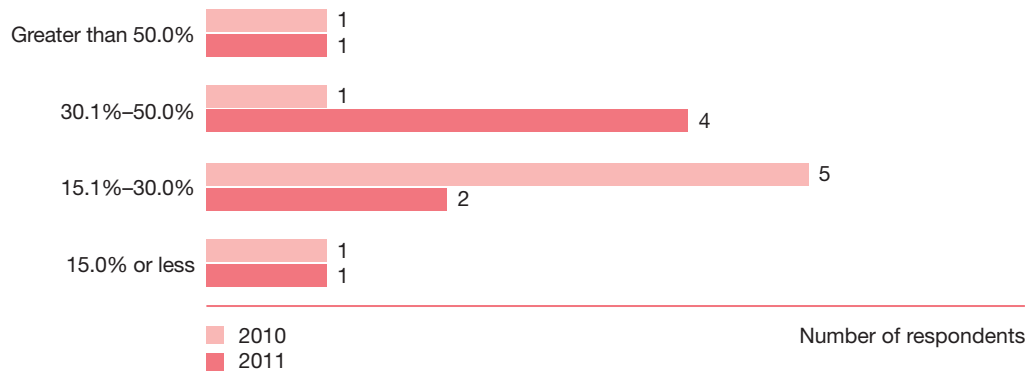
No responses were received in the 1.0% or less category or the greater than 3.0% category in 2009.

The average bad debt expense as a percentage of total postpaid revenues in 2011 was 1.8%, compared with 2.2% in 2010, and 1.8% in 2009. As the economic climate continues to see large changes, responding companies are having increased volatility related to bad debt expenses over the past three years.

## Data services

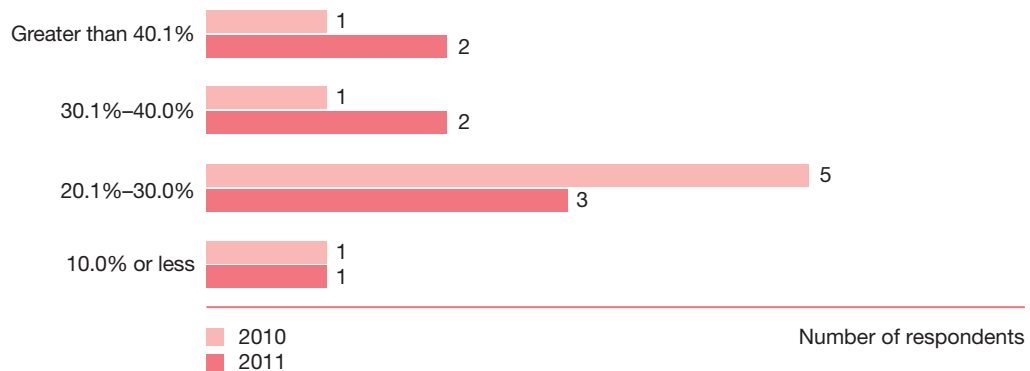
Data services continue to be an area of focus, as most of the responding companies see these services as opportunities to grow revenue. The following chart illustrates the percentage of responding companies' postpaid service revenue generated by data services.

### Percentage of postpaid service revenue generated by data services



The following chart illustrates the percentage of responding companies' total service revenue generated by data services.

### Percentage of total service revenue generated by data services



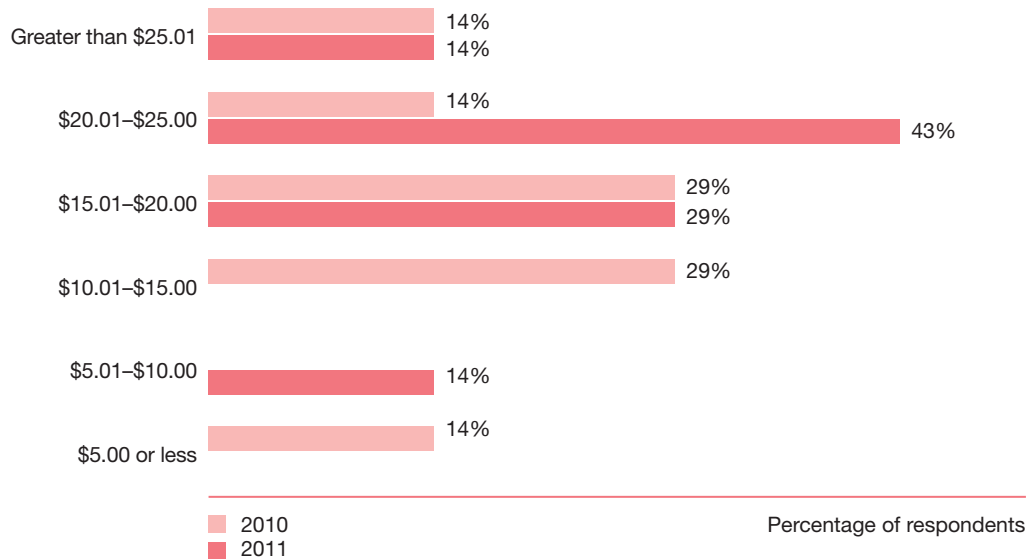
No responses were received in the 10.1%–20.0% category in 2010 or 2011.

## Postpaid revenue

Data services continue to be an area of growth for wireless operators, with many attributing a growing percentage of their revenue to these services in 2011. However, the attribution of some of this revenue can be challenging to compare and analyze, as many plans remain bundled and do not differentiate the value of the data services compared with the value of voice services. Even the value of data services reported is mixed with the value from short messaging service (text messages), thus making it difficult to understand the real consumer trends. We believe that there is an opportunity for wireless operators to better understand customer-perceived value of their services and to price them accordingly.

The following chart indicates the approximate monthly contribution to postpaid ARPU by each postpaid data services user. All responding carriers indicated that monthly data ARPU is now above \$5 per user.

### Monthly contribution to postpaid ARPU by data service user



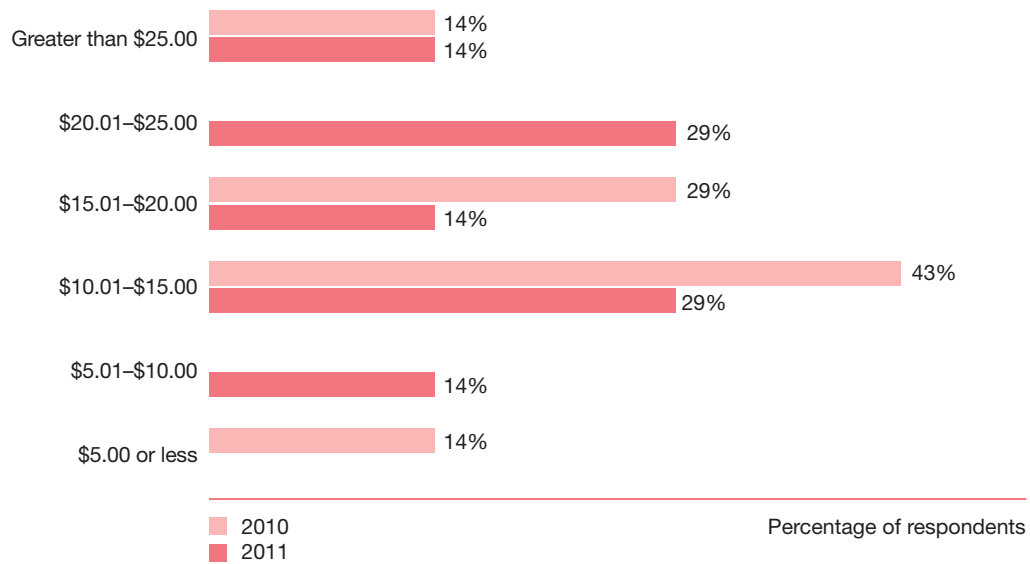
No responses were received in the \$5.01–\$10.00 category for 2010.

No responses were received in the \$5.00 or less or the \$10.01–\$15.00 categories for 2011.

## Postpaid revenue

The following chart indicates the approximate monthly contribution to total average revenue per unit per data services user.

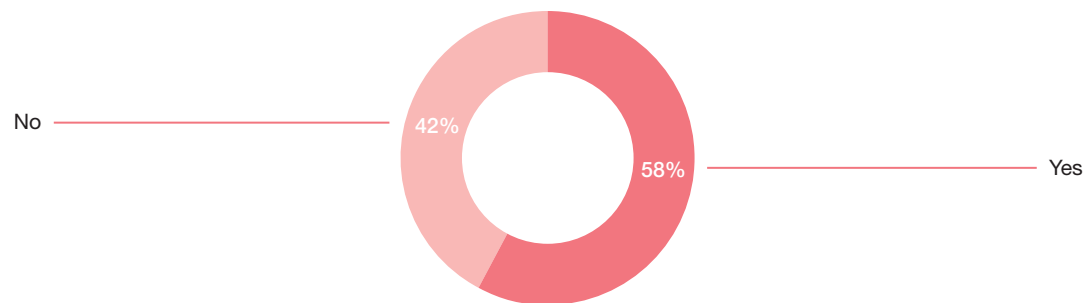
### Monthly contribution to total ARPU per data service user



No responses were received in the \$5.01-\$10.00 or the \$20.01-\$25.00 categories for 2010.  
No responses were received in the \$5.00 or less category for 2011.

The following chart indicates the percentage of companies that charge for incoming calls and text messages. The percentages are consistent with the prior year.

### Companies that charge for incoming calls and text messages

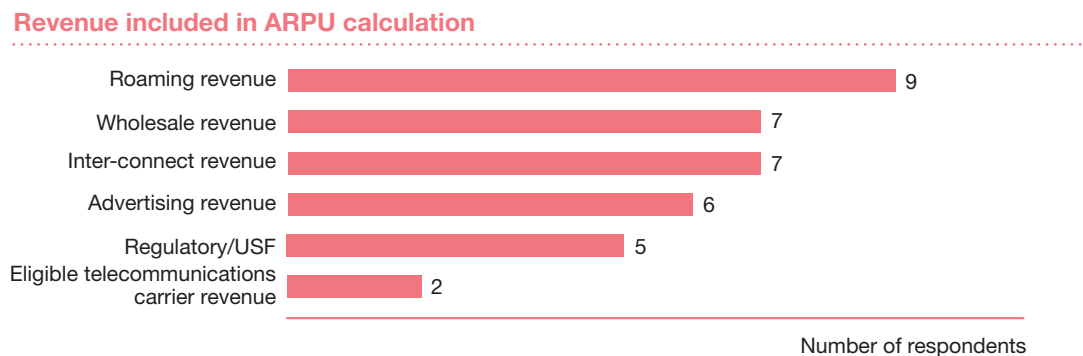


## Mobile advertising

Of the responding companies, 58% recorded revenue related to mobile advertising. Seventy-one percent (71%) of respondents indicated they recognize mobile advertising revenue by using the net method (record the net impact only for the revenue and associated cost); the remaining 29% indicated they use the gross method (recognize gross revenue and gross costs). Of the respondents in 2010, 43% used the net method and 57% used the gross method to recognize mobile advertising revenue.

As it matures, the revenue stream from mobile advertising is becoming an increasingly important and critical opportunity for mobile network operators. While still insignificant when compared to subscriber revenues, mobile advertising represents a significant opportunity to offset costs and garner incremental margin on the existing subscriber base. We expect that additional operators will begin to establish focused business units aimed at preserving and growing the mobile advertising revenue stream in the future.

We asked the responding companies whether they include any nonsubscriber revenue in calculating average revenue per user (such as roaming revenue, wholesale revenue, and advertising revenue). Seventy-five percent (75%) of the responding companies include other nonsubscriber revenue in their ARPU. The following chart indicates the number of respondents that include varying types of nonsubscriber revenue in calculating ARPU.





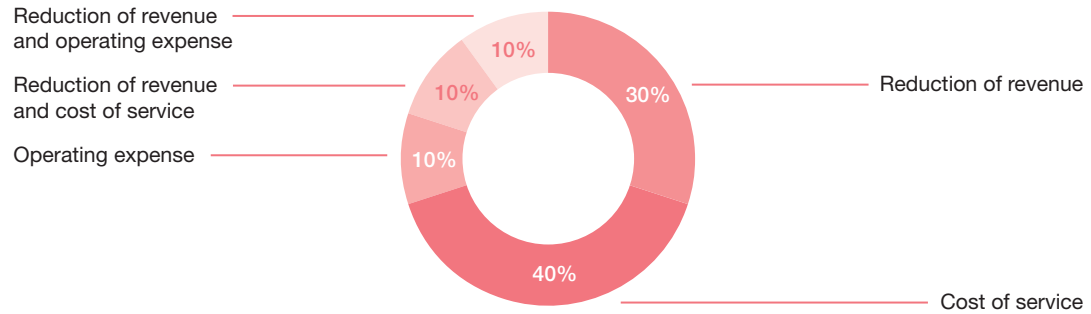
## Postpaid revenue

Seventy-five percent (75%) of the responding companies' subscribers can access third-party content through their handsets that the company does not source (such as through a short-code SMS/text, m-sites, or a premium rate). The following chart illustrates how the respondents account for the revenue share payment made to the third-party content provider.

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### Revenue share payment made to third-party content providers

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## Features revenue

Seventy-eight percent (78%) of responding companies indicated that features revenue made up less than 5% of total service revenue. In comparison, 62% of the respondents in the 2010 survey indicated that features revenue was greater than 5%.

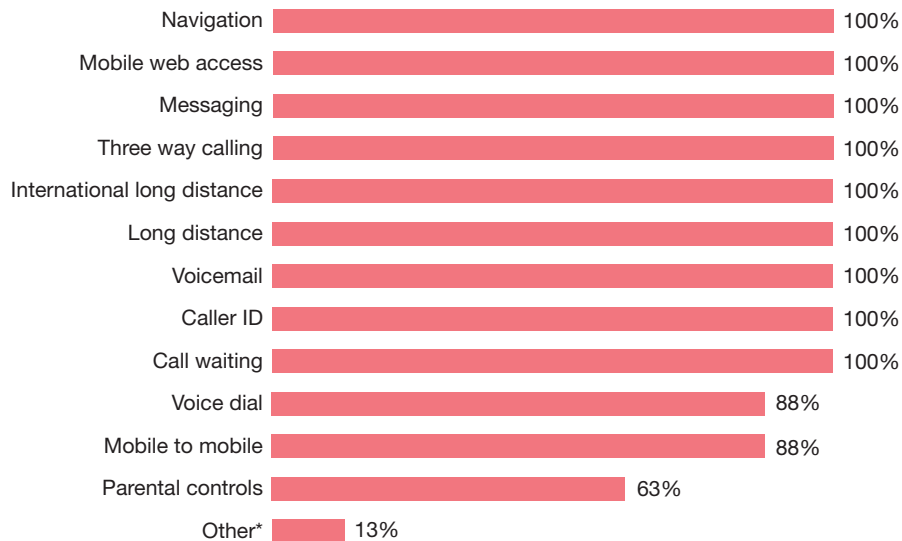
The declining importance of features revenue is noteworthy because many wireless operators have invested significantly in product and service innovation. The lack of results may perhaps point to the challenges in understanding the features and services that end users value or to the difficulties in creating sustainable business models that deliver incremental revenue. Many features such as directory services, roadside assistance, and navigation have been subsumed by the advent of open-access mobile data services. This underlines the risk for all mobile operators of being further considered as “pipes” whose only value is for simple access services.

The following chart illustrates the various features offered to subscribers by the responding companies.

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### Features offered to subscribers

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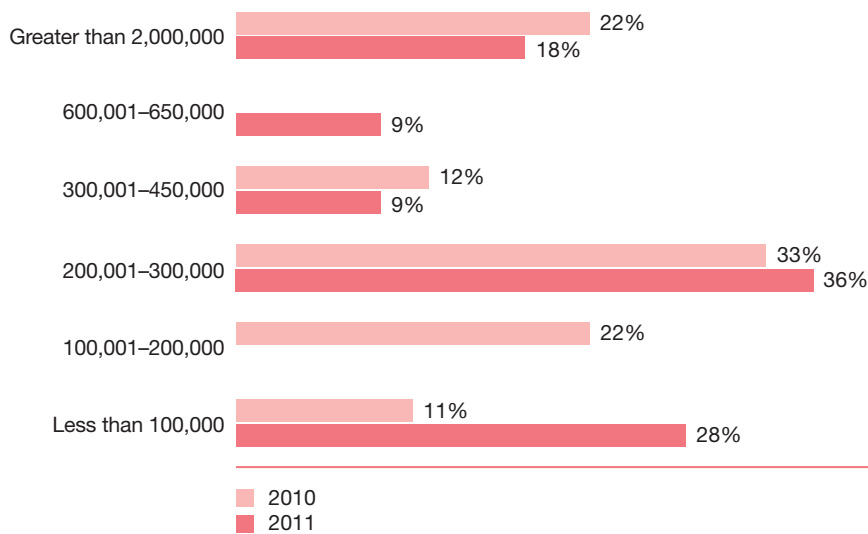


\*Other includes contact information backup and unlimited directory.  
Chart sums to greater than 100% because multiple responses were allowed.

## Wi-Fi data services

Of the responding companies, 92% provide wireless broadband access through personal computer cards, which is consistent with 91% in the 2010 survey and 89% in the 2009 survey. The following chart reflects the average number of users or subscribers that responding companies reported related to PC access cards, wireless cards, or wireless sticks.

### Wireless broadband access and users



No responses were received in the 100,001–200,000 category in 2011, the 450,001–600,000 category for 2010 and 2011, the 600,001–650,000 category for 2010, or the 650,001–2,000,000 category for 2010 and 2011.

Of the respondents with revenue greater than \$5 billion, the number of broadband access users increased by approximately 100,000 users from the 2010 survey to an average of 2,357,000 users. The respondents with revenue less than \$5 billion had more than a 30% increase, gaining an average 288,000 users, compared with the 2010 survey.

Broadband access has been one of the bright spots for the North American mobile industry over the past few years. As users have increasingly adopted data services on smartphones, they have begun to expect all of their devices to be connected anytime, anywhere. Mobile broadband services provide this access. However, the most popular types of broadband service and devices have yet to be agreed upon. Service models ranging from standalone plans to mobile broadband hotspot features on smartphone plans are currently available, and devices range from embedded cards to USB dongles to standalone hotspots. We expect to see significant evolution of these devices and service delivery models in the next 12–24 months.

## Customer retention and rebates

Subsidies offered on handset upgrades to retain current customers can be a significant component of customer retention costs. The average subsidy cost per handset upgrade reported by the responding companies is \$70 for non-smartphones and \$280 for smartphones.

Subsidies represent a particular challenge for North American operators. As sales shift towards more costly smartphones, the financing of subsidies becomes a difficult and costly proposition. Several major operators have recently warned that increased subsidies from the introduction of popular smartphones will cause material financial changes. Perhaps even more importantly, the ongoing subsidy of smartphones reduces their perceived value to the end user and can cause sticker shock when devices need to be replaced following damage or failure. For this reason, some mobile operators have begun to experiment with higher price points, raising retail pricing from the popular \$199 level to \$249 or even \$299 for some smartphones.

Many manufacturers offer companies marketing development funds to encourage sales of their products. Of the responding companies that receive marketing development funds from their vendors, 90% classify these receipts as contra-expense (either marketing or cost of sales), which is consistent with the 2010 survey. The following chart illustrates the incentives and services offered as customer subsidies by the respondents.

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### New customer incentives and services offered

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\*Other includes unlimited plans/features.

Chart sums to greater than the number of responding companies because multiple responses were allowed.

Many companies use mail-in rebates as a way of attracting new customers to buy their handsets. Of the responding companies, 56% offer mail-in rebates to their postpaid customers. Of the companies that offer mail-in rebates, all respondents indicated that they use third-party providers to process mail-in-rebate programs.

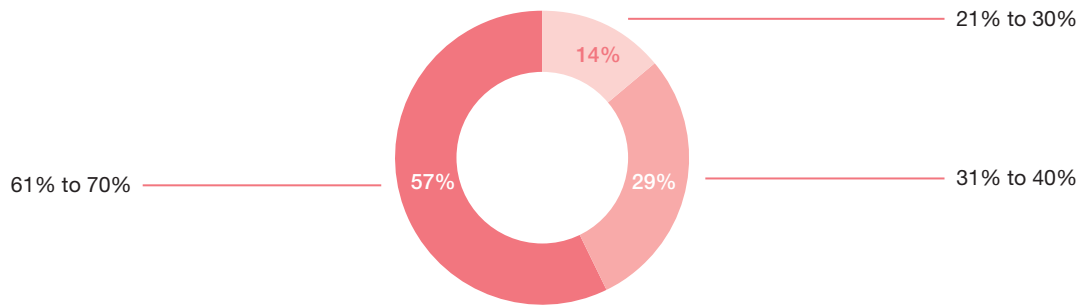
Rebate requirements vary widely among the responding companies; however, most companies surveyed require that customers return the product's rebate redemption form, receipt, and UPC. Other companies require the product's serial number, packaging slip, or customer bill.

Of the responding companies, 72% recognize a liability associated with mail-in service rebates at activation.

## Postpaid revenue

The following chart shows the responding companies' average historical redemption rates for all mail-in rebate programs for all subscribers. Compared with the 2010 survey, carriers responded that more rebates are being redeemed (in the 2010 survey, 83% of the responding carriers had a redemption rate below 60%). The increase indicates more cost-conscious consumers in regard to the overall spending on handsets.

### Average historical redemption rate for mail-in rebate programs



No responses were received in the 0%–20%, 41%–50%, or 51%–60% categories.

The following chart shows the average redemption rate for responding companies for each dollar value range of mail-in rebate programs.

### Mail in rebate redemption rate

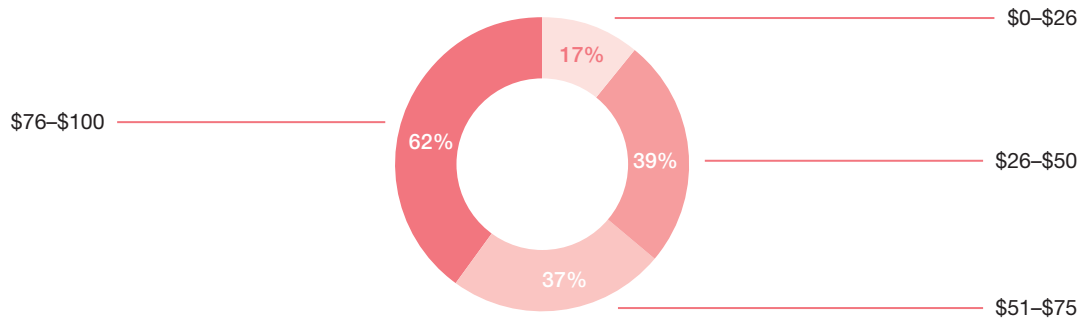


Chart sums to greater than 100% because respondents provided redemption rates in each category.

## Postpaid revenue

The following chart illustrates the dollar value of instant rebates offered, which has a slight decline on a year-over-over basis.

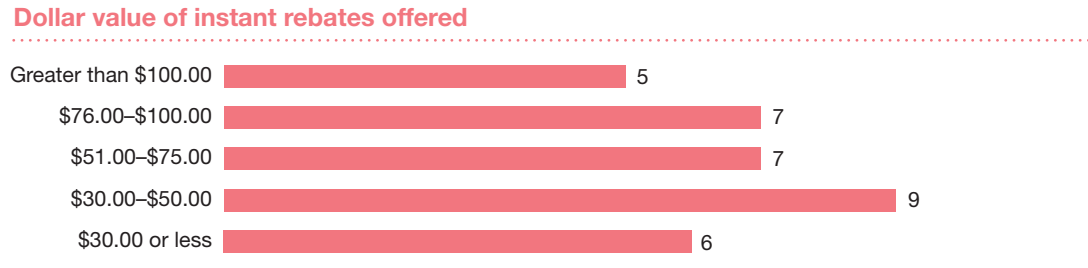


Chart sums to greater than the number of responding companies because multiple responses were allowed.

Forty-five percent (45%) of respondents indicated that the value of instant rebates offered to subscribers depends on the length of the contract term.

## Other revenue activities

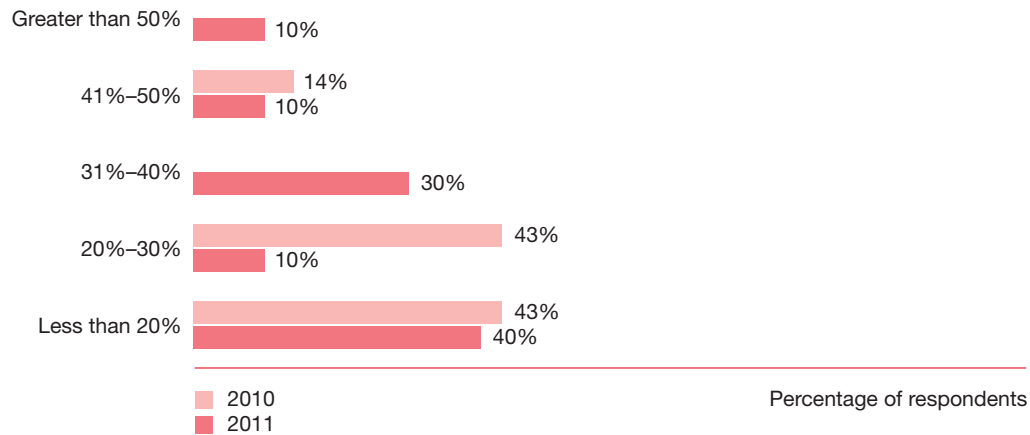
Companies were asked their total wholesale revenue for the most recently completed fiscal year. Sixty-three percent (63%) of companies with wholesale revenue indicated that total wholesale revenue exceeded \$10 million for the most recently completed fiscal year. Companies were also asked their total number of wholesale subscribers as of June 30, 2011. Fifty percent (50%) of the responding carriers with wholesale revenue indicated that their wholesale subscriber count exceeded 5 million.

While wholesale activity continues to be an active part of the market, the failure of many mobile virtual network operators (MVNOs) and consolidation of subscribers among leading operators has caused some to refocus their wholesale efforts. Leading operators have begun to deemphasize wholesale businesses, seeking to keep low-cost access to their large networks exclusive to their more-profitable direct subscribers. Several “wholesale-only” mobile operators have been announced in countries such as the United States, Mexico, and Russia, but their business model is, as of yet, still unproven.

## Postpaid revenue

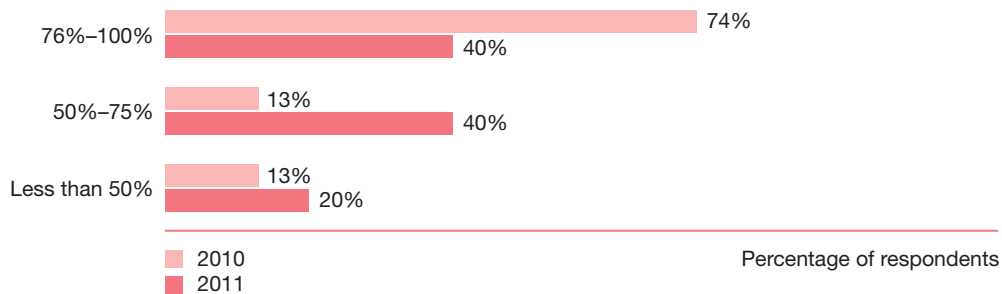
Companies were asked to specify service revenue by device type as a percentage of total service revenue. An average of 73% of the responding companies' total service revenue was for non-smartphone services, compared with 82% in 2010; this illustrates the average increase in smartphone services year over year (27% compared with 18% in the 2010 survey). The accompanying charts illustrate the percentage of service revenue to total revenue associated with smartphone and non-smartphone devices for 2011.

### Smartphone service revenue as a percentage of total service revenue



No responses were received in the 31%-40% or the greater than 50% categories for 2010.

### Non-smartphone service revenue as a percentage of total service revenue



## Revenue assurance and fraud management

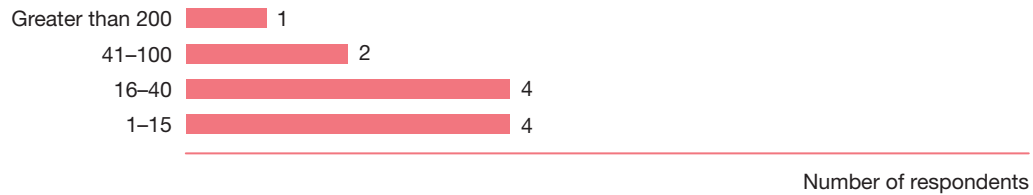
The revenue assurance function plays an important role in ensuring adequate internal controls over financial reporting and in minimizing revenue leakage. All respondents currently have a dedicated revenue assurance and fraud management function.

The charts indicate the number of individuals at each of the responding companies dedicated to revenue assurance in total and per \$1 billion in revenue.

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### Dedicated number of revenue assurance individuals

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No responses were received in the 101-200 category.

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### Dedicated number of revenue assurance individuals per \$1 billion in total revenue

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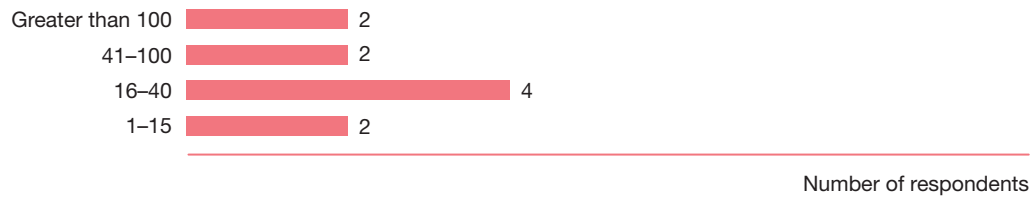
No responses were received in the 6-10 category.

The following charts show the dedicated number of fraud management individuals in total and per \$1 billion in revenue.

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### Dedicated number of fraud management individuals

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## Postpaid revenue

### Dedicated number of fraud management individuals per \$1 billion in total revenue

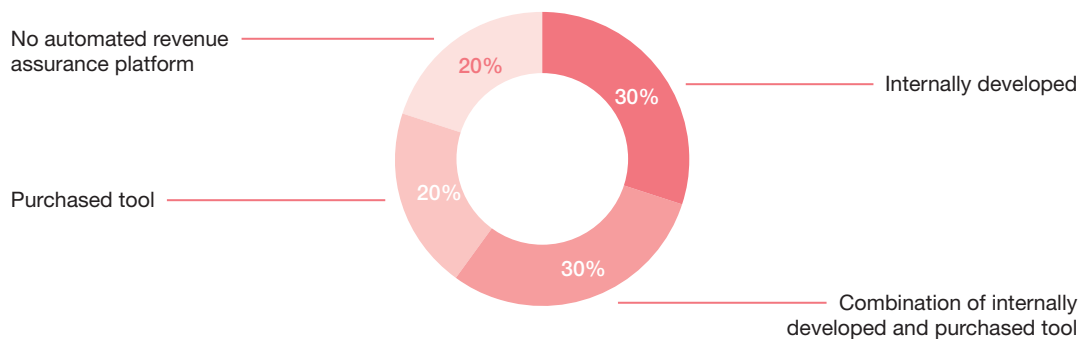


Revenue assurance and fraud management activities have generally been observed to increase in recent years as companies pursue opportunities to directly impact their bottom line. The advent of new, more sophisticated revenue assurance tools has made the identification of potential revenue leakage areas easier, and companies are increasing their focus on capturing the benefits.

Companies were asked about components of the revenue process that have the greatest leakage risk to their revenue or margin. Based on the responses, the companies indicated that sales and marketing, activation, and rating and invoicing processes represented the highest risk whereas financials, network reliability, and customer care ranked as the least risky areas for revenue or margin leakage. As this shows, much of the challenge with revenue leakage happens either at the point of greatest human interaction—the point of sale—or at what is arguably the most technically complex moment—the point of rating. Leading companies are increasingly looking to place additional controls at both points in order to reduce leakage.

The chart below indicates what revenue assurance platform or tool each of the responding companies uses.

### Revenue assurance platform or tool utilized



Seventy-three percent (73%) of respondents answered that e-Wallet (making purchases through a wireless device) has not been implemented and as such have not commenced revenue assurance/fraud management activities in this area. The remaining 27% answered that e-Wallet has been implemented, but very minimal revenue or revenue assurance/fraud management opportunities have commenced. Recent announcements of major mobile payments initiatives expected to launch in the United States and Canada during 2012 and 2013 will likely mean that revenue assurance/fraud management in this area will need to ramp up significantly.

## Customer billings and payments

We asked the responding companies to indicate the percentage of customer payments they received through each payment channel for postpaid customers. The results are depicted in the following charts, including the average of all responding companies.

### Postpaid customer payment channel

	Carrier A	Carrier B	Carrier C	Carrier D	Carrier E	Carrier F	Carrier G	Carrier H	2010 average	2011 average
In-store payments	2	23	1	12	8			1	5	6
Agent/reseller locations	4	4	1					1	1	1
Lockbox/direct mail/bank	18	27	26	14	5	5	4		15	12
Retail kiosks	5		5	5					2	2
Telephone: Interactive voice response (IVR)	6	15	14	17		2	2	2	7	7
Telephone: Customer care/call center (non-IVR)	2	7	2	6		2	2		4	3
Automatically deducted from bank account	14	1	19		4	71	3		15	14
Automatically charged to credit card (pre-authorized)	5	1	6	17	18	11	21	15	11	12
Charged to credit card (customer initiated monthly)	31		2		11			2	5	6
Charged to debit card (customer initiated monthly)			2			3		63	10	8
Automatically charged to debit card (pre-authorized)	6		7					14	2	3
Internet payments	7	14		16		6	12	2	13	7
Initiated via handset menu			1	3					1	1
Other*		8	14	10	54		56		9	18

\*Other includes online banking and pay by phone.

## Postpaid revenue

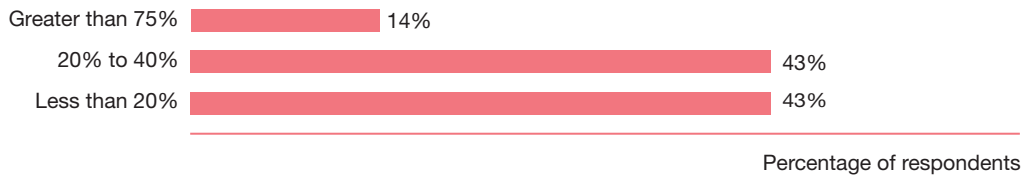
The following chart shows the sources of payments by percentage for postpaid subscribers and compared with the average of all responding companies.

### Methods of postpaid customer payments

	Carrier A	Carrier B	Carrier C	Carrier D	Carrier E	Carrier F	Carrier G	Carrier H	2010 average	2011 average
Check (including e-check, electronic banking, and home banking)	18	41	30	19	68	76	70	1	43	40
Cash	11	15	6	36				1	5	9
Credit card (preauthorized and one-time use)	36	26	26	12	28	20	30	19	26	25
Debit card (PIN activated or PIN-less)	6		9	32				79	14	16
ACH/ARC/wires	29	18	29	1	4	1			12	10
Other						3				

The following chart illustrates the percentage of respondents' postpaid base of subscribers who pay using recurring payments (such as credit card, debit card, ACH, check) each month.

### Percentage of postpaid recurring payments



No response was received in the 41%–75% category.

## ***Subscriber information***

Companies were asked how subscriber counts were determined. All of the responding companies indicated that they had no minimum ARPU required before counting a postpaid customer as a subscriber.

Ninety-one percent (91%) of responding companies count each PC card, wireless card, or wireless stick as a separate subscriber. The remaining 9% count each as a separate subscriber only if a unique ISDN is associated with the device. Ninety-one percent (91%) of responding companies count mobile application devices, such as netbooks, Kindles, and iPads, as a separate subscriber. The remaining 9% count bundles of devices as one subscriber and count more than one of the same device as separate subscribers.

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# *Prepaid revenue*

The following pages cover wireless company practices related to prepaid revenue. As volatility continued in the economic situation of the United States in 2011, subscribers looked for alternative rate plans. A result among all carriers was another increase in prepaid revenue as a percentage of total service revenue.

## **Prepaid revenue sections**

Prepaid services

Mail-in rebates and retention

Activation channels

Payment channels

Payment methods

Smartphones

Disconnection and zero balance accounts

Prepaid data services

Prepaid handset sales

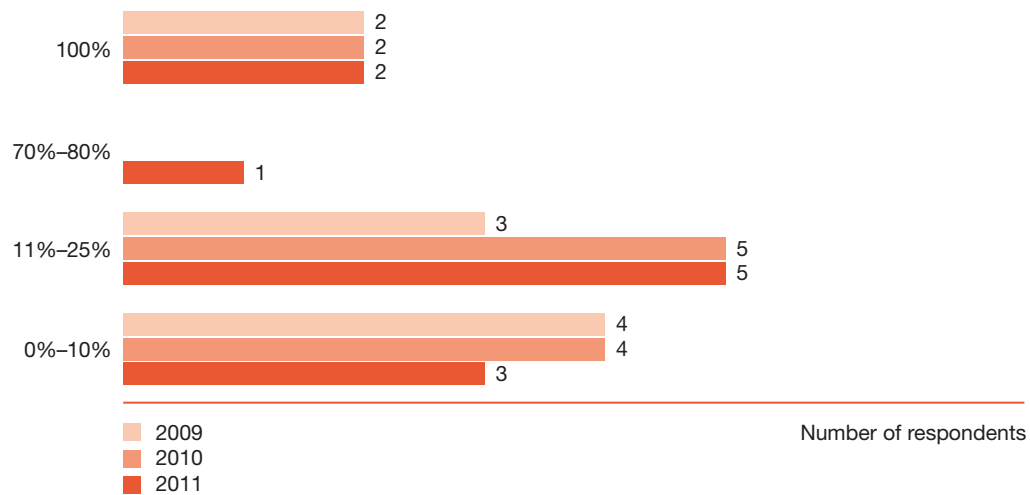
## Prepaid services

All but one of the responding companies offer customers the opportunity to pay for wireless service in advance. Survey respondents also indicated that they do not require a minimum usage or minutes of use for inclusion in the subscriber count except for one carrier, which requires at least one minute of use.

Of the carriers with prepaid subscribers, only 18% offer family plans to the prepaid subscribers and on average, 22% of subscribers are part of family plans.

The following chart illustrates the percentage of the responding companies' total subscribers who were prepaid subscribers.

### Percentage of prepaid subscribers



No responses were received in the 26%–69% and 81%–99% categories for all years presented or the 70%–80% category for 2009 and 2010.

Among all companies, the average prepaid subscriber percentage increased. For companies with revenue greater than \$5 billion, the average percentage of prepaid subscribers among total subscribers was 17%, up from 14% in the 2010 survey and 11% in the 2009 survey. For companies with revenue less than \$5 billion, the average percentage of prepaid subscribers among total subscribers was 47%, up from 42% in the 2010 survey.

We believe that the significant growth in the prepaid subscriber base is attributable to the combination of a maturing market, with mobile subscriber penetration recently nearing 100%, and recessionary consumer purchasing behaviors, which have evolved toward mobile services that allow more careful control of spending. Given the well-developed North American credit and banking system, however, we do not expect the shift to prepaid to continue toward the significantly higher penetration rates already seen in Europe, Asia, and Latin America.

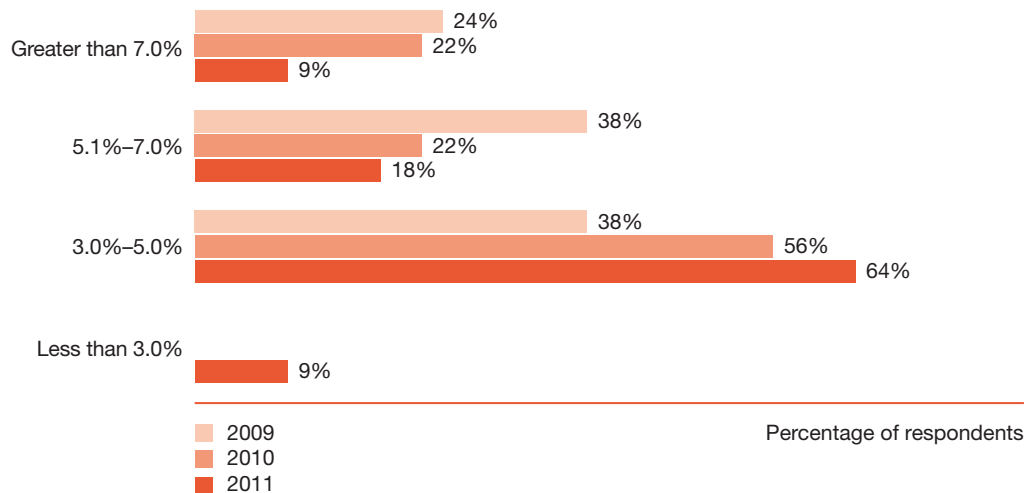
Of the responding companies, 27% included wholesale and MVNO operations in prepaid revenue.

## Prepaid revenue

For the carriers that report prepaid churn externally (64% of survey participants), the numerator is net deactivations for the period and the denominator is average subscribers for the period, except for one carrier that uses beginning subscribers for the period. We also asked participants how their companies define net deactivations (or the “buyer’s remorse”) for prepaid subscribers. Four of 10 respondents indicated they define net deactivations as deactivations less subscribers who disconnect within the first 30 days of subscriber activations, and two of 10 respondents indicated the net number of subscribers who disconnect less reactivations of subscribers during the same period. The remaining respondents each had their own definition, ranging from deactivations less subscribers who disconnect within the first seven days of activation to deactivations within the first 90 days being defined as the buyer’s remorse period.

The following chart depicts average monthly churn for prepaid subscribers as of June 30, 2011, for the current year compared with the 2009 and 2010 surveys.

### Churn for prepaid subscribers



No responses were received in the less than 3.0% category for 2009 and 2010.

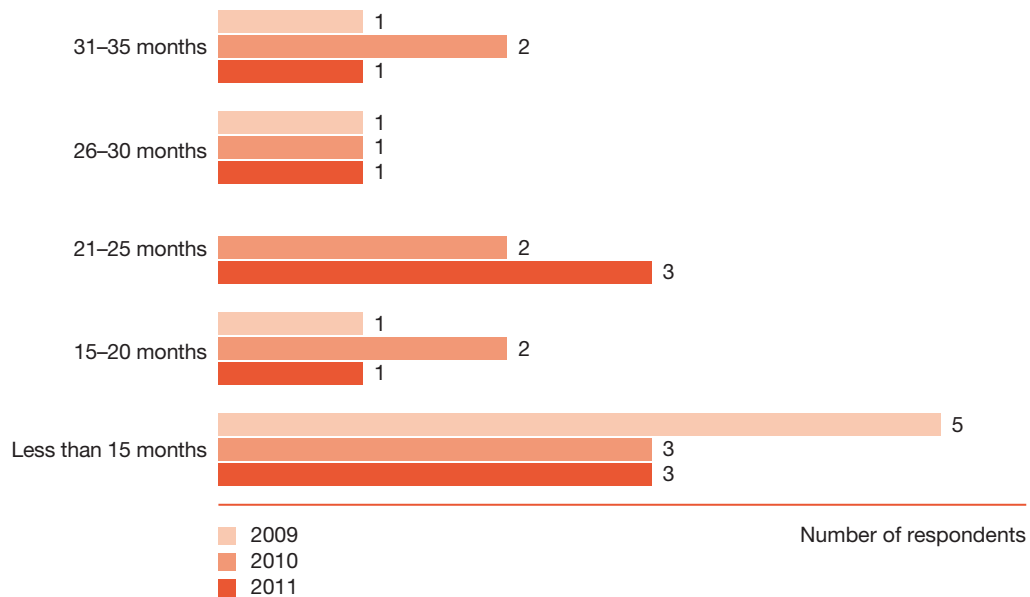
For companies with revenue greater than \$5 billion, the average monthly churn for prepaid subscribers was 5.7% compared with 6.0% in the 2010 survey. For companies with revenue less than \$5 billion, the average monthly churn for prepaid subscribers was 4.1% compared with 4.3% in the 2010 survey.



## Prepaid revenue

The average prepaid subscriber life for responding companies was 20 months for 2011 compared with 21 months in the 2010 survey and 18 months in the 2009 survey. The following chart depicts the average prepaid subscriber life over a three-year period.

### Average prepaid subscriber life

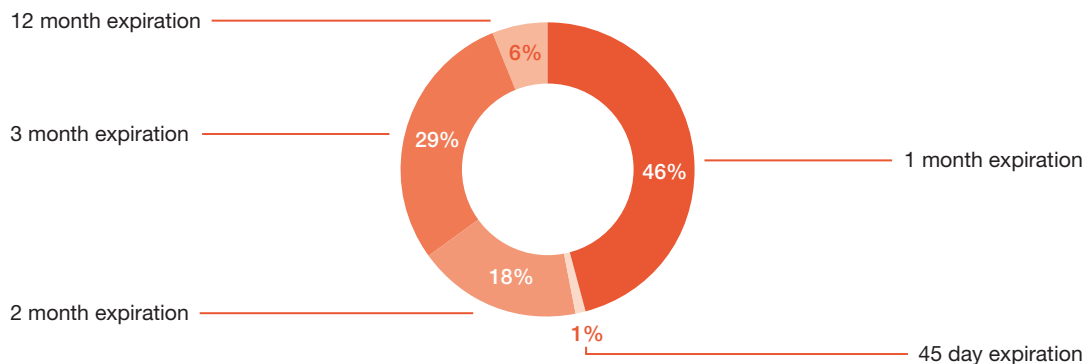


No responses were received in 21-25 month category for 2009.

For respondents with revenue greater than \$5 billion, the average prepaid subscriber life was 21 months in 2011 compared with 18 months in 2010 and 17 months in 2009. For respondents with revenue less than \$5 billion, the average prepaid subscriber life in 2011 was 19 months compared with 24 months in the 2010 survey and 19 months in 2009.

The following chart illustrates the average expiration periods for prepaid cards/service usage that has been activated for the responding companies.

### Expiration date for activated prepaid cards

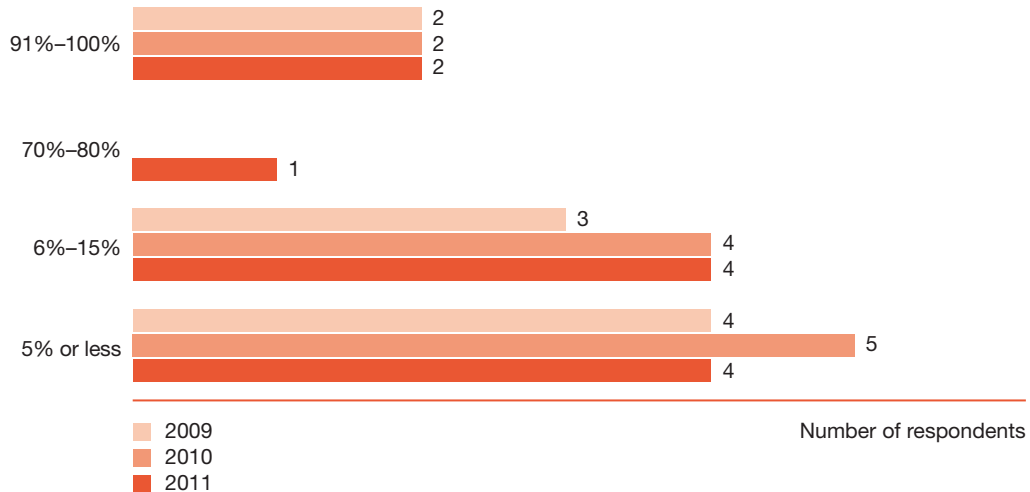


No responses were received in the 4 month, 6 month, 75 day, and no expiration date categories.

## Prepaid revenue

The following chart depicts prepaid revenue as a percentage of total service revenue. Results are fairly consistent with the 2009 and 2010 surveys; however, one respondent indicated that 70% to 80% of its service revenue is attributable to prepaid service, whereas we had not received responses in this category in the previous two years.

### Prepaid revenue as a percentage of total service revenue



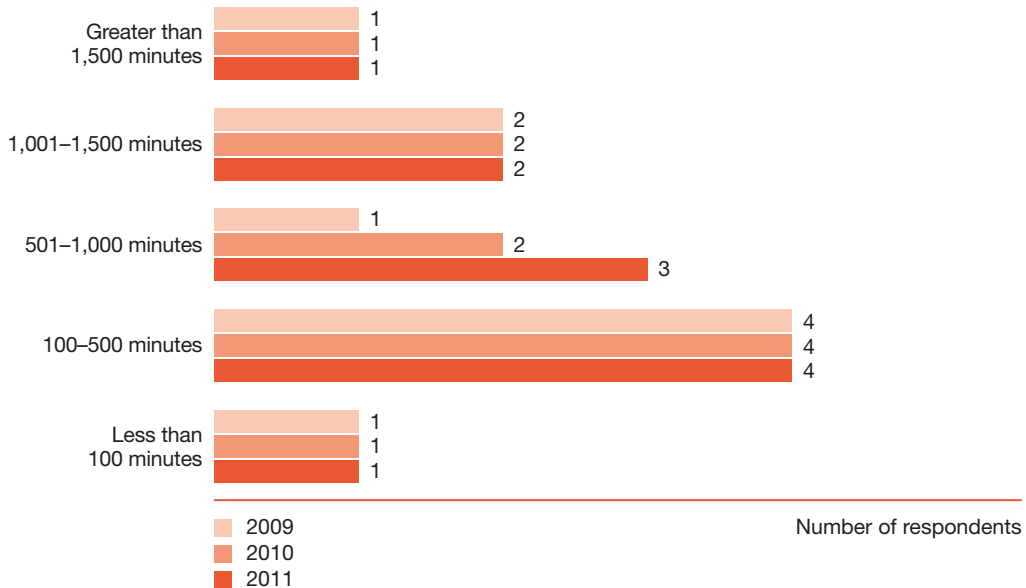
No responses were received in the 16%–69% and 81%–90% categories for all years presented or the 70%–80% category for 2009 and 2010.

For respondents with revenue greater than \$5 billion, prepaid revenue as a percentage of total service revenue averaged 8%, which is an increase of 5.7% from the 2010 survey. For respondents with revenue less than \$5 billion, prepaid revenue as a percentage of total service revenue averaged 41% compared with 36% in the 2010 survey.

## Prepaid revenue

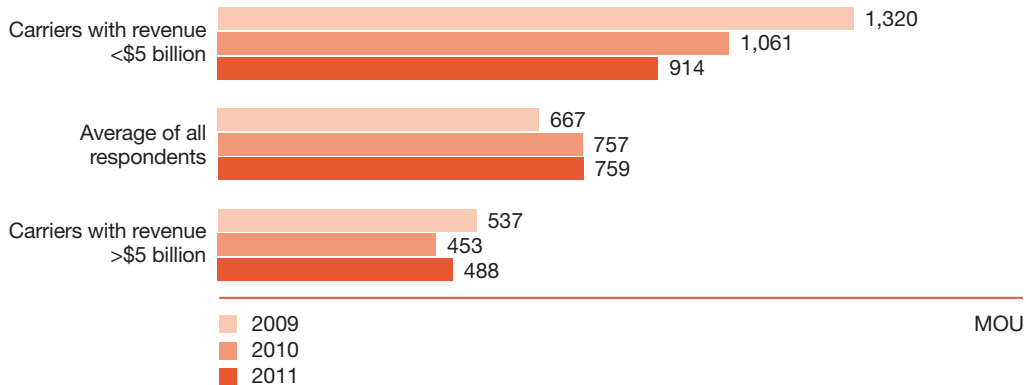
The following chart depicts the average monthly minutes of use (MOU) for prepaid subscribers.

### Average monthly minutes of use for prepaid subscribers



The following chart trends the average prepaid MOU for the current year and the past two years. On an overall basis, minutes of use are fairly flat year over year. But for carriers with revenue less than \$5 billion, there was a significant decline; this decline reflects the increased usage of data services and text messages by prepaid subscribers.

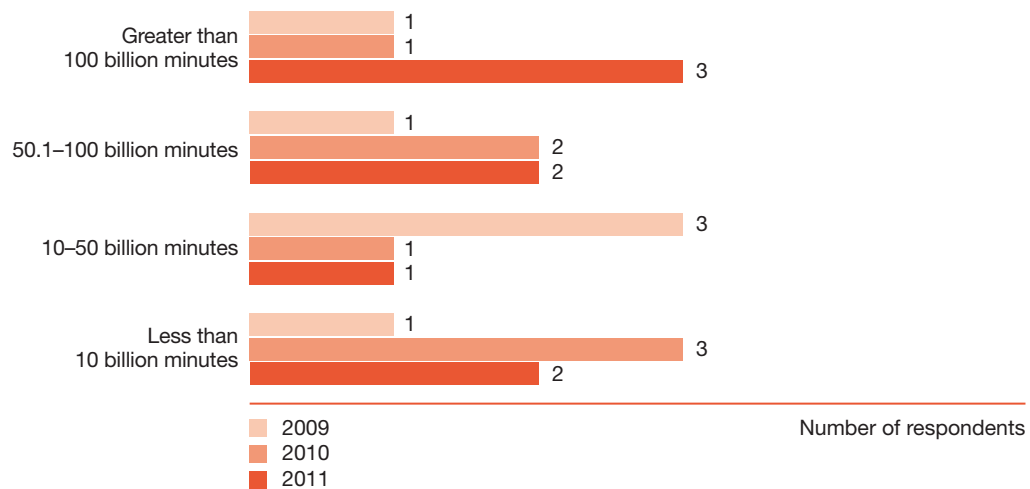
### Prepaid minutes of use



## Prepaid revenue

Responding companies indicated that total prepaid call volume for all prepaid subscribers in their most recently completed fiscal year averaged 75.1 billion minutes of use (which is overall consistent with the prior-year results). Total prepaid text volume for all prepaid subscribers in respondents' most recently completed fiscal year averaged 30.7 billion text messages. The following chart compares MOU in the current year to the 2009 and 2010 surveys.

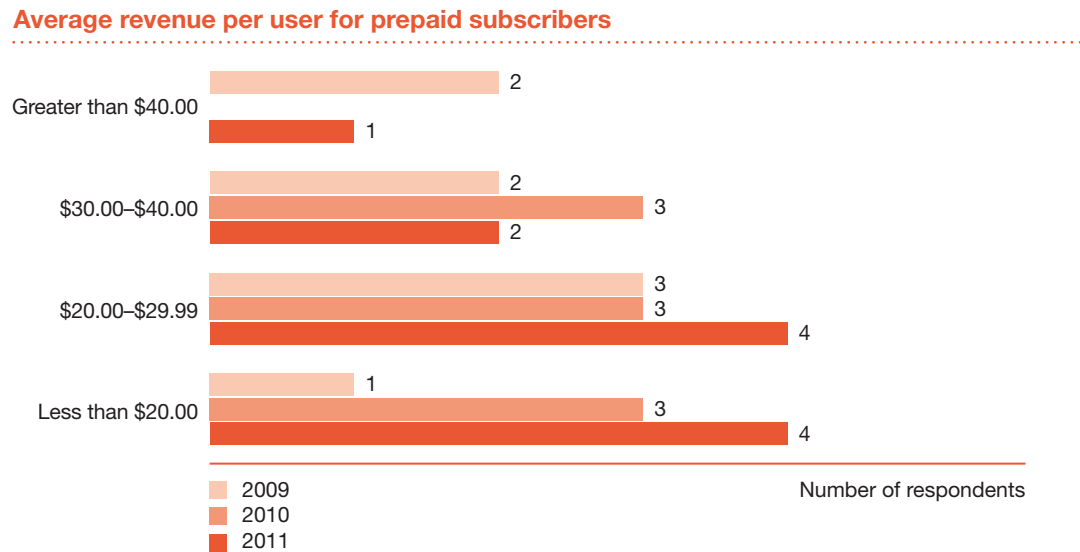
### Total MOU for prepaid subscribers



Seventy-three percent (73%) of responding companies offer unlimited voice prepaid plans to their customers. And 56% of prepaid subscribers are on unlimited voice plans when offered, with plan averages of a \$45 per month fee and 1,419 MOU. The MOU for the unlimited plans is significantly higher than the overall averages.

## Prepaid revenue

The following chart depicts the ARPU per month for prepaid subscribers.



No responses were received in the greater than \$40.00 category for 2010.

Responding companies with revenue greater than \$5 billion reported prepaid ARPU of \$20.89, which is down from the 2010 survey response of \$21.39. For companies with revenue less than \$5 billion, prepaid ARPU averaged \$27.23, which is also less than the \$30.19 average in the 2010 survey. These declines continue to represent the competitive pressures and trend toward all-inclusive plans.

## Mail-in rebates and retention

Mail-in rebates have been a big part of attracting new subscribers in the wireless industry. However, these rebates are often reserved for subscribers who sign up for long-term postpaid contracts. In our 2011 survey, none of the carriers with revenue greater than \$5 billion offers mail-in rebates to its prepaid subscribers. However, 43% of carriers with revenue less than \$5 billion offer some form of mail-in rebate as part of their prepaid offerings.

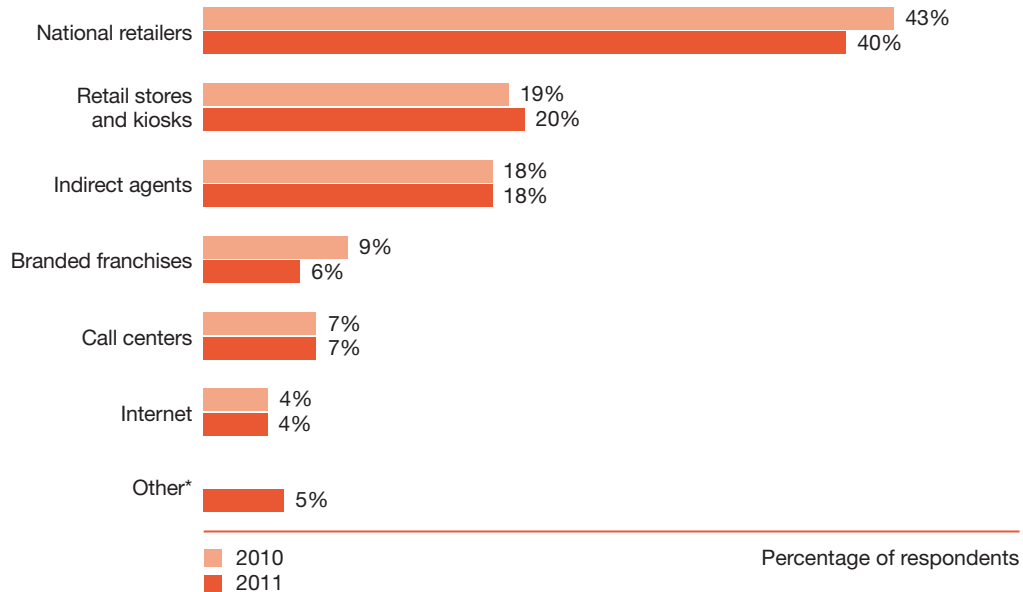
Companies continue to focus on retaining current customers as penetration levels have increased. Compared with postpaid retention activities, prepaid retention costs are not as significant because of the lack of contracts with the carrier. Responding companies indicated that for non-smartphone subscribers, retention-related costs averaged \$43, compared with approximately \$95 per handset for smartphone retention-related costs.

## Activation channels

Carriers use various sales channels to acquire prepaid subscribers and to allow prepaid subscribers to replenish service. We asked companies to indicate the percentages of their prepaid subscribers whom they acquire through each of the different sales channels. Their responses are illustrated in the following charts, split based on size of the carriers.

It is notable that carriers with revenue less than \$5 billion have begun to significantly reduce their reliance on indirect agents, turning instead to branded retail stores and kiosks, as well as national retailers, for subscriber activations. In our discussions with carriers, it is evident that managing this shift presents challenges, and they are particularly focused on ensuring the profitability of both captive and noncaptive channels.

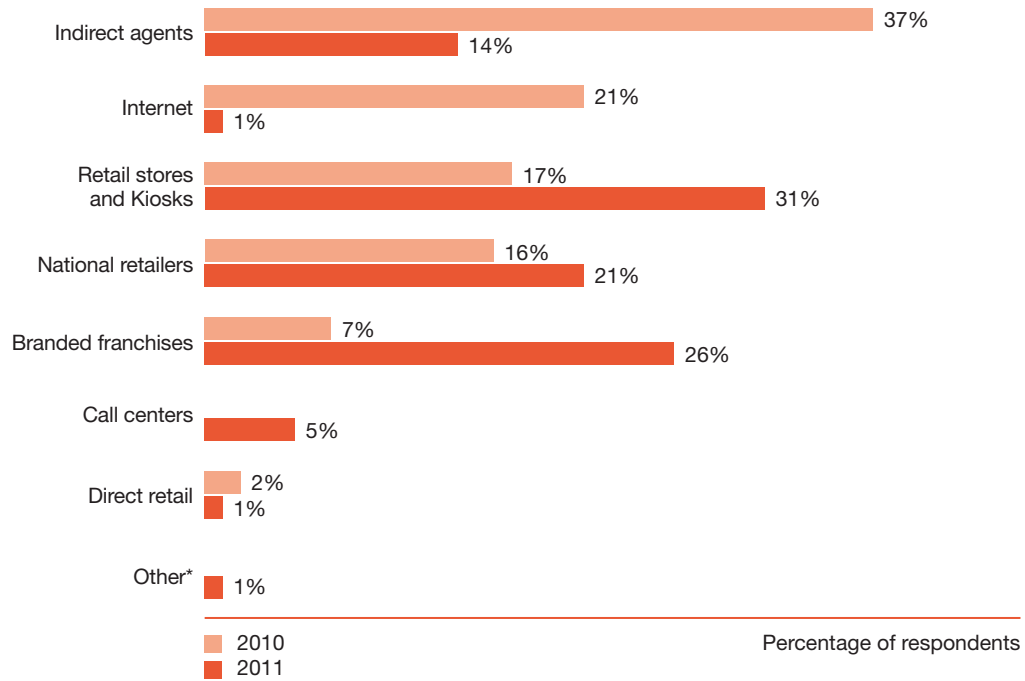
### Prepaid sales activation channel for carriers with revenue >\$5 billion



\*Other includes reseller, direct sales (outbound), and telesales/telemarketing. No responses were received in the other category for 2010.

## Prepaid revenue

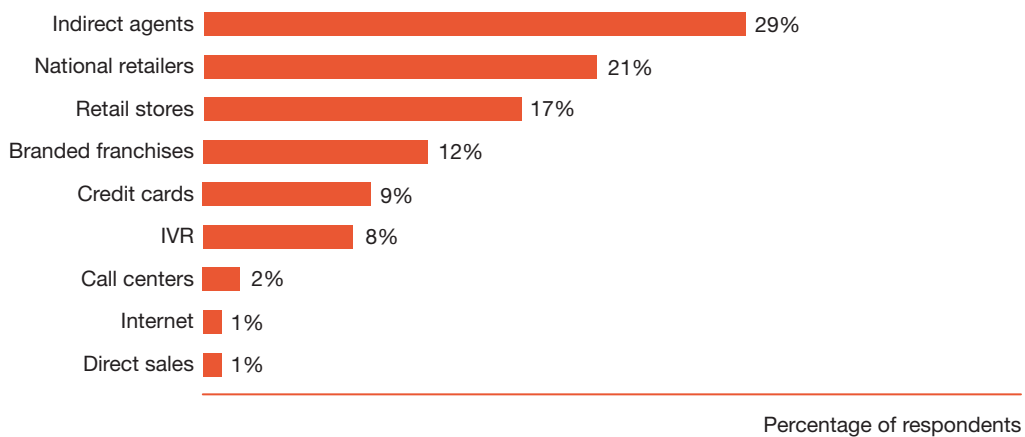
### Prepaid sales activation channel for carriers with revenue <\$5 billion



\*Other includes direct sales (outbound) and telesales/telemarketing.  
No responses were received in the other or call centers categories for 2010.

The following chart depicts the percentage of subscriber replenishments made through the various channels. The results are not significantly different than the responses received in the 2010 survey.

### Prepaid subscriber replenishment channels



## Payment channels

Carriers offer multiple ways for subscribers to pay for their prepaid services. The chart below shows the percentage of payments received through the various payment channels. Consistent with prior years, the agent/reseller channel continues to be the largest method of payment, totaling approximately 40% of all payments made. The payment channels have remained relatively consistent with the 2010 survey results.

### Prepaid subscribers' payment channels

	Carrier A	Carrier B	Carrier C	Carrier D	Carrier E	Carrier F	Carrier G	Carrier H	2010 average	2011 average
In-store payments	32		6	17	3	8			9	11
Agent/reseller locations	55	69	8	50	51	62			33	39
Telephone: Interactive voice response (IVR)	8	9	56		22	7	29		16	14
Telephone: Customer care/call center (non-IVR)		4	4		2	20			3	3
Automatically deducted from bank account							5		1	1
Automatically charged to credit card (pre-authorized)	5	9	7		19	2	66	44	12	16
Charged to credit card (customer initiated monthly)								45	13	5
Automatically charged to debit card (pre-authorized)									6	
Charged to debit card (customer initiated monthly)								10	1	1
Internet payments		8	5		2				2	3
Initiated via Handset menu		1	10						2	1
Other			4	33	1	1		1	2	6



## Payment methods

Regardless of payment location, the chart below shows the various payment methods used by carriers' prepaid subscribers. Credit cards remain the method of choice with an average of approximately 50% and cash is also used more than 35% of the time.

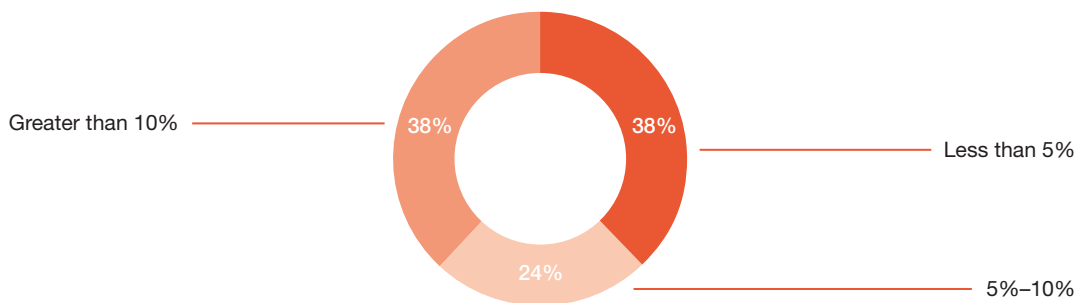
### Methods of prepaid customer payments

	Carrier A	Carrier B	Carrier C	Carrier D	Carrier E	Carrier F	Carrier G	2010 average	2011 average
Check (including e-check, electronic banking, and home banking)				1	25	1	1	4	4
Cash	69	67		67			66	36	38
Credit card (preauthorized and one-time use)	28	28	60	32	75	89	29	53	49
Debit card (PIN activated or PIN-less)	3	5				10	4	2	3
Prepaid credit card			40					5	6

## Smartphones

Smartphone handsets are becoming more and more popular among the public. However, prepaid subscribers generally lag behind postpaid subscribers in adopting newer technology. As of June 30, 2011, 73% of carriers offered smartphones to their prepaid subscribers. Of the respondents that offer smartphones, an average of 8% of the prepaid subscriber base utilized a smartphone. These subscribers contributed on average \$41 to ARPU. The chart below illustrates the percentage of prepaid subscribers using smartphones.

### Percentage of prepaid subscriber base using smartphones

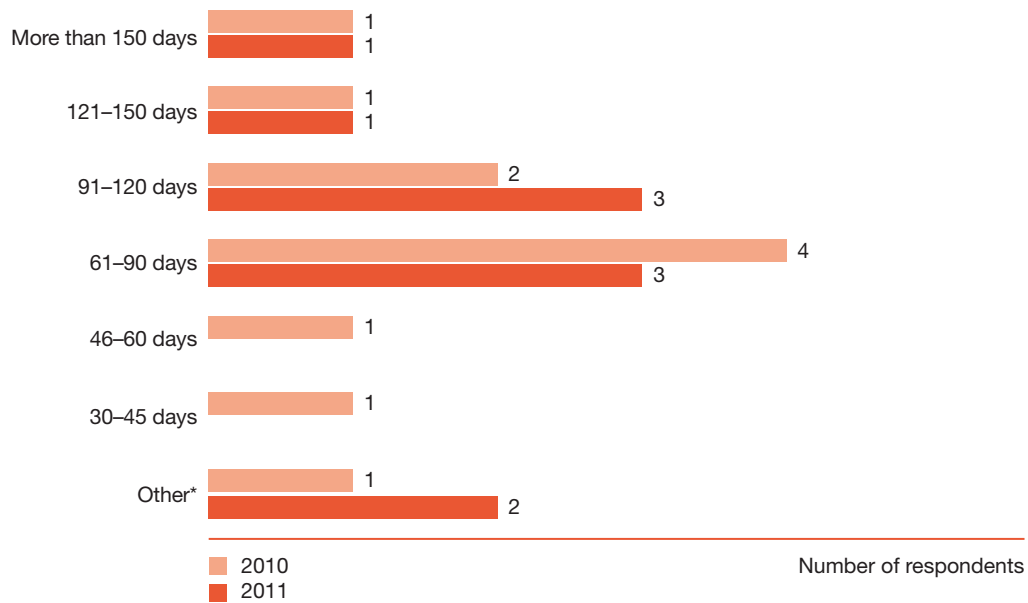


## Disconnection and zero balance accounts

Forty-five percent (45%) of responding companies indicated that their prepaid cards have an expiration period or expiration date if they have not been activated, which is a significant increase from the 22% in the 2010 survey. For these companies, the expiration periods range from three months to five years.

We asked companies how long they wait before disconnecting service if a prepaid customer account had no activity or a customer fails to replenish an account when the balance is \$0. The following chart depicts the average waiting period before disconnecting inactive accounts for prepaid subscribers compared with the 2010 survey.

### Waiting period before disconnecting inactive accounts

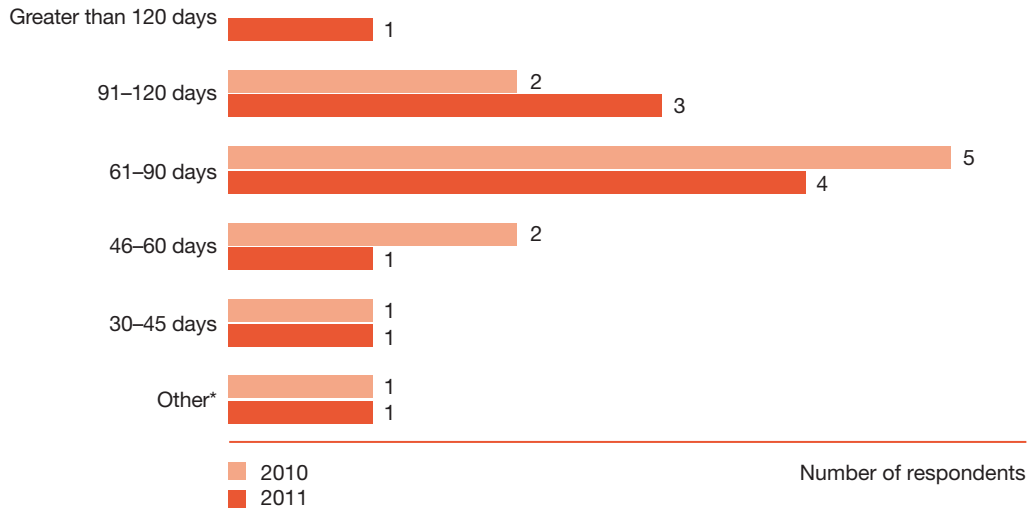


\*For participating companies that responded other, the waiting period depends on the type of plan (i.e., pay as you go, unlimited, and monthly) and the expiration periods range from 60 days to 120 days. No responses were received in the 30-45 days or 46-60 days category in 2011.

## Prepaid revenue

The following chart illustrates the time customers can have a \$0 balance in their prepaid account before the service will be disconnected.

### Days to disconnect accounts with zero balance



\*Other includes accounts that vary the replenishment date.  
No responses were received in the greater than 120 days category in 2010.

The responding carriers all indicated that after they disconnect service, the subscribers forfeit any remaining balance and revenue is recognized. Policies vary among carriers on the timing of recognition; however, the average response is three months.

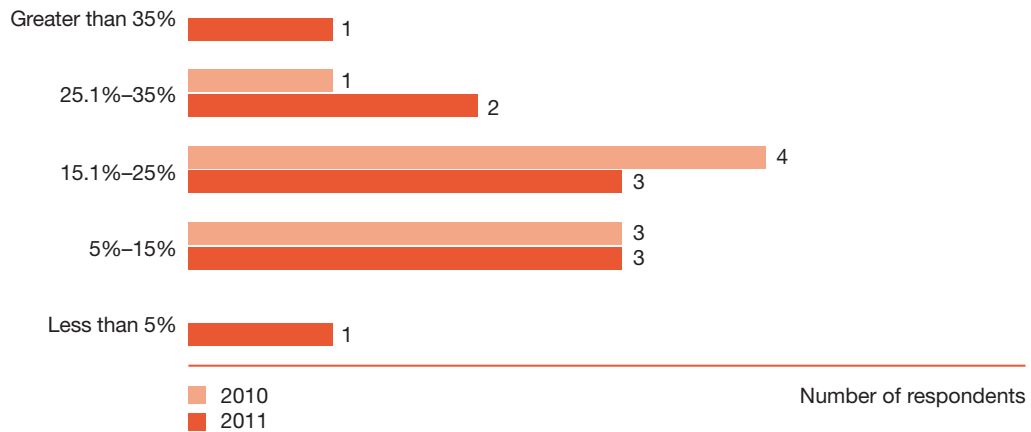
In some cases, cards are sold but are never activated or are never associated with a specific account. Carriers that have these situations indicated that they recognize revenue for the cards over a period of 12 to 60 months.

## Prepaid revenue

### Prepaid data services

Data services have been growing over the last several years, including in the prepaid segment. The chart below shows the percentage of prepaid revenue that carriers have generated from data services in the past two years.

#### Percentage of prepaid service revenue generated by data services

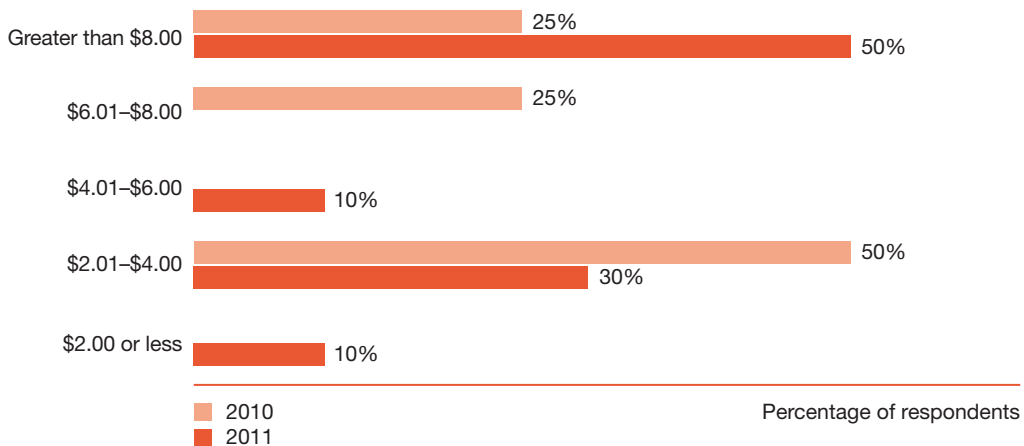


No responses were received in the less than 5% category for 2010 or the greater than 35% category for 2010.

## Prepaid revenue

In dollar terms, prepaid data services are contributing more to overall prepaid ARPU compared with responses in our 2010 survey. The chart below shows that 60% of respondents indicated data services contribute greater than \$4 to overall prepaid ARPU compared with 50% of respondents in our 2010 survey. In comparison, for postpaid subscribers, all responding carriers indicated that monthly data ARPU now exceeds \$5 per user.

### Average monthly contribution to prepaid ARPU by each prepaid subscriber



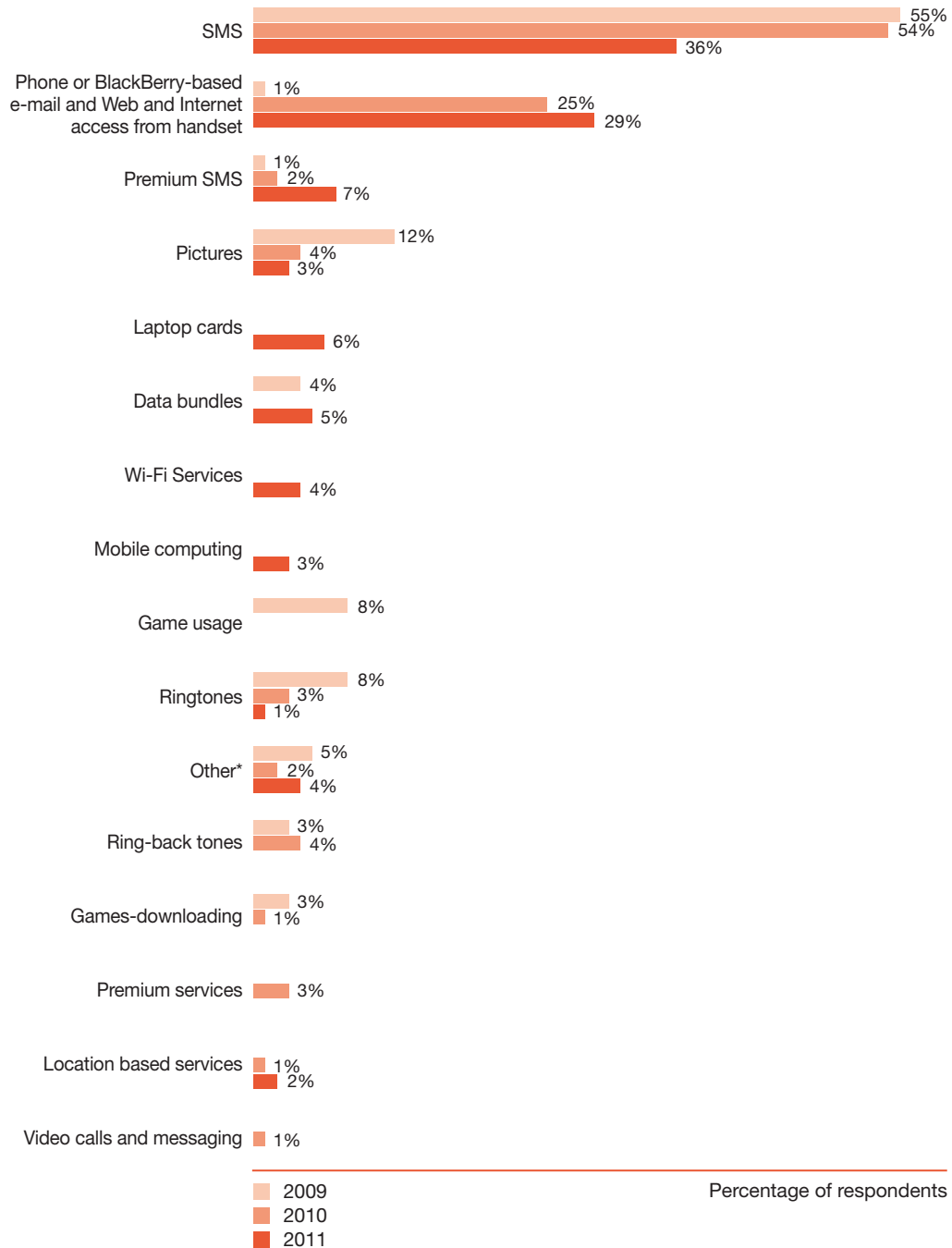
No responses were received in the \$2.00 or less category for 2010, the \$4.01-\$6.00 category for 2010, or the \$6.01-\$8.00 category for 2011.

The following chart depicts the percentage of total revenue generated by each type of data service identified as related to prepaid data services. As carriers have been offering more data services for prepaid handsets, there has been an increase in phone-based e-mail and Web and Internet access. Additionally, other services that were first offered to prepaid subscribers such as picture messaging, game usage, and ringtones have continued to decrease to very minimal overall data revenue compared with the 2009 and 2010 surveys.

Even though carriers have successfully begun to migrate prepaid revenue from SMS to Internet-driven services, the relative profitability of these services remains a concern. Whereas pricing of individual and bulk SMS messaging has historically garnered a high rate per megabyte (MB), pricing pressure on Internet-based services appears to be driving data margins down significantly.

## Prepaid revenue

### Prepaid data revenue



\*Other includes mobile applications, video and music downloads, mobile television, screen savers/wallpaper, graphics, and contact back-up.

No responses were received in the laptop cards, Wi-Fi services, mobile computing, premium services, location-based services, or video calls and messaging categories for 2009. No responses were received for laptop cards, data bundles, Wi-Fi services, mobile computing, or game usage in 2010. For 2011 categories, no responses were received related to data bundles, game usage, ring-back tones, games-downloading, premium services, or video calls and messaging.

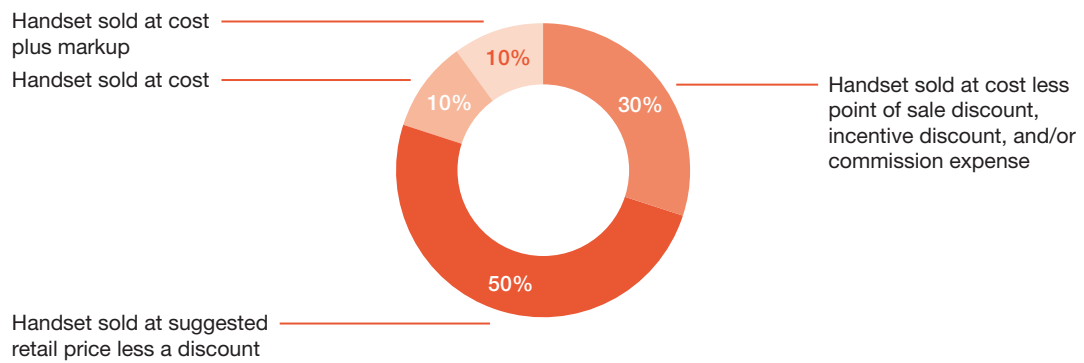
## **Prepaid handset sales**

All carriers responded that they use indirect agents for the sale of handsets and service to prepaid subscribers. However, carriers differ in how they account for the prepaid handset sale. The chart below indicates the differing methods by which carriers account for the sale of prepaid handsets to indirect agents.

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### **Method of accounting for prepaid handset sales**

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# *Postpaid performance measures*

The following pages cover performance measures for evaluating results. The sale of smartphone devices has continued to grow, representing 48% of new device sales as of June 30, 2011, which is an increase of 18% from the 2010 survey. The average percentage of postpaid subscribers using smartphone devices has also increased in the past year to 37% from 23%.

## **Postpaid performance sections**

Customer metrics

Subscriber costs

Data

Smartphones

Network

Long-distance and interconnect expenses

Billing

Credit and collections

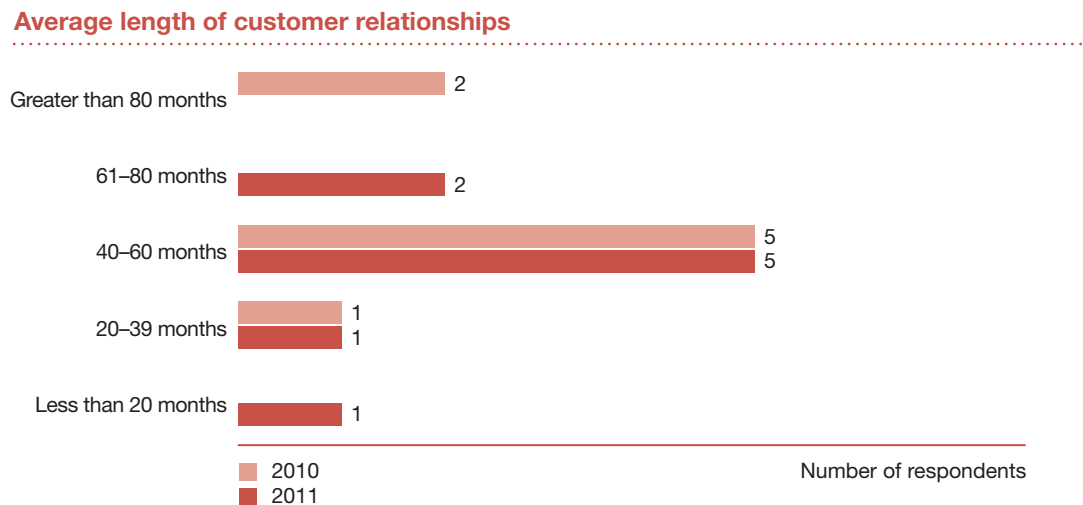


## Customer metrics

The average length of postpaid customer relationships was approximately 48 months in 2011, compared with 59 months in the 2010 survey. For companies with revenue greater than \$5 billion, the average length of customer relationships was 51 months in 2011 compared with 52 months in the 2010 survey. Carriers with revenue less than \$5 billion experienced a larger decline in the average length of customer relationship in the current year, decreasing to 45 months from 66 months in the 2010 survey.

The decline in the average length of postpaid customer relationships across North America raises the question of whether carriers' ongoing subsidy of mobile devices is driving the intended results. As average device purchase prices for the carriers continue to increase because of the growing penetration of more advanced smartphones, carriers may well need to look for additional mechanisms to slow the decline in customer tenure.

The chart below depicts the average length of the responding companies' relationships with postpaid customers.



No responses were received in the greater than 80 months category for 2011 or the 61–80 months and less than 20 months categories for 2010.

We asked companies how they define minutes of use (MOU). Sixty-four percent (64%) of the respondents define MOU as minutes per the switch—regardless of whether those minutes are ultimately billed to the customer—while 36% of the respondents define MOU as only billed minutes (whether included as part of a plan or as additional nonpackaged minutes).

## Postpaid performance measures

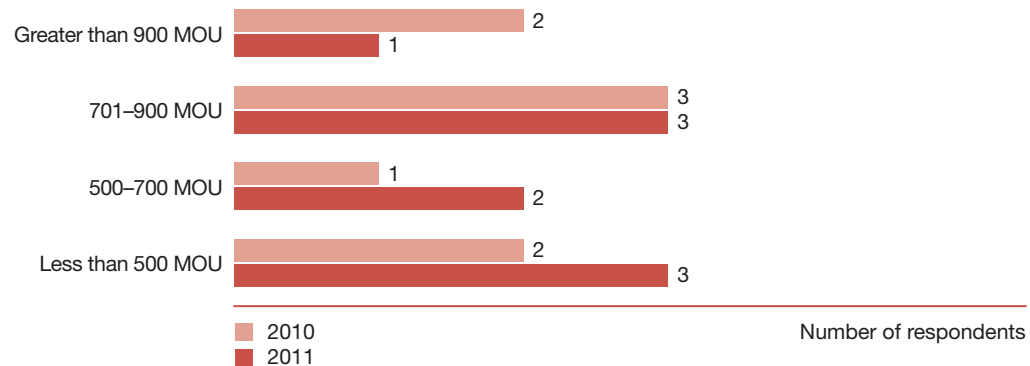
As the chart below shows, average MOU among respondents has seen a significant decline since 2010, shrinking from 720 MOU per month to 638 MOU per month for 2011. This is consistent with trends reported around the world in recent months. Although the root cause of the decline likely varies, we believe it to be a combination of the increased penetration of price-sensitive customers and the replacement of voice usage with data services such as text messaging, e-mail, and Internet-based messaging services including BlackBerry Messenger and Facebook.

### Average monthly minutes of use per postpaid subscriber by year



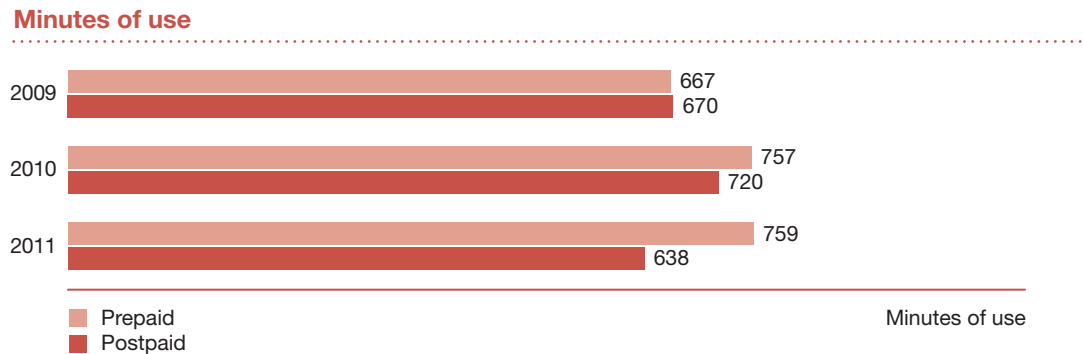
The following chart indicates the average monthly minutes of use per postpaid subscriber for 2011 compared with the 2010 survey.

### Average monthly minutes of use per postpaid subscriber for 2011 compared with 2010



## Postpaid performance measures

As the following chart indicates, prepaid subscribers continue to outpace postpaid subscribers in monthly MOU. This is challenging to wireless carriers in two ways. First, prepaid subscribers are generating lower average revenue per user (ARPU) while consuming greater network voice resources. Second, the high concentration of prepaid subscribers in dense urban areas places additional strain on already highly concentrated network resources, requiring additional investments in capacity.



Ninety percent (90%) of the responding companies report postpaid churn externally. The responding carriers indicated that an average of 33% of all churn is a result of involuntary disconnects (company-induced disconnects or terminations of service), down from 41% as reported in the 2010 survey.

We asked the companies how postpaid churn is calculated.

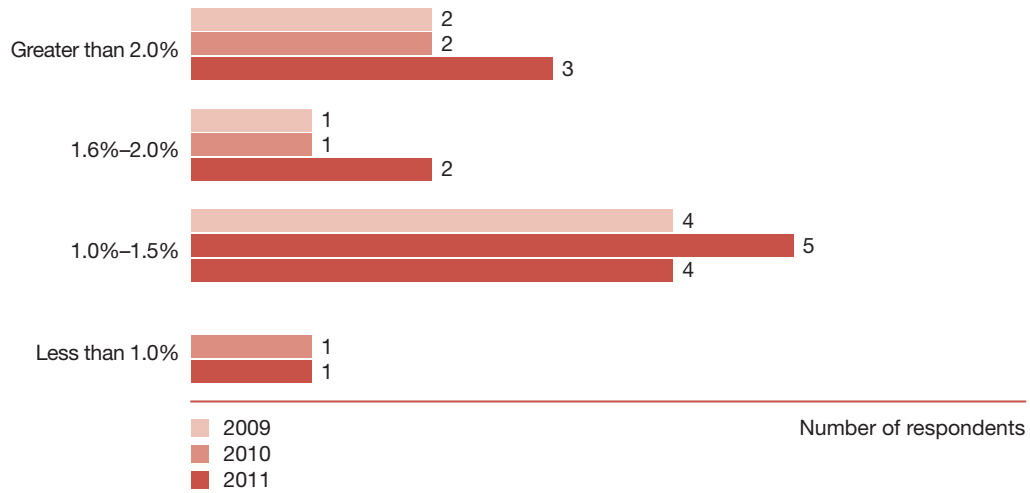
- 100% use net deactivations for the numerator.
- 90% use average number of subscribers for the denominator of the churn.
- 10% use beginning subscribers for the period in the denominator.

Seventy percent (70%) of the responding companies consider deactivations within 30 days of activations for the net deactivations computation, with the remainder considering net deactivations for the period or deactivations within seven days. Eighty percent (80%) of respondents track information related to postpaid customers and prepaid customers separately. The percentage of respondents with postpaid churn rates of 2% or less was 70% compared with 78% in the 2010 survey.

## Postpaid performance measures

For responding companies that track postpaid information separately, the following chart details churn rates for postpaid subscribers.

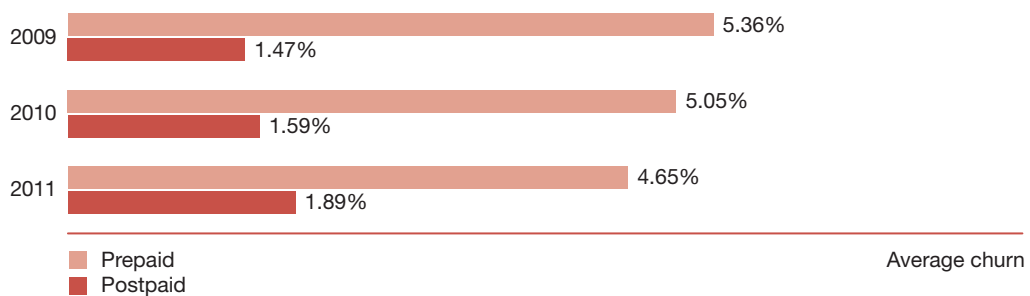
### Churn for postpaid subscribers



No responses were received in the less than 1.0% category for 2009.

Consistent with prior years, postpaid churn continues to be significantly lower than prepaid, as indicated in the following chart for the current year compared with the 2009 and 2010 surveys. However, for the responding carriers, the prepaid churn has improved on a year-over-year basis.

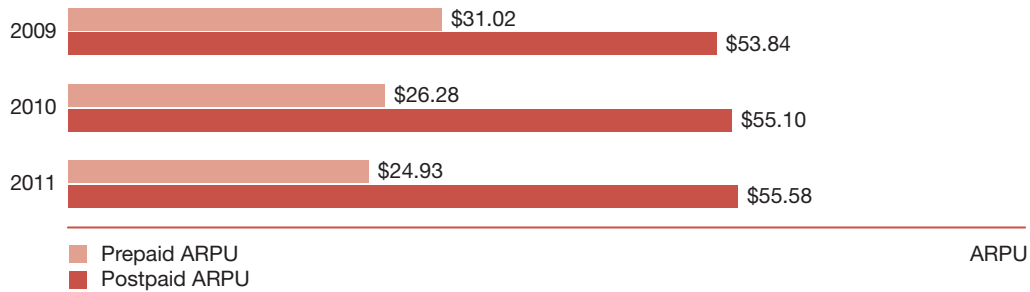
### Churn for postpaid subscribers versus prepaid subscribers



## Postpaid performance measures

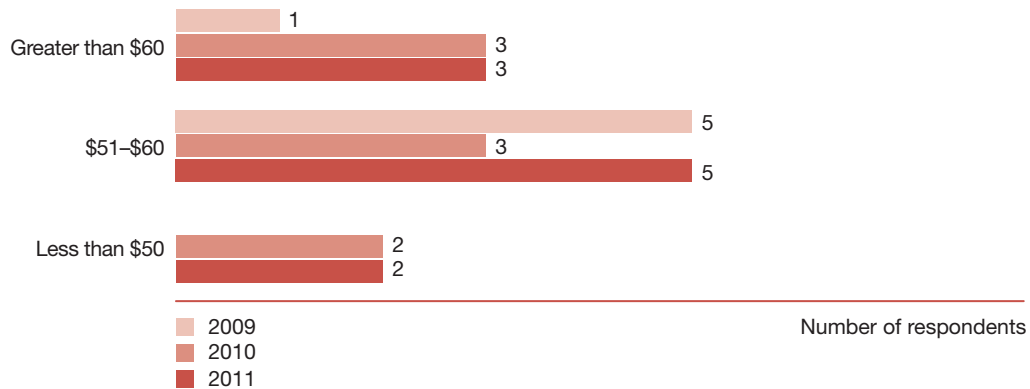
For responding companies that track information separately, the following chart compares ARPU for postpaid and prepaid subscribers.

### Average revenue per user for postpaid and prepaid subscribers



Responding companies with revenue greater than \$5 billion reported postpaid ARPU of \$58.95, which is up from the 2010 survey response of \$57.72. For companies with revenue less than \$5 billion, postpaid ARPU averaged \$53.33, which is also higher than the \$52.98 average in the 2010 survey. The following chart highlights how many carriers are in each category of ARPU for postpaid subscribers.

### Average revenue per user for postpaid subscribers



No responses were received in the less than \$50 category for 2009.

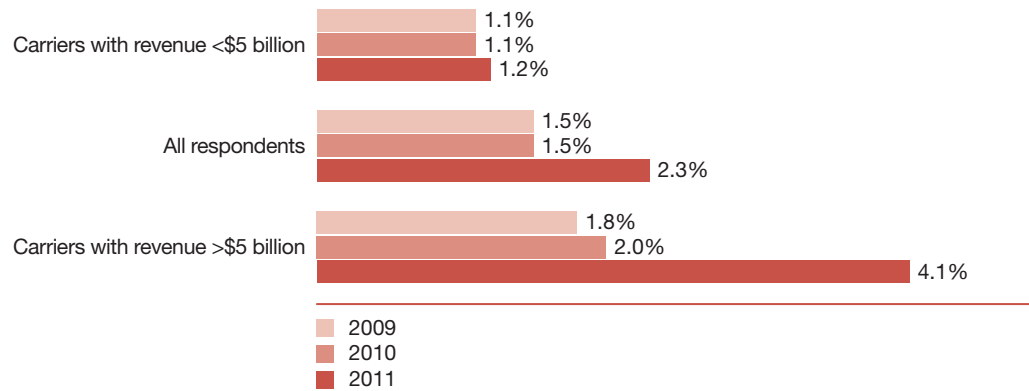
We asked companies what percentage of their postpaid subscriber revenue is related to access versus usage. Eighty percent (80%) of the respondents' revenue is the result of access, which is consistent with the results of the 2010 survey. For responding carriers with revenue greater than \$5 billion, the average was 85%; for responding carriers with revenue less than \$5 billion, the average was 77%. The continued high dependency on access is a risk to carriers, particularly as alternative voice and video communications options such as Over-the-Top (OTT) and Voice over Long-Term Evolution (VoLTE) grow in popularity.

We also asked companies what percentage of their total service revenue was a result of roaming. The average of all respondents was 4% compared with 3% from the 2010 survey.

## Postpaid performance measures

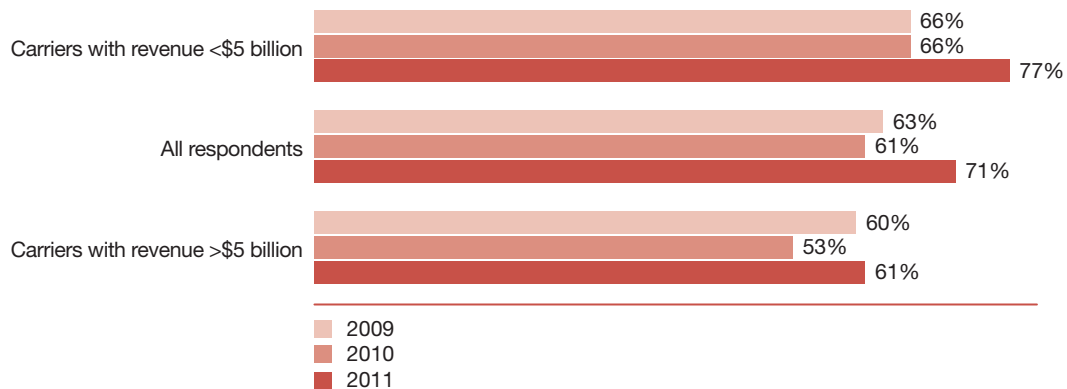
We asked companies their percentages of bad-debt expense and operating expense to total service revenue. Average bad-debt expense was 2.3% in the current survey compared with 1.5% in the 2010 survey, likely an impact of the overall economic challenges that have continued.

### Bad-debt expense as a percentage of total service revenue



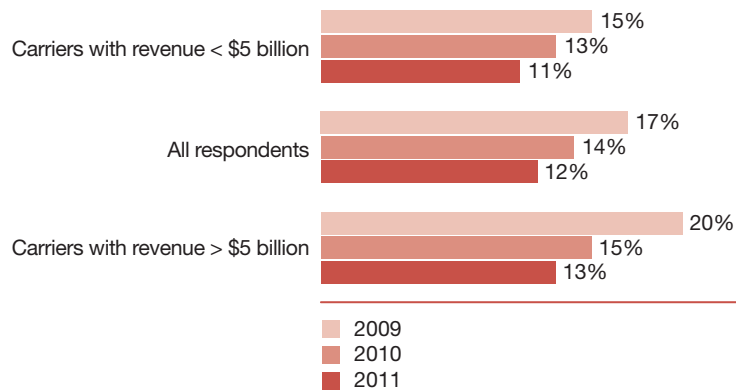
The following three charts show operating expense as a percentage of total service revenue; sales and marketing expense as a percentage of total service revenue; and earnings before interest, taxes, depreciation, and amortization (EBITDA) margin of the responding companies as a percentage of total service revenue for the current analysis compared with the 2009 and 2010 surveys.

### Operating expense as a percentage of total service revenue

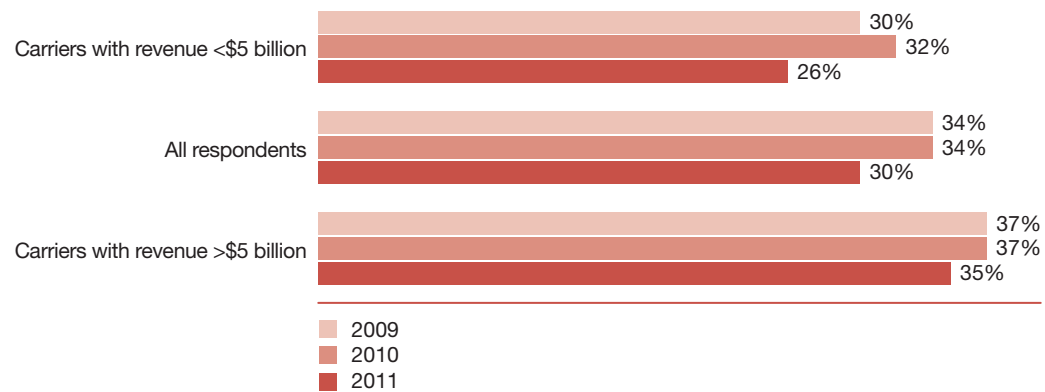


## Postpaid performance measures

### Sales and marketing expense as a percentage of total service revenue



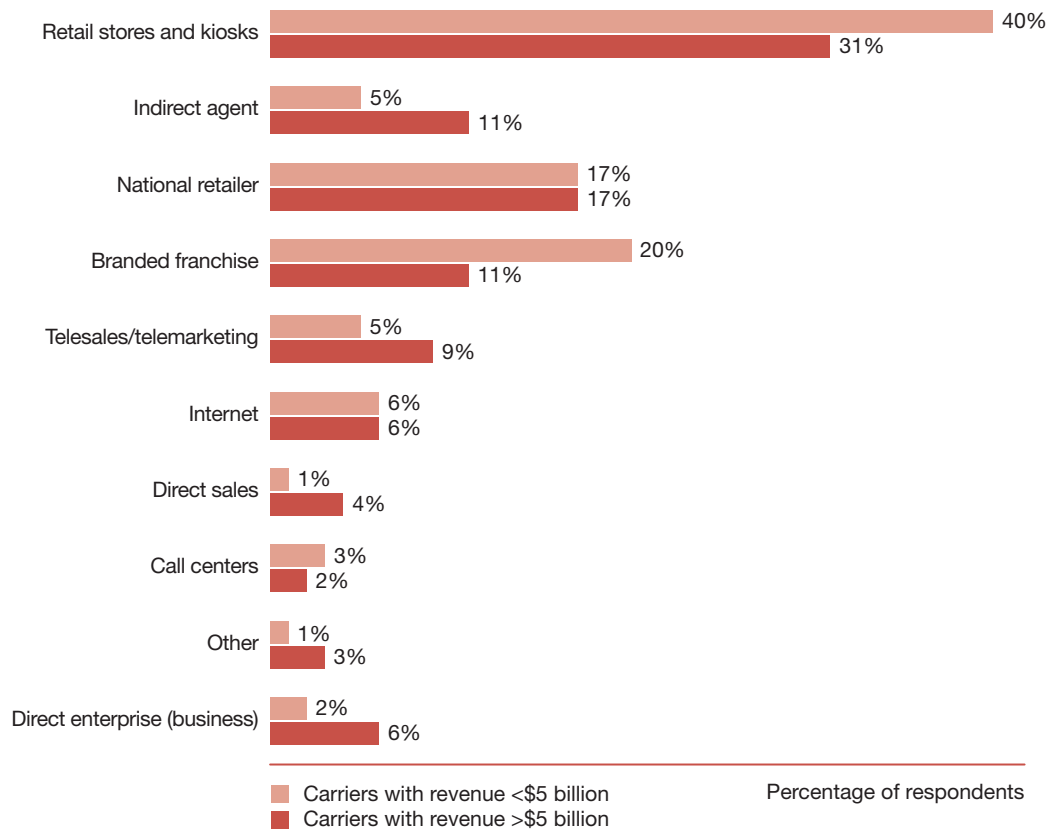
### EBITDA margin as a percentage of total service revenue



## Postpaid performance measures

Carriers use various sales channels to secure subscribers. We asked companies to indicate the percentages of their postpaid subscribers attained through each sales channel. Their responses are illustrated in the following chart.

### Postpaid subscriber activation channels



Compared with the 2010 survey, the activation of postpaid subscribers for carriers with revenue less than \$5 billion was reported more in retail stores and kiosks (up 11%), branded franchise locations (increase of 8%) and through the Internet (increase of 5%), while the indirect agent channel dropped significantly (it claimed 25% in the 2010 survey).

For carriers with revenue greater than \$5 billion the changes were less significant; the exception was that the indirect agent decreased from 18% in the 2010 survey to 11% in 2011 and direct enterprise (business) increased by 5% to 6% in 2011.

## Subscriber costs

Companies were asked to indicate the costs that they include in the numerator of their calculation of cost per gross addition when used as a performance measure. The following chart shows the elements used in the numerator for the calculation for the current year and in the 2010 survey.



## Postpaid performance measures

### Costs included in numerator of cost per gross addition

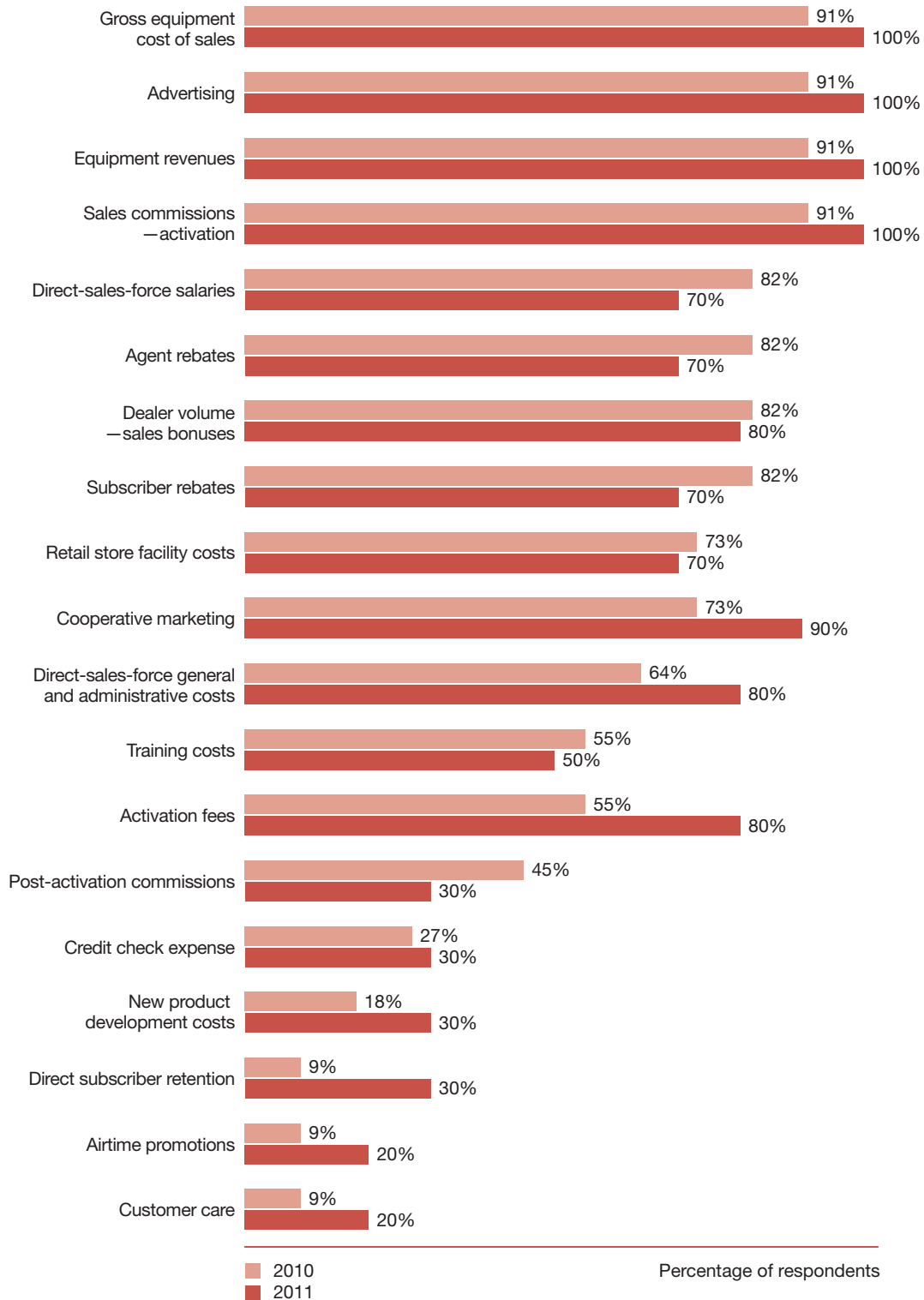


Chart sums to greater than 100% because multiple responses were allowed.

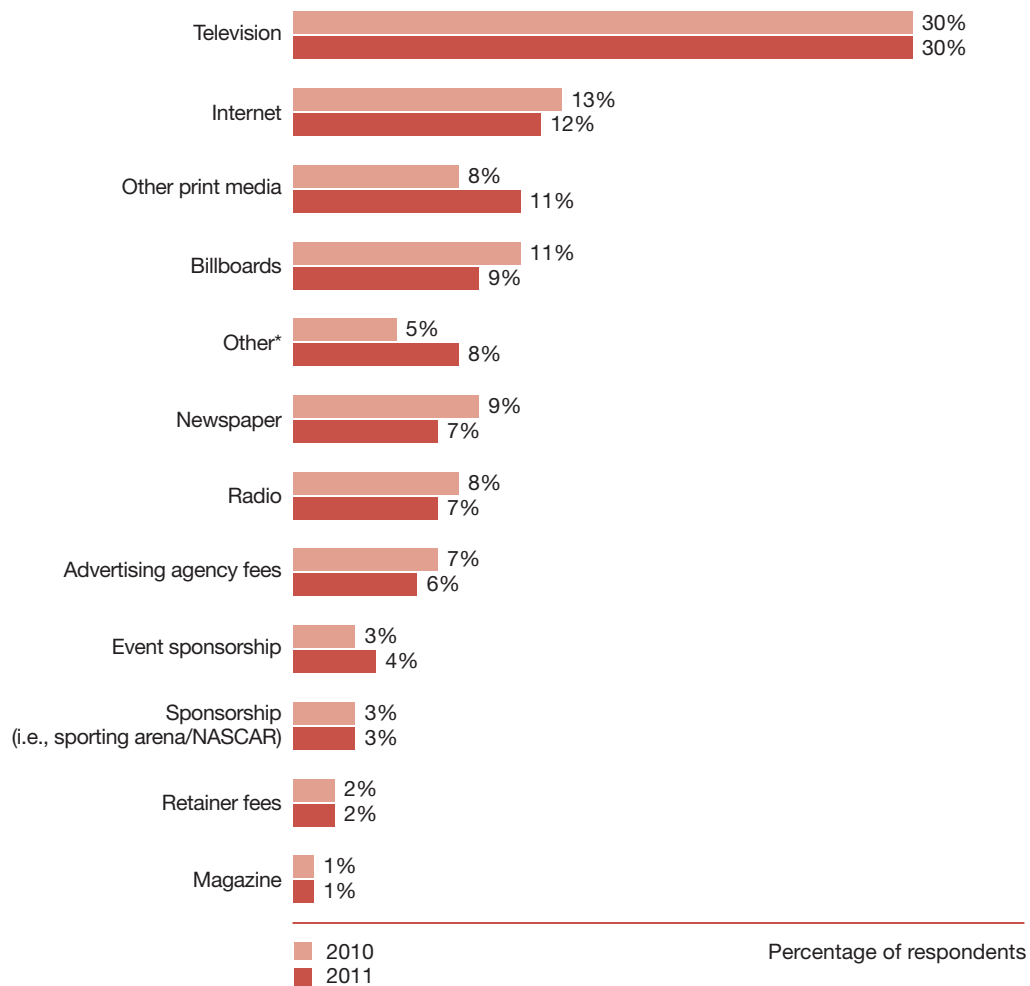
## Postpaid performance measures

All responding companies expense customer acquisition costs related to postpaid subscribers except for one carrier, which defers certain commissions for sales through agents and recognizes them with deferred activation fee revenues.

All responding companies expense customer retention costs for postpaid subscribers.

The carriers were also asked which media outlet they used for advertising services. The following chart shows the average response by type of advertising for 2010 and 2011.

### Advertising medium by year

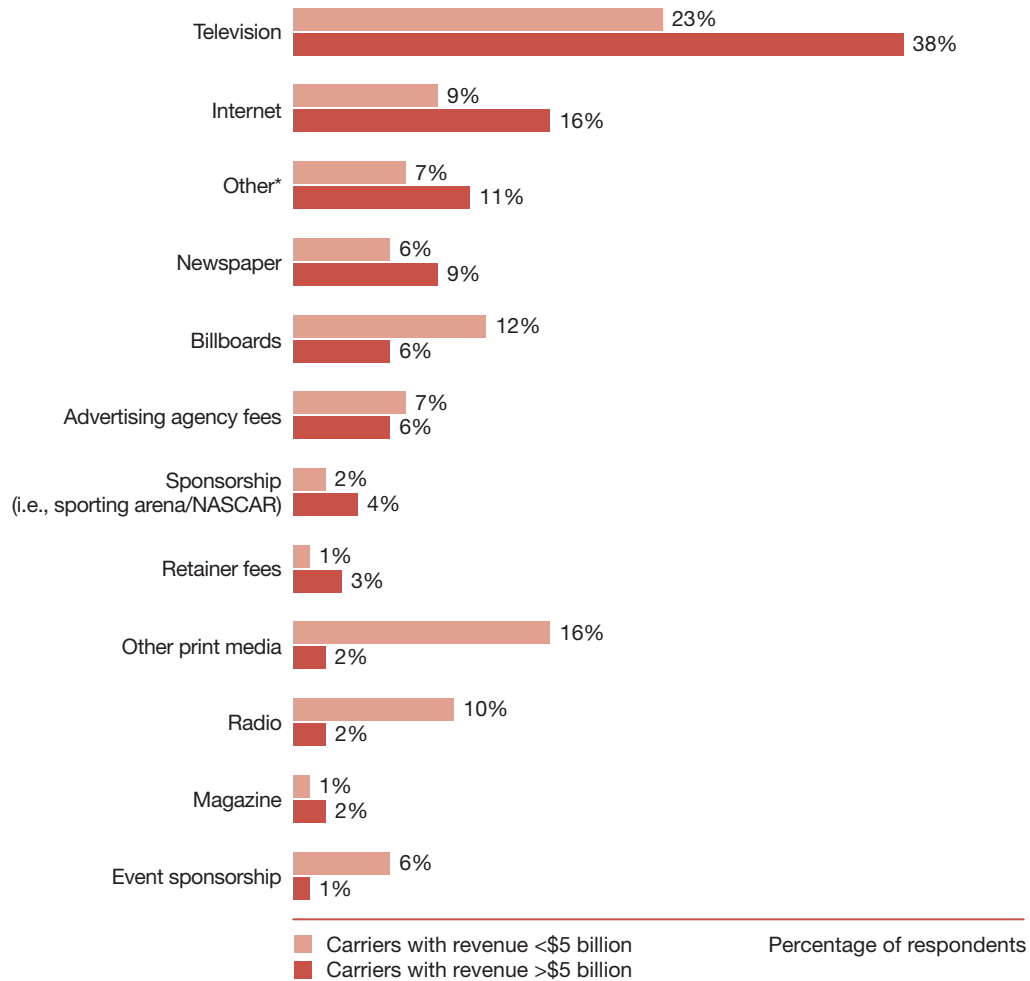


\*Other includes entertainment/production, cinema, co-op, general promotion, and product development.

## Postpaid performance measures

Advertising media spend split between carriers with revenue less than \$5 billion and carriers with revenue greater than \$5 billion is depicted in the following chart. The overall trend and use of advertising by both categories of carriers is consistent with the 2010 survey.

### Advertising medium by carrier

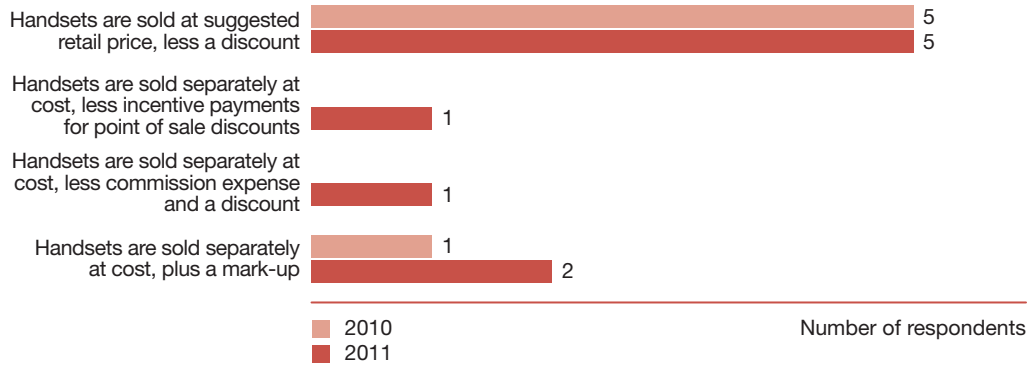


\*Other includes entertainment/production, cinema, co-op, general promotion, and product development.

## Postpaid performance measures

Companies were asked to indicate how they treat sales of handsets if they use resellers and/or indirect agents. The majority of the respondents indicated that handsets are sold at suggested retail price less a discount for postpaid handset sales.

### Treatment of postpaid handset sales related to resellers and/or indirect agents



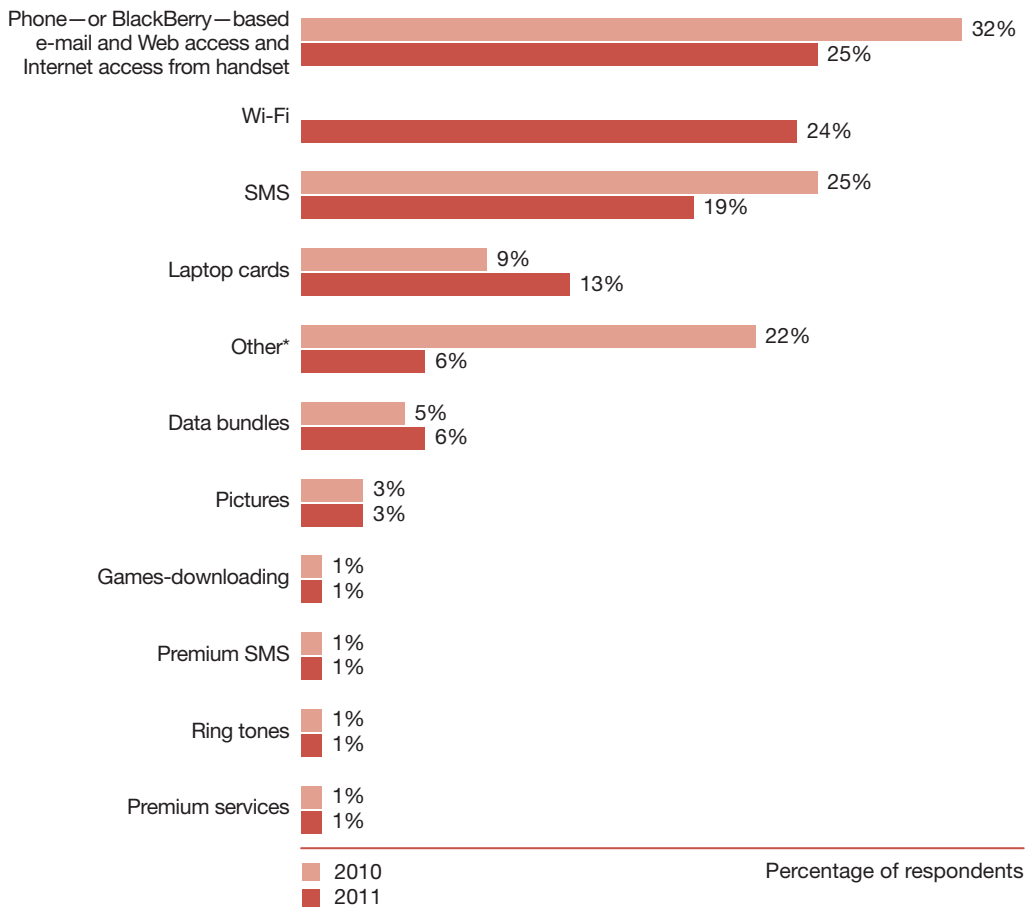
No responses were received in the handsets are sold separately at cost, less incentive payments for point of sale discounts and handsets are sold separately at cost, less commission expense and a discount for 2010.

## Data

All (100%) of the responding companies offer data services to postpaid customers.

The responding companies offer multiple types of data services to customers. The following chart depicts the percentage of total revenue generated from each type of data service identified as related to postpaid data services for 2010 and 2011.

### Postpaid data revenue



\*Other includes mobile computing, broadband, and data roaming.

No responses were received in the Wi-Fi category in 2010. Note that certain 2010 survey information has been reclassified to conform to the categories in the current year survey.

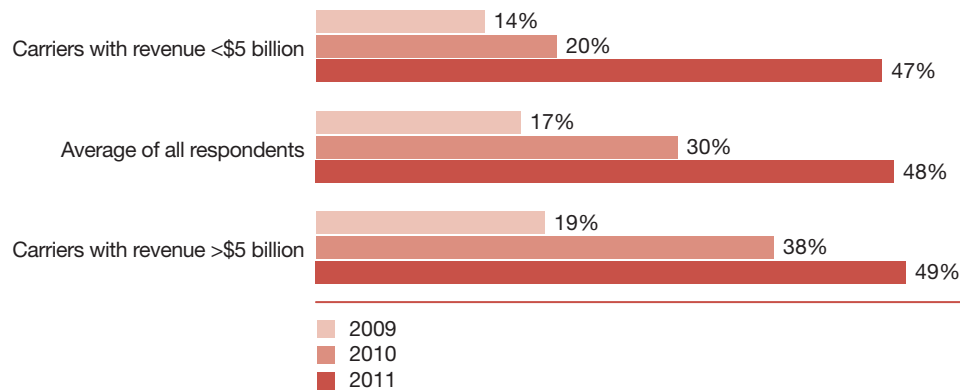
The above chart suggests some significant changes in the usage of services by customers:

- As reliability and availability of wireless broadband increase, the revenue from the laptop cards is also increasing, a trend likely to accelerate with greater deployment of LTE networks.
- Two key factors contribute to the decline in SMS revenue: More users are signing up for SMS plans, thus avoiding per-message fees, and many users have begun replacing SMS use with Internet-based chat/messenger applications.

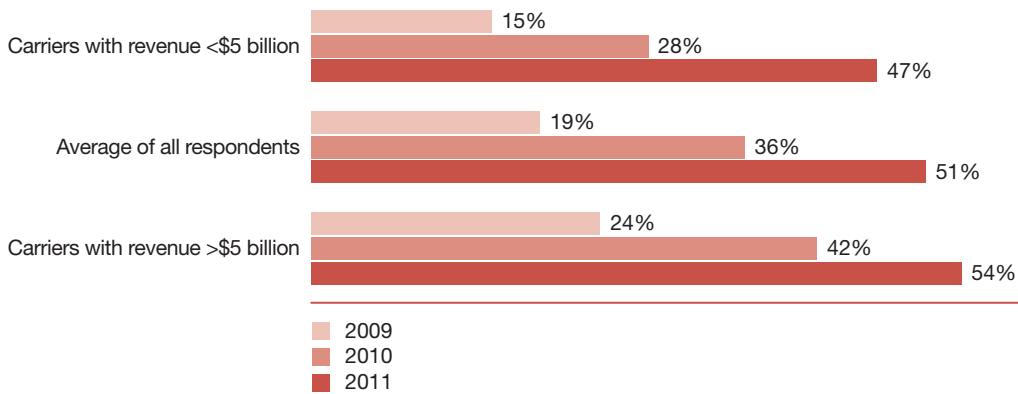
## Smartphones

We asked participating companies what percentage of new postpaid phone sales and postpaid customer upgrade sales related to smartphones in the three most recently completed fiscal years. Smartphones were defined as mobile phones offering advanced capabilities with PC-like functionality (such as Android, iPhone, and BlackBerry). The results are depicted in the following charts.

### Smartphone sales as a percentage of new phone sales



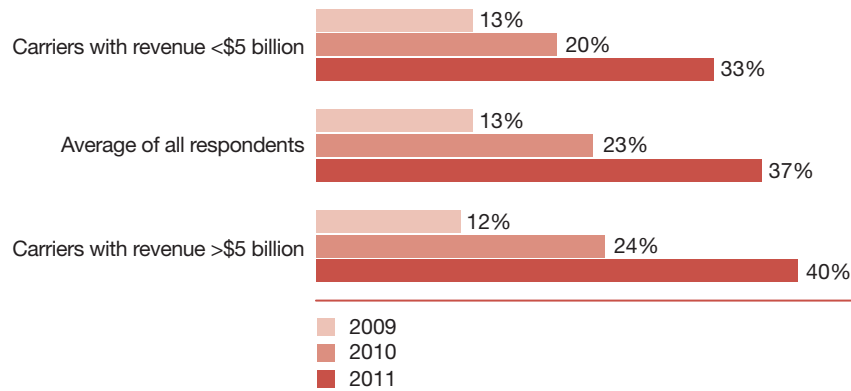
### Percentage of customer upgrade phone sales related to smartphones



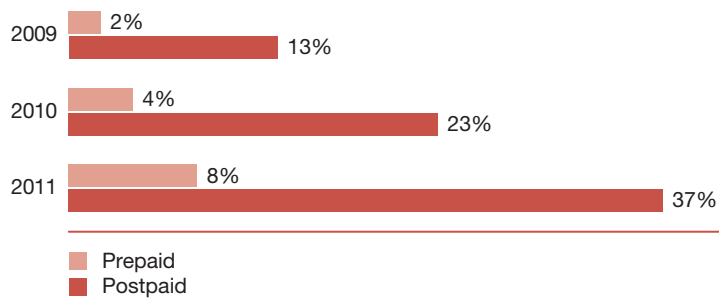
## Postpaid performance measures

The following charts illustrate the carriers' percentage of smartphone subscribers and ARPU for postpaid customers as of June 30, of the last three years, and compares postpaid with prepaid for percentage of smartphone subscribers.

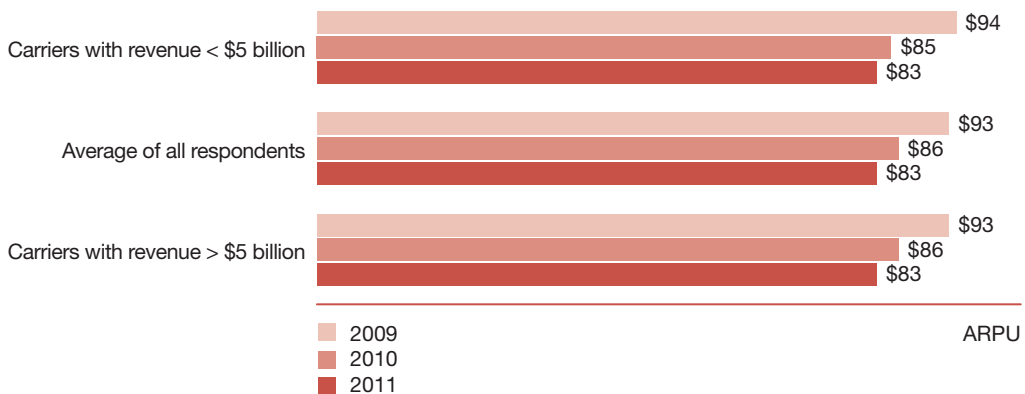
### Smartphone subscribers as a percentage of total subscribers



### Smartphone subscribers as a percentage of total subscribers for postpaid and prepaid



### Average revenue per postpaid user for smartphone users



## Postpaid performance measures

### Network

We asked companies which costs are included in network/system expense. The results are consistent with the 2010 survey. Their responses are illustrated in the following chart.

#### Costs included in network/system expense

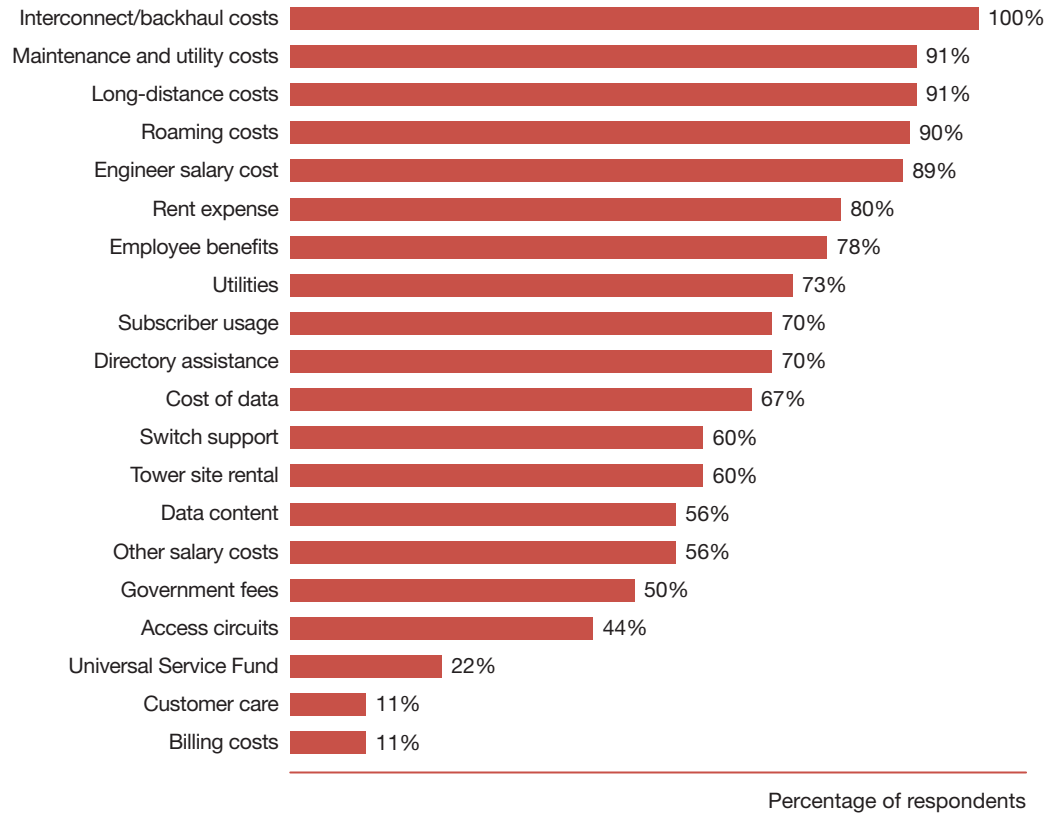


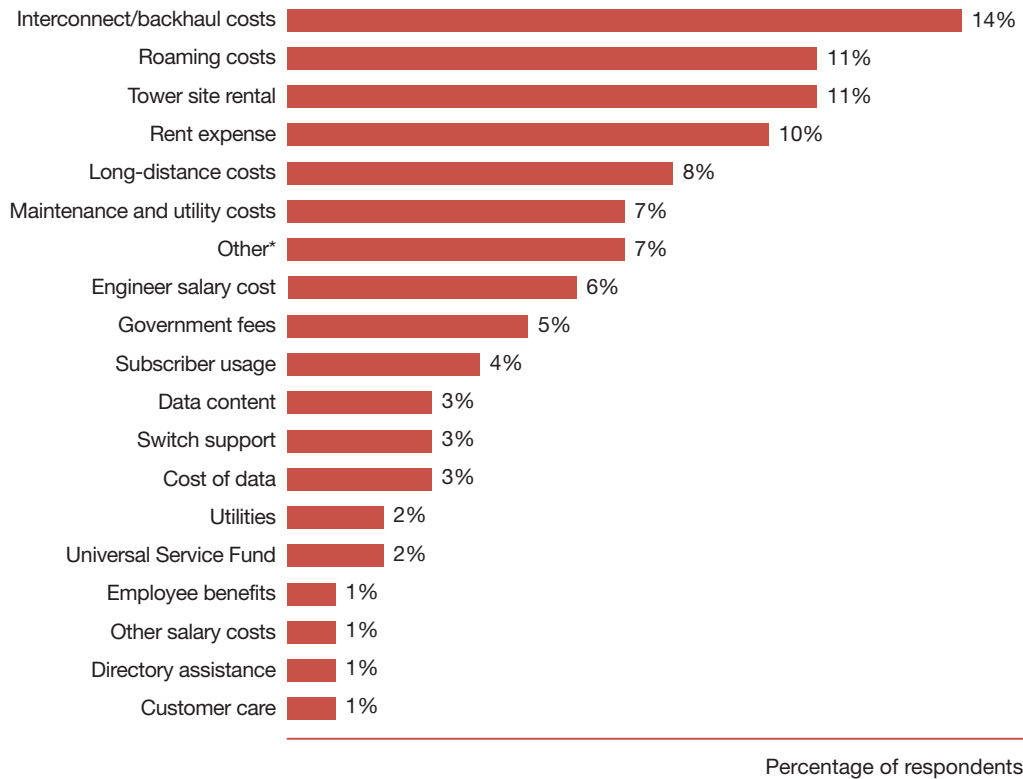
Chart sums to greater than 100% because multiple responses were allowed.



## Postpaid performance measures

We asked companies what percent of the total network/system expense each component represents. Their average responses are illustrated in the following chart. Overall, there were no significant changes compared with the 2010 survey responses.

### Components of network/system expense



\*Other refers to miscellaneous costs, outside services, land acquisition costs, and property taxes.

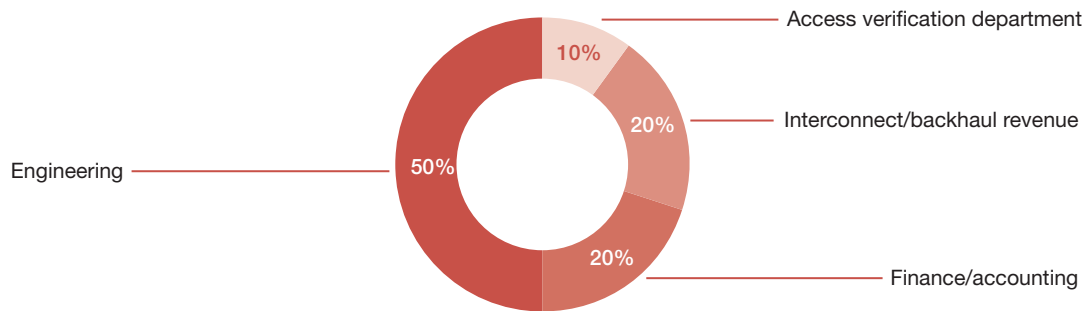
We asked companies what percentage of their cell sites they lease rather than own. Responding companies lease an average of 90% of their cell sites, which is consistent with the 2010 survey.

Fifty-eight percent (58%) of the responding companies indicated they use circuit inventory tracking systems to account for system expenses. Of those companies, 14% use Excel to track circuit inventory, down from 22% in the 2010 survey. Forty-three percent (43%) of respondents that use circuit inventory tracking systems utilize an external service provider.

### Long-distance and interconnect expenses

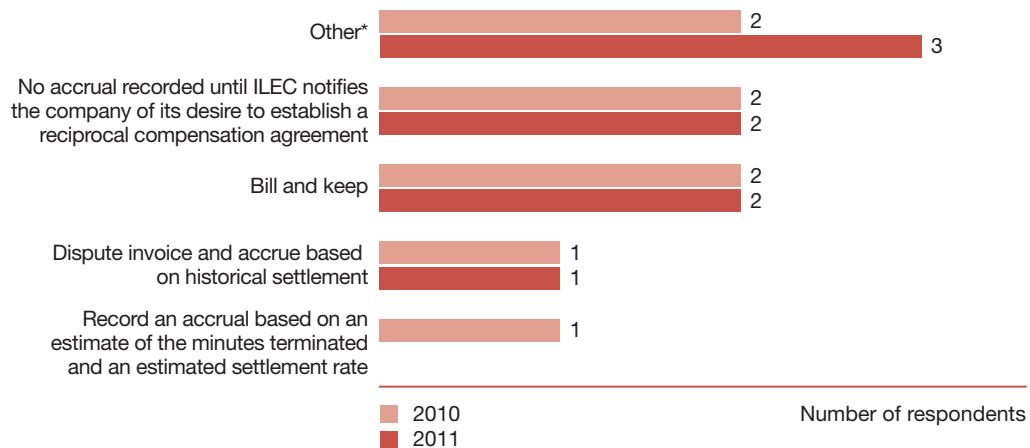
All respondents (100%) perform bill verification for long-distance and interconnect expenses, consistent with the 2010 survey. Ninety-two percent (92%) of respondents said they perform bill verification internally, compared with 100% in the 2010 survey. Of the respondents that perform bill verification internally, the following chart depicts which internal department performs this function.

#### Internal department that performs bill verification



Sixty-four percent (64%) of the responding companies reported that they recognize reciprocal compensation for calls terminating on incumbent local exchange carrier (ILEC) networks—with no reciprocal compensation agreements in place—a slight decrease from 75% in the 2010 survey. The following chart illustrates how these companies accounted for terminating expenses in 2010 and 2011 when there was no reciprocal compensation agreement in place.

#### Accounting for calls terminated on ILEC networks



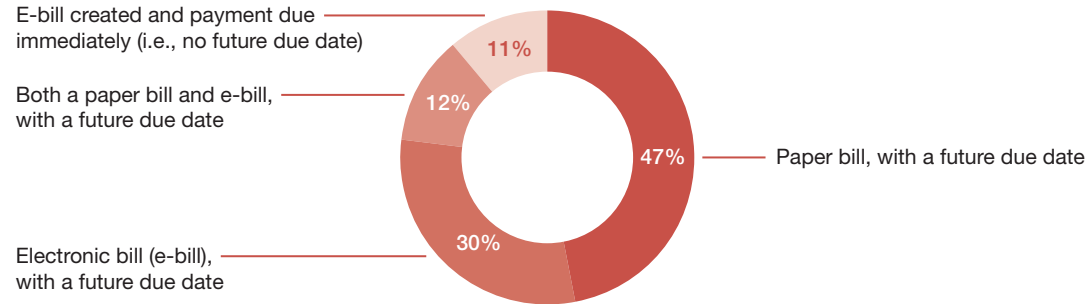
\*Other combinations of the other categories based on facts and circumstances.

No respondents in 2011 recorded an accrual based on an estimate of the minutes terminated and an estimated settlement rate.

## Billing

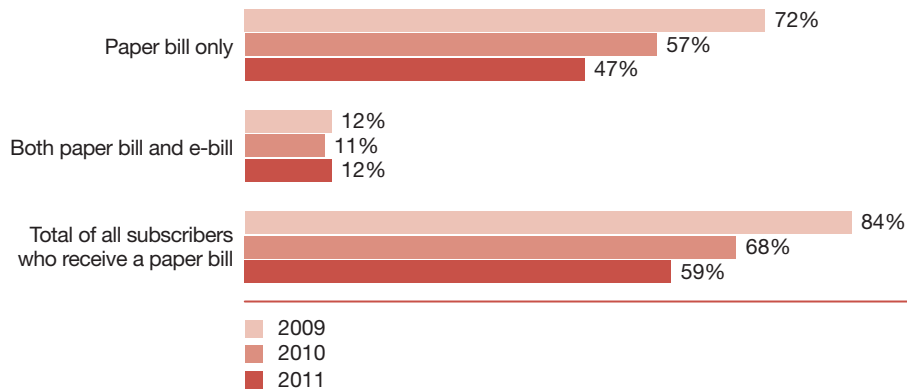
We asked companies to identify the method whereby their postpaid subscribers receive monthly invoices. The responses are shown in the chart.

### Monthly invoice delivery method



The average percentage of subscribers receiving paper invoices overall has continued to trend down in 2011 as shown in the chart below.

### Percentage of subscribers receiving a paper bill



We also asked the companies if they charge subscribers for paper bills. Forty-five percent (45%) of the respondents charge subscribers for paper bills compared with 27% in the 2010 survey. The average charge was \$1.82 per month compared with \$1.69 in the 2010 survey. The average cost per subscriber for a paper bill (from print to mail) was \$1.12. In contrast, the respondents' average cost per subscriber for monthly e-bills was \$0.28.

## Credit and collections

We asked the companies if they complete credit checks on all new subscribers. Sixty-four percent (64%) of the respondents said they do. Of the respondents with average revenue greater than \$5 billion, 75% said they complete credit checks on new subscribers. When a credit check is completed for a new customer, the average time for a credit decision is five seconds.

The average number of days after the bill due date that an account gets canceled for nonpayment is 73 days, within a range of 30 to 145 days.

The companies were also asked how many days pass after nonpayment of a past-due account before a customer care agent calls the subscriber. The average number of days was 32, and the responses ranged from seven days to 55 days. Sixty-seven percent (67%) of the respondents also indicated that they use an automatic dialer to call accounts that are past due compared with 82% in the 2010 survey. The time period when the automatic dialer begins to call past-due accounts ranged from one to 43 days.

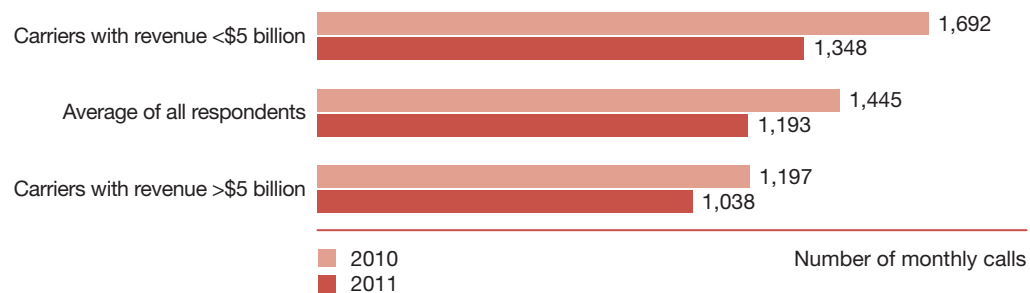
We asked the companies how many employees in their collections department focus solely on past-due, late, or suspended accounts. For respondents with average revenue greater than \$5 billion, an average of 1,022 employees focus solely on past-due, late, or suspended accounts. In comparison, respondents with average revenue less than \$5 billion dedicate an average of 155 employees in their collections department solely to these areas.

We also asked how many calls are handled by each call collector on a monthly basis. The chart below depicts the average answers from respondents.

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### Monthly calls handled by each collector

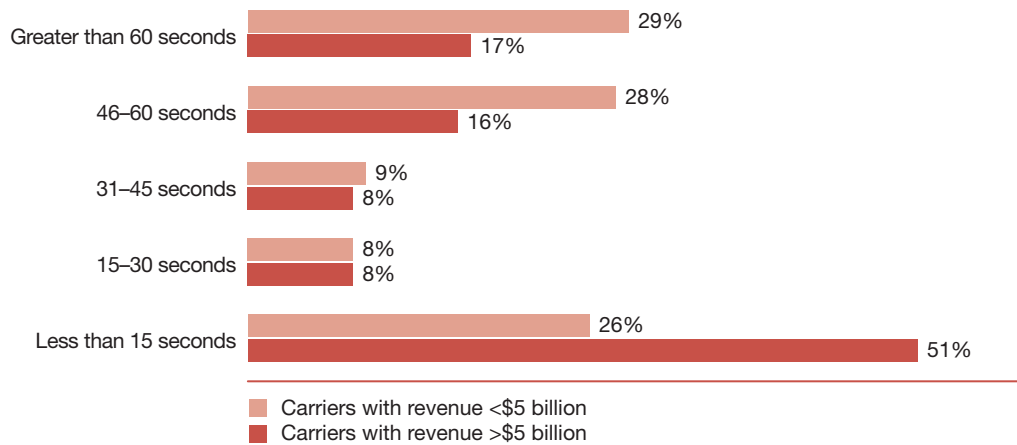
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## Postpaid performance measures

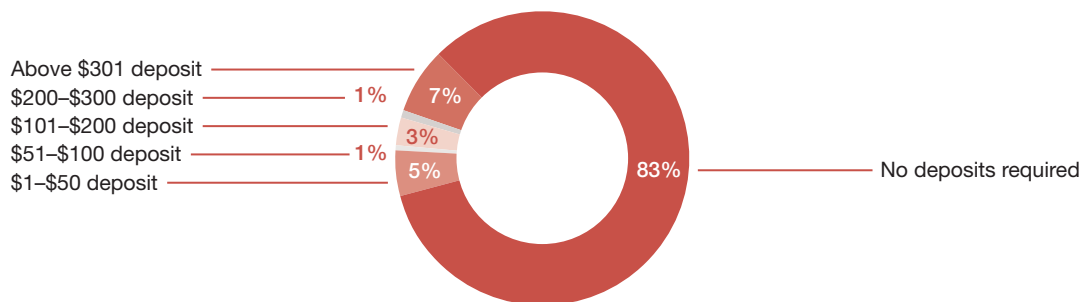
The chart below illustrates the average time frames in which customer calls are answered, segregated by the average revenue size of the respondents.

### Customer calls answered within each time frame in 2011



We asked companies about their different levels of deposit charges and the percentage of deposits associated with each level. Three respondents do not require any deposits. For the carriers that have deposit requirements, the following chart represents the average percentage of deposits associated with each dollar level.

### Deposits charged



# *Property, plant, and equipment*

The following pages cover wireless company practices in the area of property, plant, and equipment.

## **Property, plant, and equipment sections**

Capital expenditure reporting

Technology usage

Capitalization policies

Capitalized labor

Asset impairments and fair value

Business combinations

Asset useful lives

Colocation

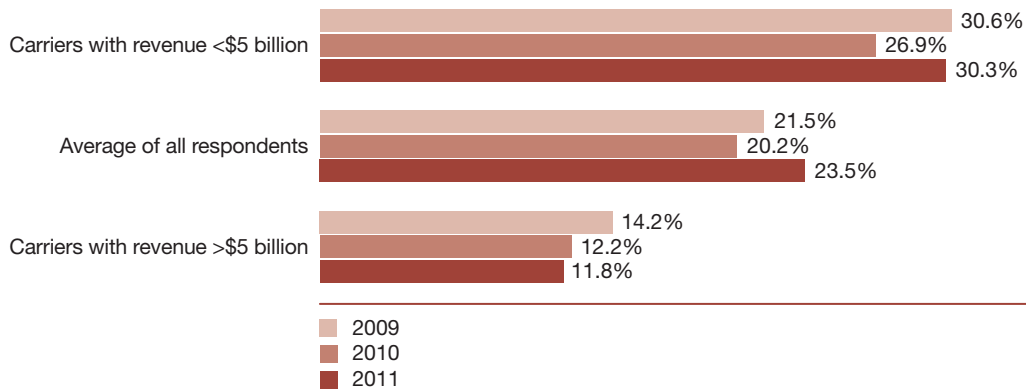
Asset retirement obligations

Tax basis

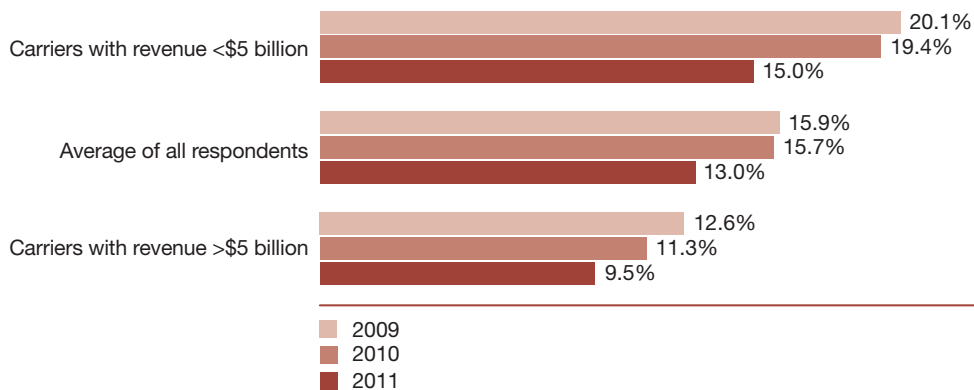
## Capital expenditure reporting

We asked companies to report their capital expenditures as a percentage of service revenue, gross fixed assets, and net fixed assets for the fiscal year ended December 31, 2010. The results were compared with the 2009 and 2010 surveys and are illustrated in the following three charts for the different categories of responding companies. For many carriers, the overall capital expenditures increased in the current year survey because of the rollout of long-term evolution (LTE) and other new products and technologies.

### Capital expenditures as a percentage of service revenue

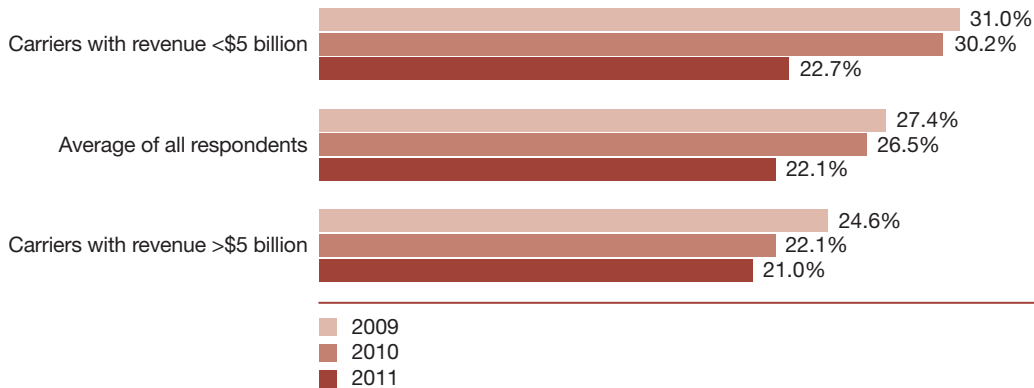


### Capital expenditures as a percentage of gross fixed assets



## Property, plant, and equipment

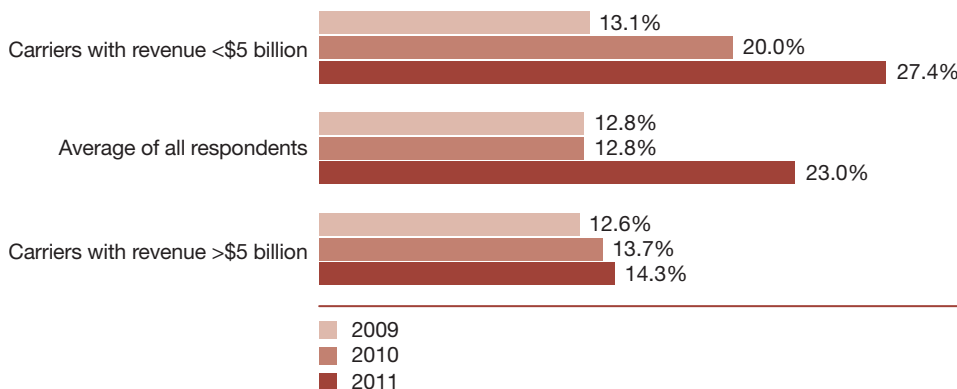
### Capital expenditures as a percentage of net fixed assets



As the figures demonstrate, smaller carriers continue to not only invest in capital, but are also continuing to invest to keep up with larger carriers on capital. We expect that carriers with revenue less than \$5 billion will continue to be more challenged to fund the growth in 3G capacity and buildout of 4G networks compared with carriers with revenue greater than \$5 billion.

The following charts show the depreciation expenses as percentages of service revenue and gross fixed assets for fiscal year 2010 for the different categories of responding companies compared with responses in the 2009 and 2010 surveys. Depreciation expenses in the current year survey increased in all categories, likely the result of the useful lives being shortened because of the transformation of the networks toward LTE and other 4G technologies. Useful life projections may also need to be adjusted as some operators begin to decommission and turn off legacy 2G and 3G networks in coming years.

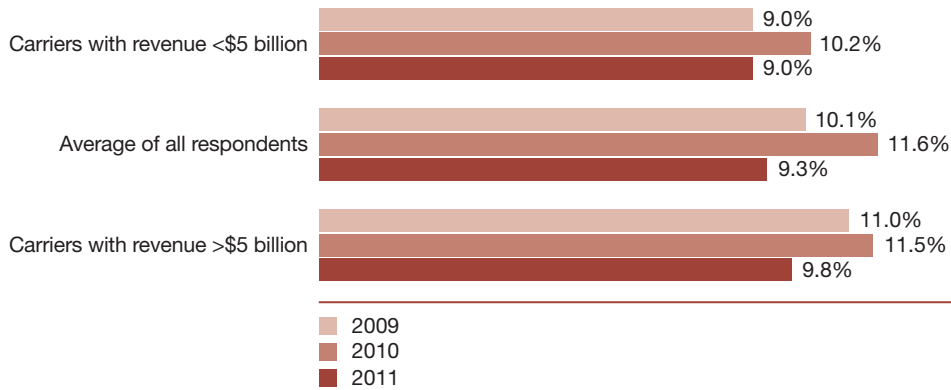
### Depreciation expense as a percentage of service revenue





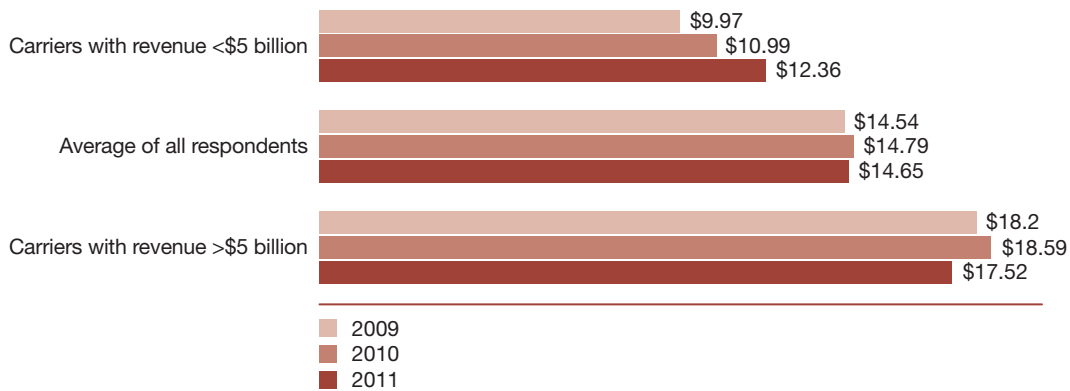
## Property, plant, and equipment

### Depreciation expense as a percentage of gross fixed assets

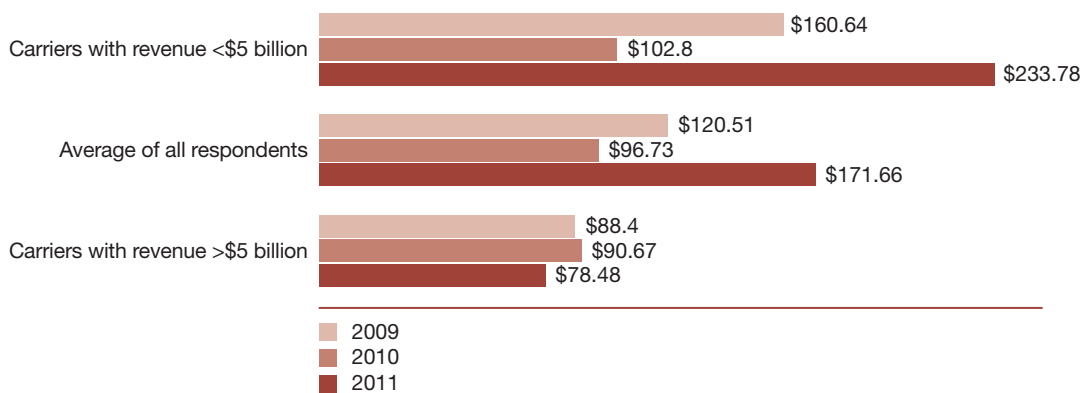


The two charts below illustrate capital expenditures per average market population (POP) and per average subscriber for the different categories of responding companies compared with responses in the 2009 and 2010 surveys.

### Capital expenditures per average POP



### Capital expenditures per average subscriber



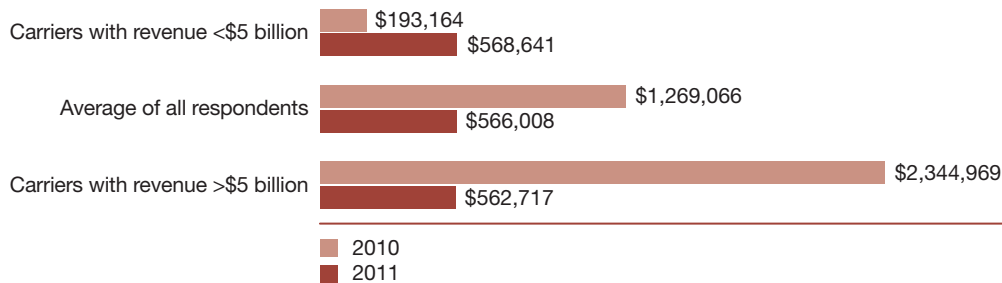
## Property, plant, and equipment

While it is clear that the carriers with revenue less than \$5 billion are striving to close the gap in capital expenditures with the carriers with revenue greater than \$5 billion, total capital expenditures per subscriber has increased significantly for the whole industry as operators begin to invest in next-generation technologies such as LTE.

The advent of new technologies is also clear in the chart below. It shows that the new technologies are much more efficient and cost effective on average over the previous year, thus costing much less per cell site among all carriers.

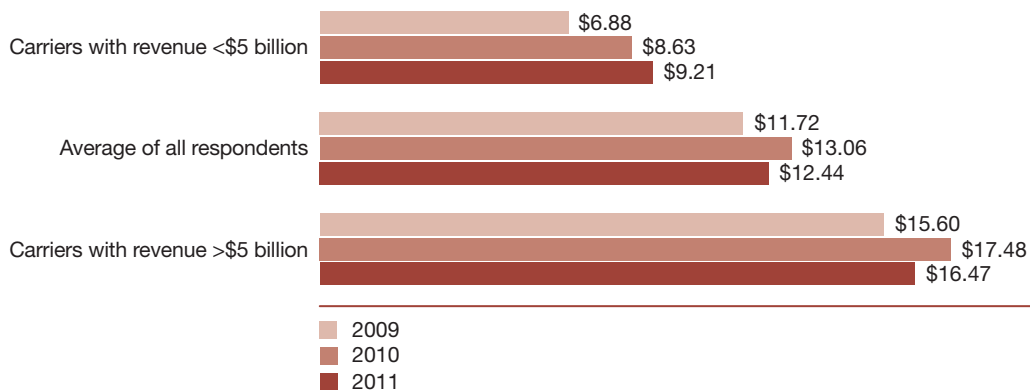
Capital expenditures per average new cell site are depicted in the following chart compared with responses in the 2010 survey.

### Capital expenditures per average new cell site



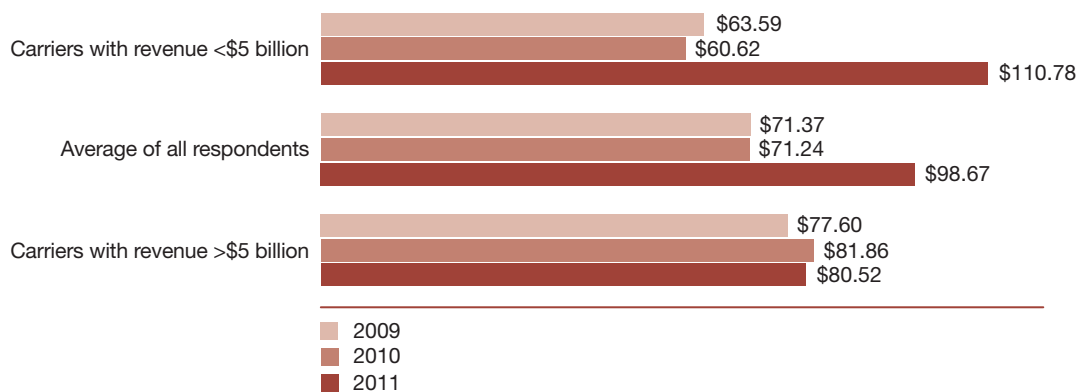
Companies were asked to provide their depreciation expenses per average POP and per average subscriber for fiscal year 2010. The following two charts show the results compared with fiscal year 2008 as depicted in the 2009 survey and 2009 as depicted in the 2010 survey.

### Depreciation expense per average POP



## Property, plant, and equipment

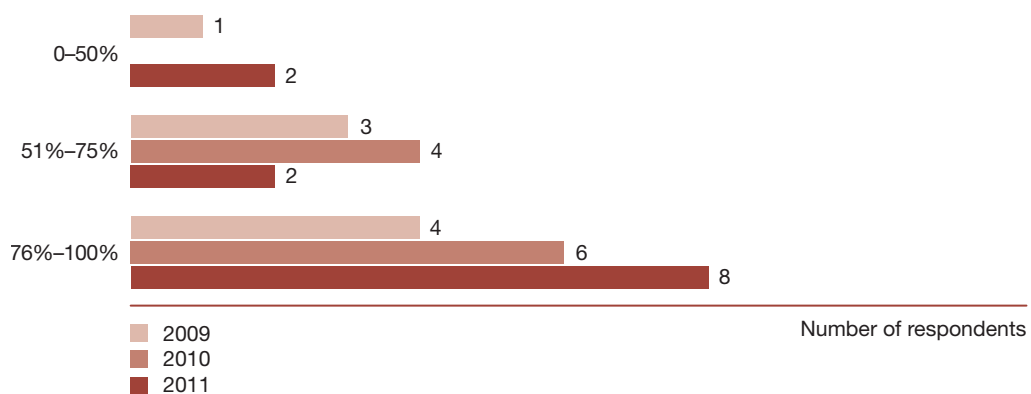
### Depreciation expense per average subscriber



### Technology usage

Companies were asked what percentages of their cell sites and subscriber base are covered by third-generation technology; the following two charts show their responses. As in past years of technology transition, the market is moving rapidly toward near-complete 3G penetration with the advent of 4G technologies.

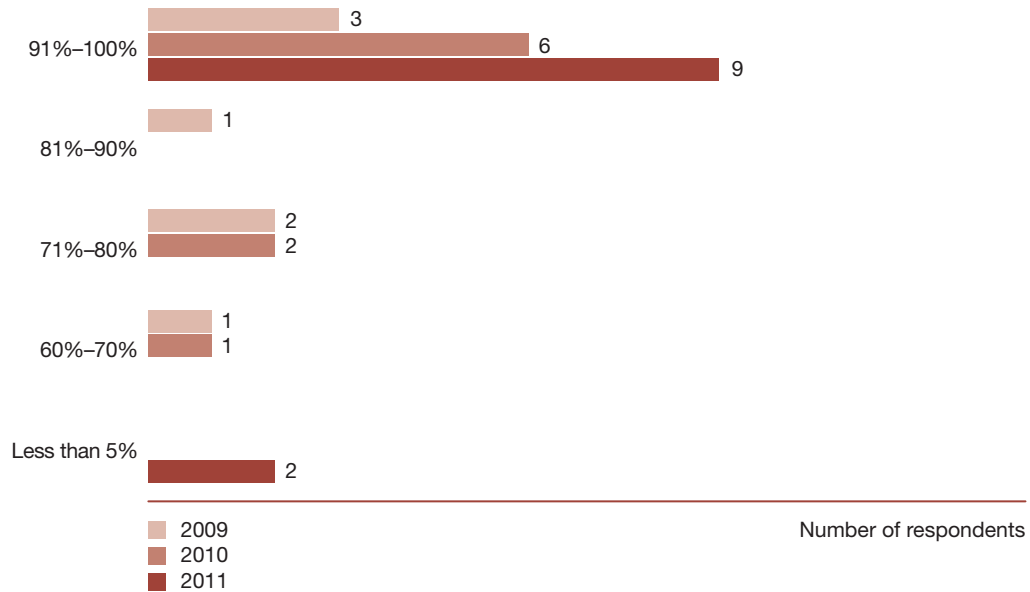
### Percentage of cell sites using 3G technology



No responses were received in the 0%–50% category for 2010.

## Property, plant, and equipment

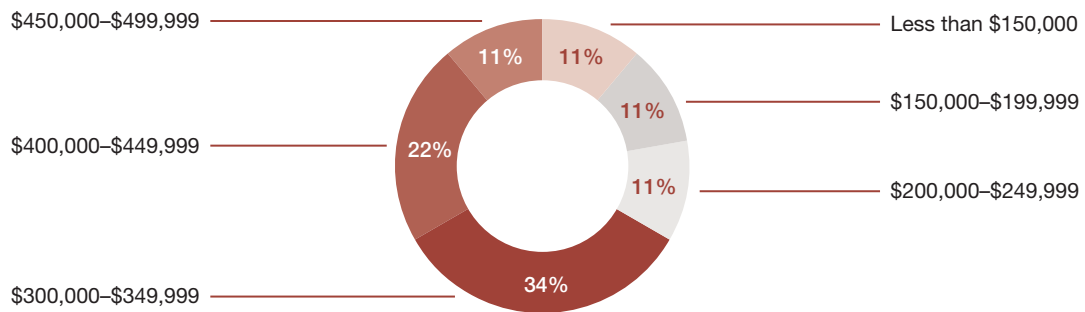
### Percentage of subscriber base covered by 3G technology



No responses were received in the 5.01%–59% category for 2009 and 2010. No responses were received in the 81%–90% category in 2010. No responses were received in the 60%–70%, 71%–80%, and 81%–90% categories for 2011.

The following charts provide the responding companies' average cost for implementing 3G technology at each new and existing cell site.

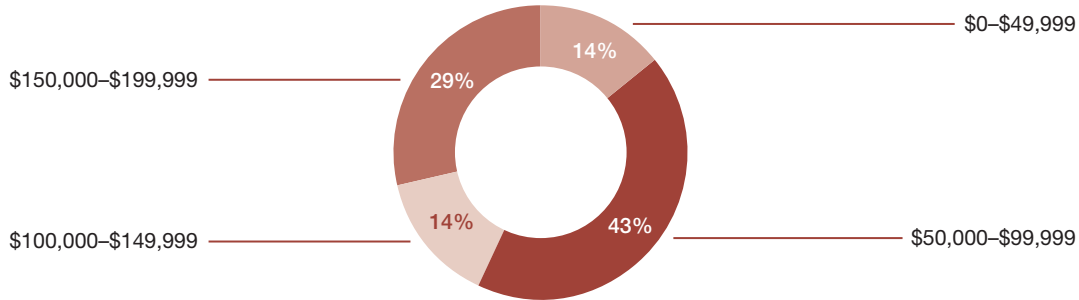
### Average cost per new cell site to implement 3G technology



No responses were received in the \$250,000–\$299,999 or the \$350,000–\$399,999 categories.

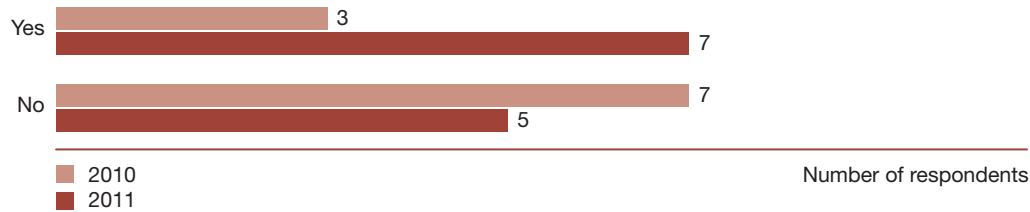
## Property, plant, and equipment

### Average cost per upgraded cell site to implement 3G technology



Fourth-generation technology is used by seven responding companies, compared with three in the 2010 survey. However, at the time this survey was conducted, two additional companies expected to begin utilizing 4G technology in calendar 2011, none in calendar 2012, and three in calendar 2013.

### Companies utilizing 4G technology



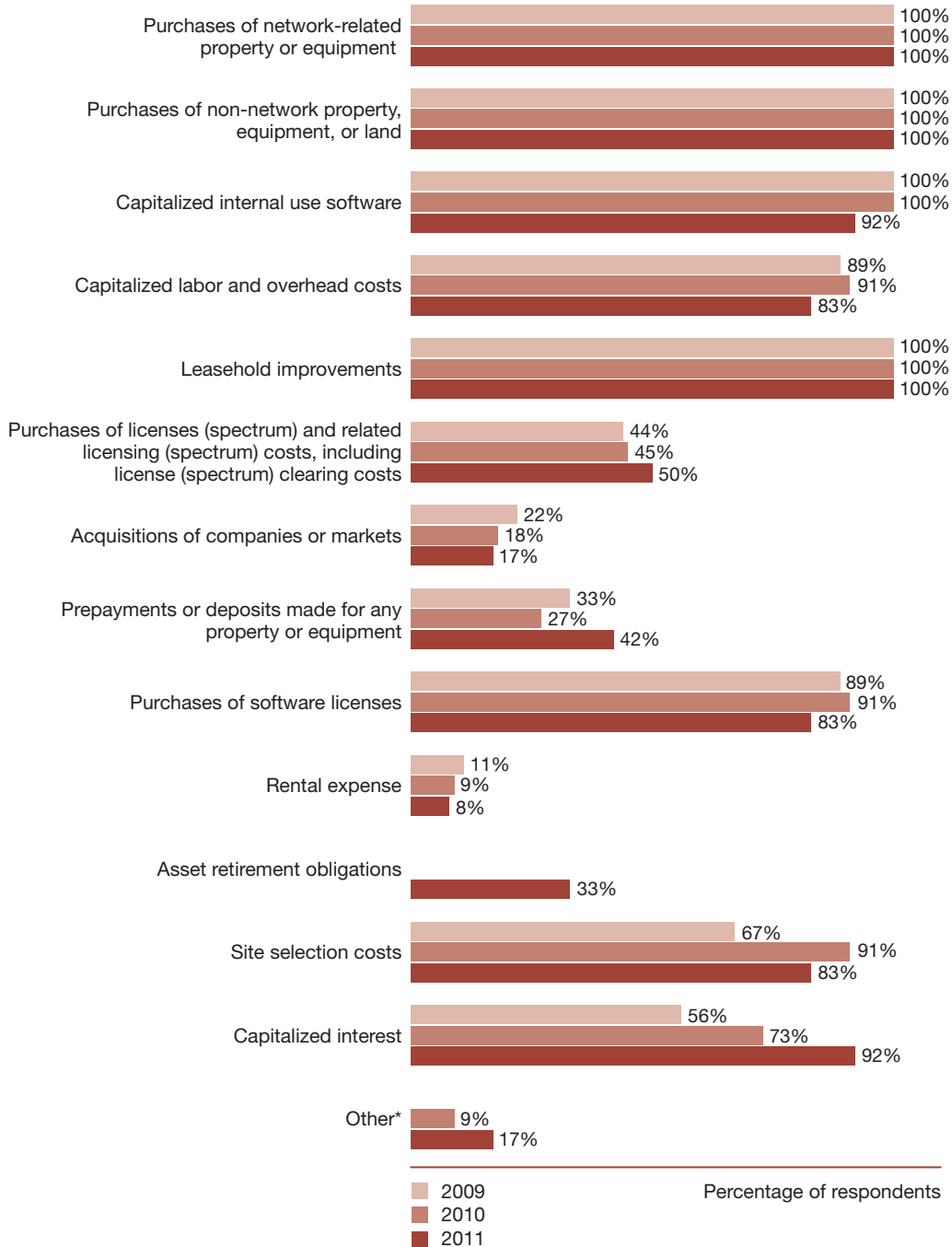
As of June 30, 2011, five responding carriers had their own cell sites that were utilizing 4G technology. For these carriers, on average 46% of their cell sites were using 4G technology and 53% of the subscriber base was covered by 4G technology.

The following chart illustrates the percentage of respondents that include each category of expenditures in their externally reported capital expenditures compared with the 2009 and 2010 surveys.

While many categories of assets are being capitalized on a consistent basis, some categories such as spectrum licenses, asset retirement obligations, and acquisitions continue to be inconsistently applied. The capitalization of spectrum licenses is particularly critical given recent acquisitions of licenses by several major US carriers, as well as the expected auction of additional spectrum for the deployment of mobile broadband.

## Property, plant, and equipment

### Types of capital expenditures



\*Other includes freight and taxes, as well as site selection costs if acquisition is successful.

Chart sums to greater than 100% because multiple responses were allowed.  
No responses were received in the other category for 2009 or the asset retirement obligations category for 2009 and 2010.

## Property, plant, and equipment

Companies were asked how they account for changes needed to internal-use software driven by the movement toward LTE technology, as well as modifications aimed at increasing capacity. The results are shown below.

### Accounting for changes to internal-use software driven by movement toward LTE



Companies were asked how they account for internal-use software modifications aimed at increasing capacity (modifications may or may not be made in connection with a new hardware purchase). Ninety-two percent (92%) replied saying they capitalize costs, or a portion thereof, as part of internal-use software as the modifications are considered to add new functionality. The other 8% stated they use a different method.

## Capitalization policies

The following chart illustrates the types of costs associated with fixed assets that responding companies capitalize. It compares responses from the 2009 and 2010 surveys.

### Types of capital expenditures

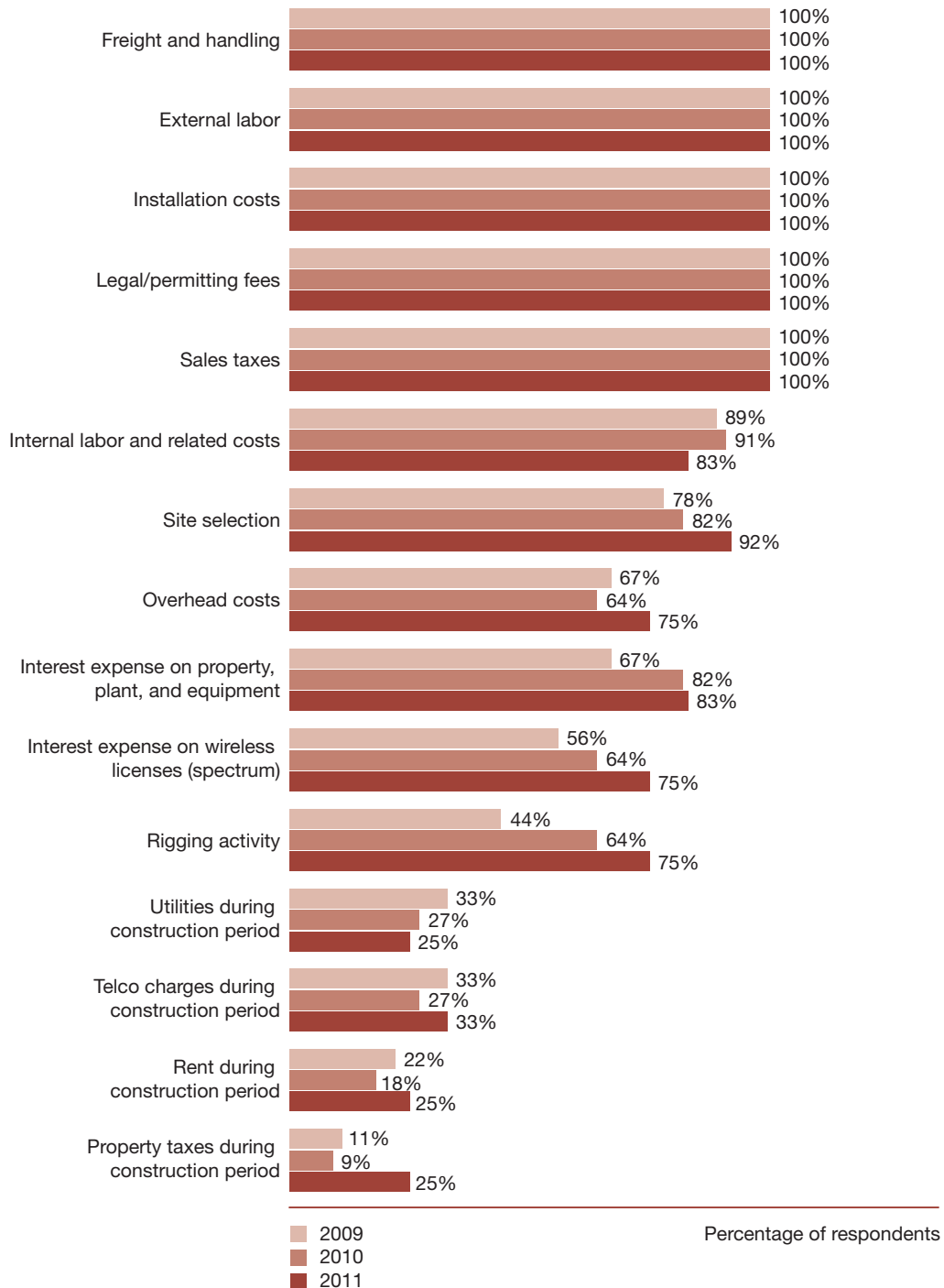


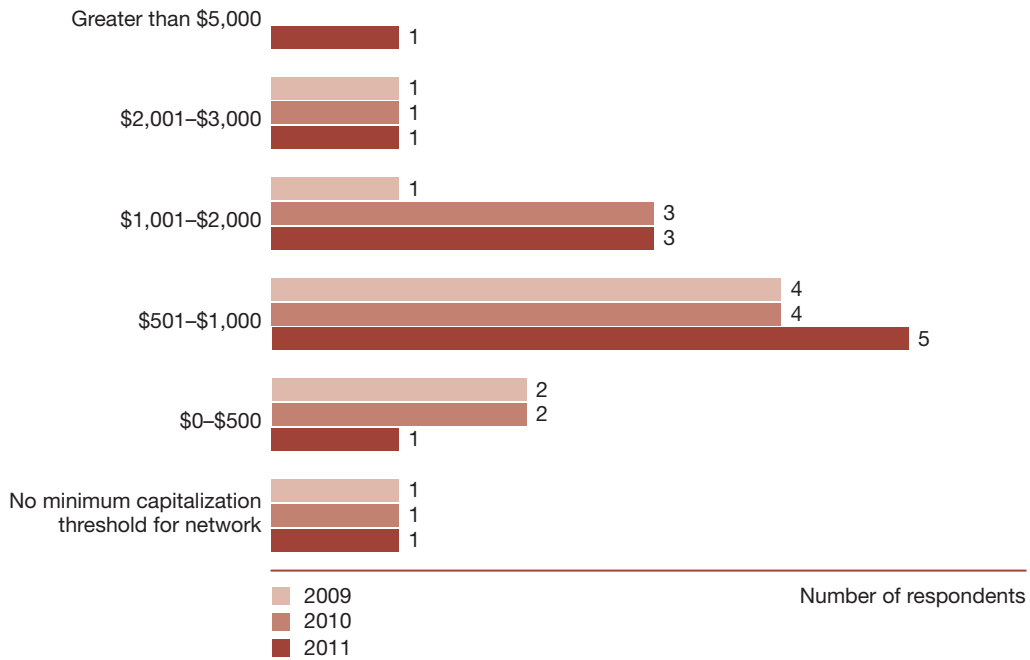
Chart sums to greater than 100% because multiple responses were allowed.



## Property, plant, and equipment

The following chart depicts the responding companies' de minimis levels for the capitalization of property, plant, and equipment. Ninety-two percent (92%) of respondents stated there have been no changes to de minimis levels as reported in the survey in the past two years.

### Minimum capitalization thresholds for property, plant, and equipment



\*No responses were received in the greater than \$5,000 category for 2009 and 2010.

Companies were asked whether they receive rebates from their equipment vendors based on a specified level of fixed-asset purchases or other commitments. Ninety-two percent (92%) of the respondents indicated they receive these types of rebates from equipment vendors. Forty-five percent (45%) reduce the cost basis of equipment at the time of purchase based on an estimate of the rebates to be received, and 55% reduce the cost basis only at the time the rebate has been earned (such as when a specified level of purchases has been met).

### **Capitalized labor**

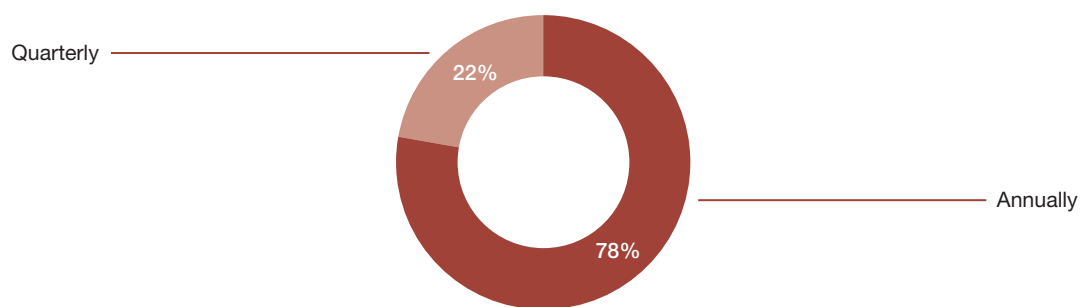
Sixty-four percent (64%) of responding companies determine or quantify their internal capitalized labor amounts by using an indirect method. In comparison, 18% utilize direct costs, and another 18% use either a combination of both methods or a nonspecified method.

The following charts depict the frequency of cost studies that are used for determining the internal capitalized labor cost. Annual cost studies are the most common and rose 11% as the favored approach, from 78% to 89%, between 2010 and 2011.

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#### **Capitalized labor 2010**

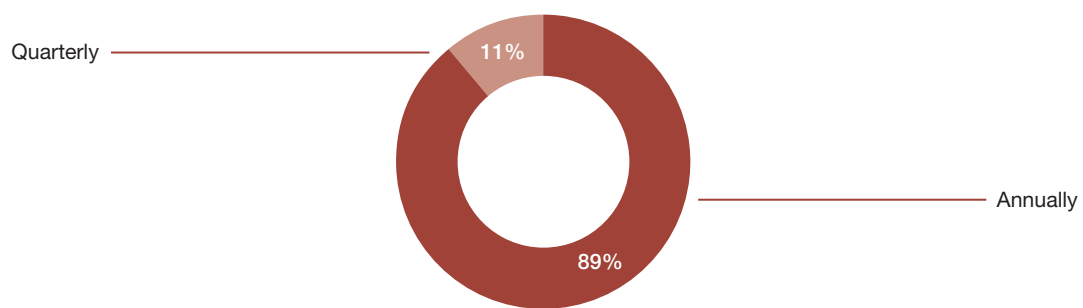
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#### **Capitalized labor 2011**

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## Property, plant, and equipment

The following chart illustrates the types of expenses that the responding companies include in their internal capitalized labor costs.

### Types of internal capitalized costs

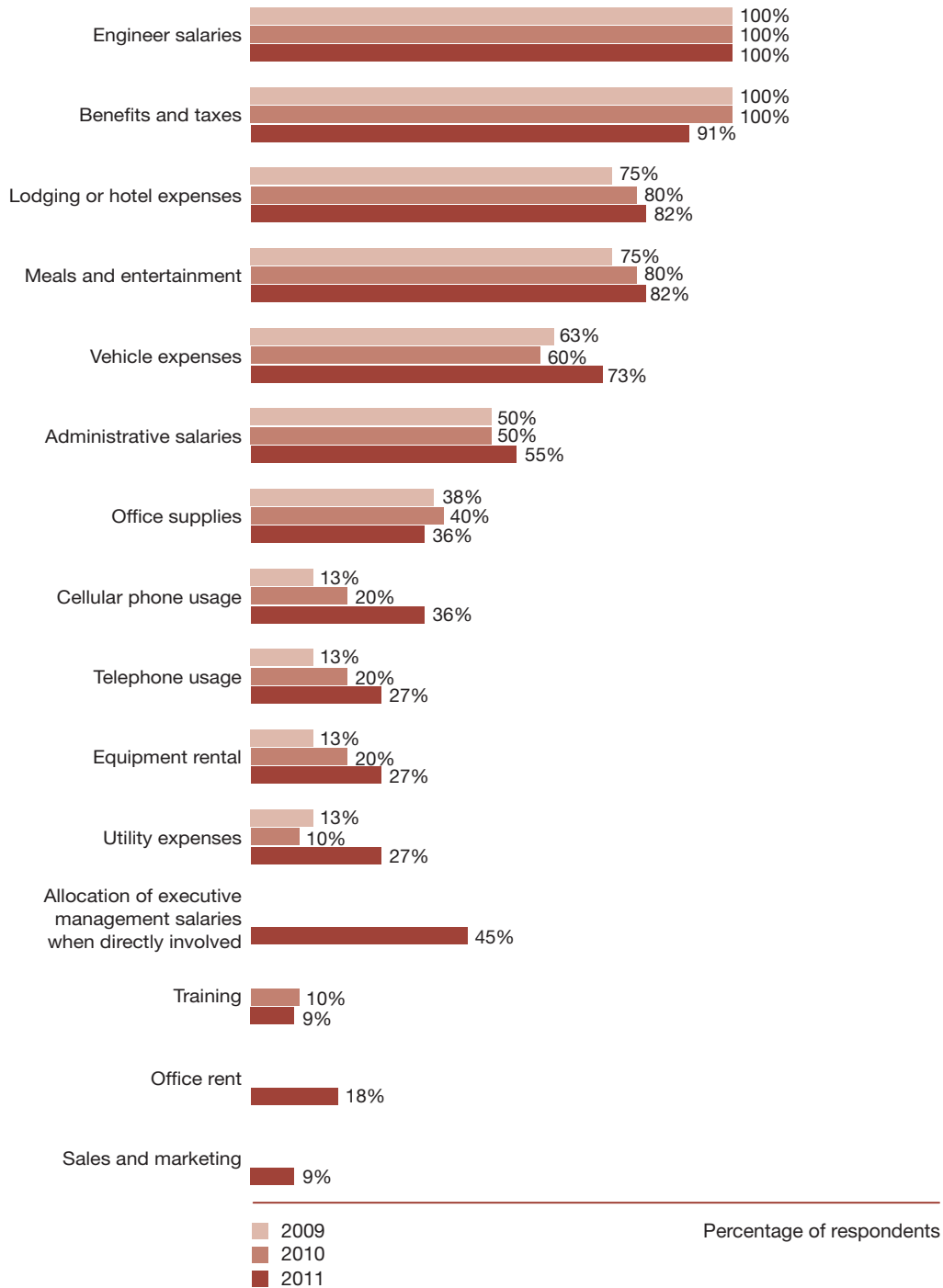


Chart sums to greater than 100% because multiple responses were allowed.

No responses were received in allocation of executive management salaries for 2009 and 2010, training for 2009, office rent for 2009 and 2010, and sales and marketing for 2009 and 2010.

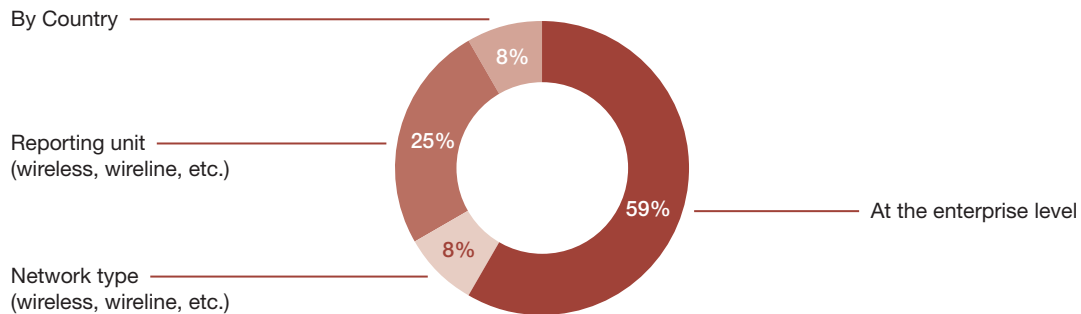
## Property, plant, and equipment

### Asset impairments and fair value

Ninety-one percent (91%) of respondents indicated they exclude asset impairment charges from their earnings before interest, taxes, depreciation, and amortization calculations.

The following chart indicates how respondents define the lowest level of cash flows for purposes of asset impairment testing under applicable accounting standards. Similar to the 2009 and 2010 surveys, the majority of respondents define the enterprise level to be the lowest.

#### Lowest level of cash flows



Seventy-five percent (75%) of the responding companies indicated their definition of the lowest level of cash flows/cash-generating units under applicable accounting standards is consistent with their operating segments' level. The remaining 25% indicated their level is generally at or lower than the operating-segment level.

### Business combinations

Some respondents perform fair value analyses related to business combinations and in accordance with applicable accounting standards to allocate the purchase price. Of them, 10% indicated the analysis is performed internally; 45% indicated they use the assistance of a third party; and another 45% use a combination of internal and third-party resources. Fifty-eight percent (58%) of respondents indicated they completed a business combination within the past three years.

## Property, plant, and equipment

The following charts depict the types of valuation methodologies the respondents use in determining fair values related to business combinations and purchase price allocations and the valuation methodology that is most commonly used.

### Valuation methodologies for business combinations and purchase price allocations

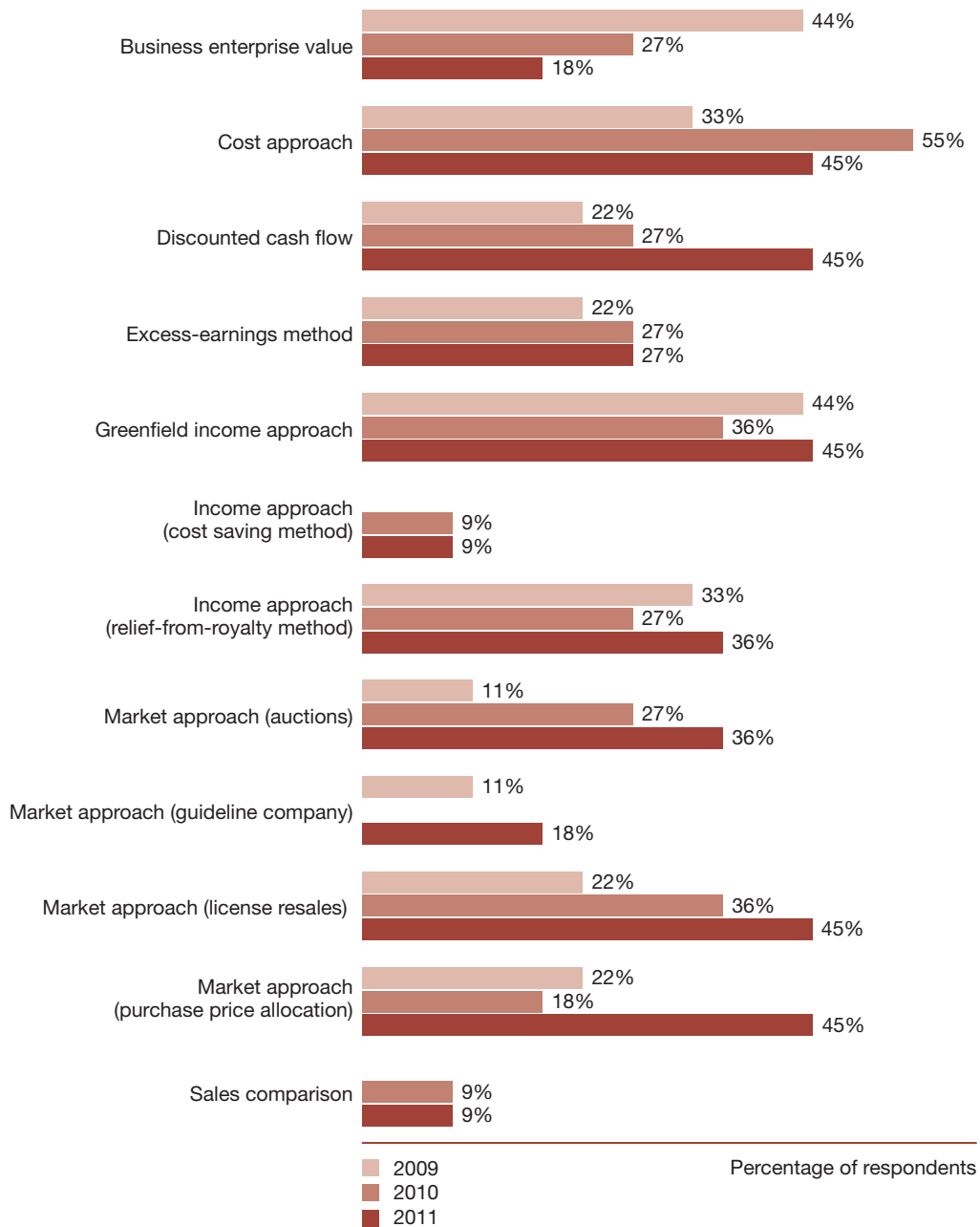
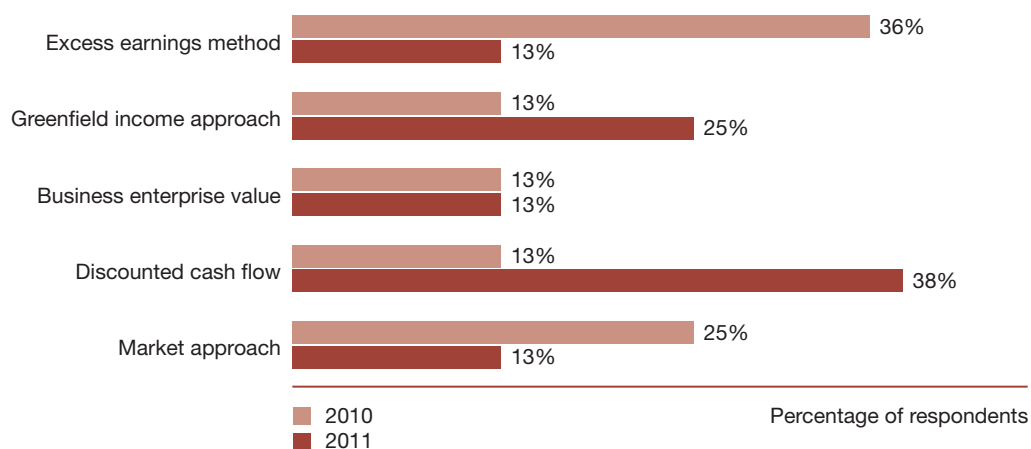


Chart sums to greater than 100% because multiple responses were allowed.

No responses were received in the income approach (cost saving method) and sales comparison categories for 2009 or the market approach (guideline company) category for 2010.

## Property, plant, and equipment

### Valuation methodologies for business combinations and purchase price allocations that are most heavily weighted/used



Of the respondents that perform fair value analyses for valuations related to annual impairment testing for goodwill and indefinite-lived intangible assets, 25% indicated the analysis is performed internally; 50% indicated they use the assistance of a third party; and the remaining 25% use a combination of internal and third-party resources.

## Property, plant, and equipment

The following charts depict the types of valuation methodologies respondents use for determining fair values related to annual impairment testing for goodwill and indefinite-lived intangible assets and the valuation methodologies most commonly used.

### Types of valuation methodologies for annual impairment testing

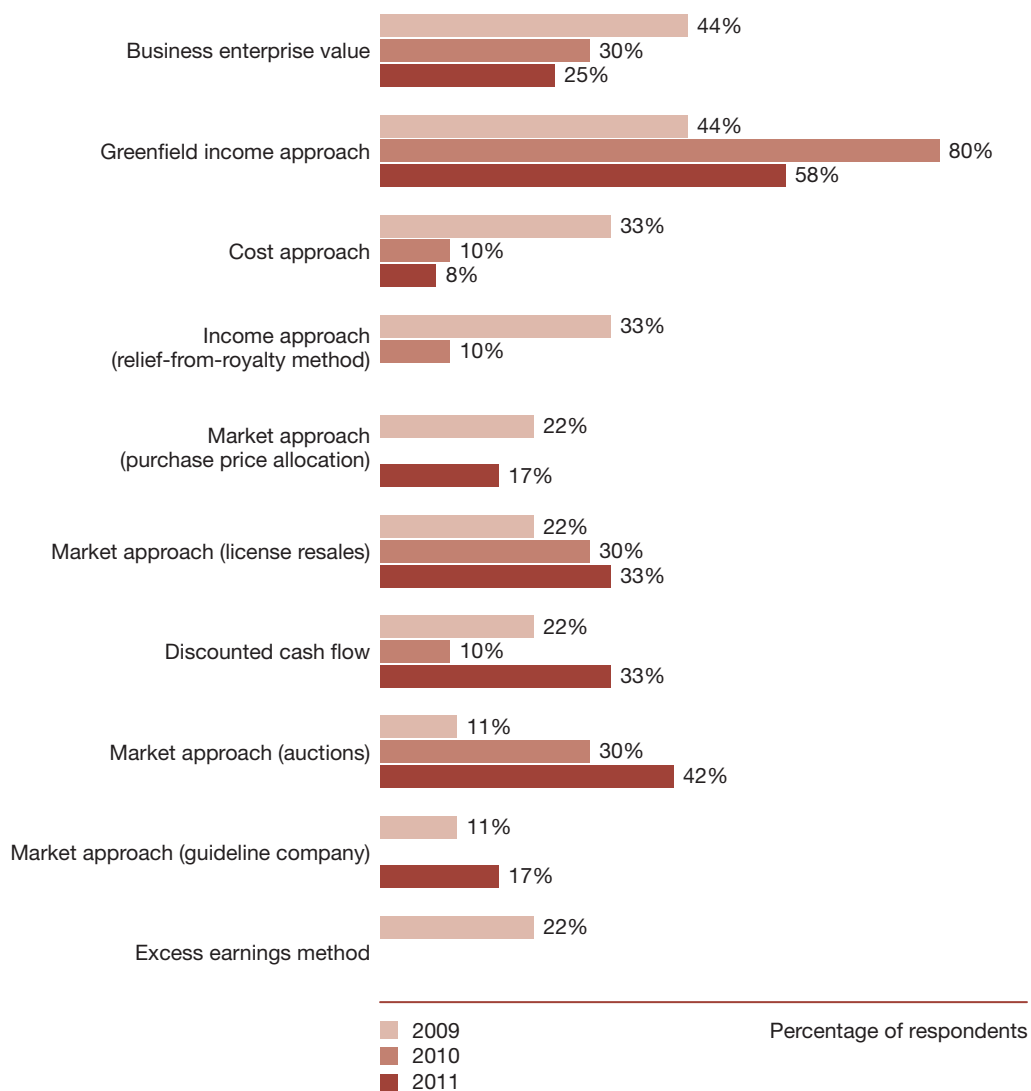
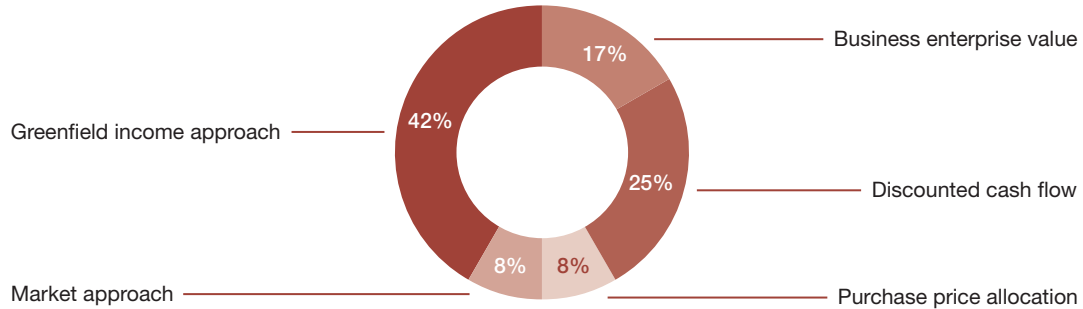


Chart sums to greater than 100% because multiple responses were allowed. No responses were received in the excess earnings method category for 2010 and 2011, the market approach (purchase price allocation) and market approach (guideline company) categories for 2010, or the income approach (relief-from-royalty method) category in 2011.

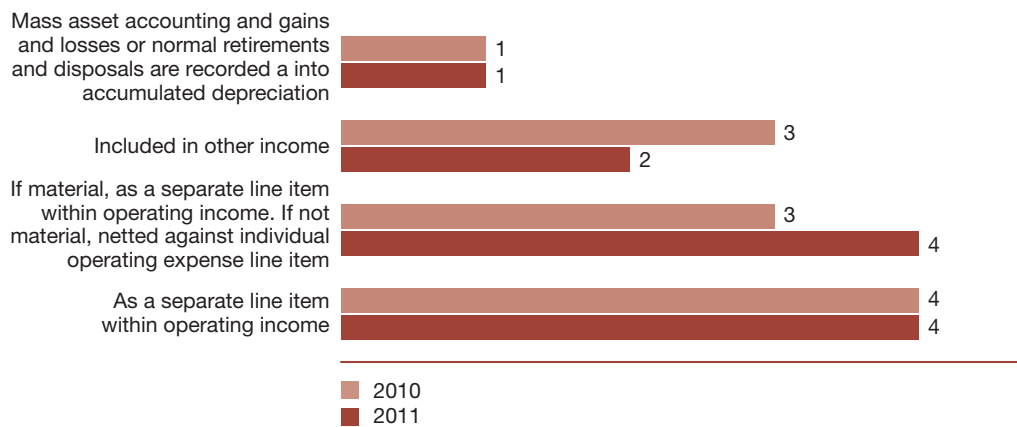
## Property, plant, and equipment

### Valuation methodologies for annual impairment testing that are most heavily weighted/used



The following chart depicts the financial statement line item on which responding companies record a resulting gain or loss upon the sale of a long-lived asset or group of assets. The results are largely consistent with the 2010 survey.

### Recording gain/loss from sale of long-lived assets



Fifty percent (50%) of the responding carriers have recorded an impairment or accelerated depreciation. These changes largely resulted from equipment being replaced because of technological updates that rendered the equipment obsolete, strategic decisions, or divesting of markets. We expect that this number may increase in the coming years, as the widespread deployment of 4G technologies and evolution of voice services to 4G-based solutions renders some legacy equipment obsolete.



## Asset useful lives

The following chart depicts the respondents' fixed-asset components that are tracked and depreciated separately within the respondents' fixed-asset systems.

### Separately tracked and depreciated fixed-asset components

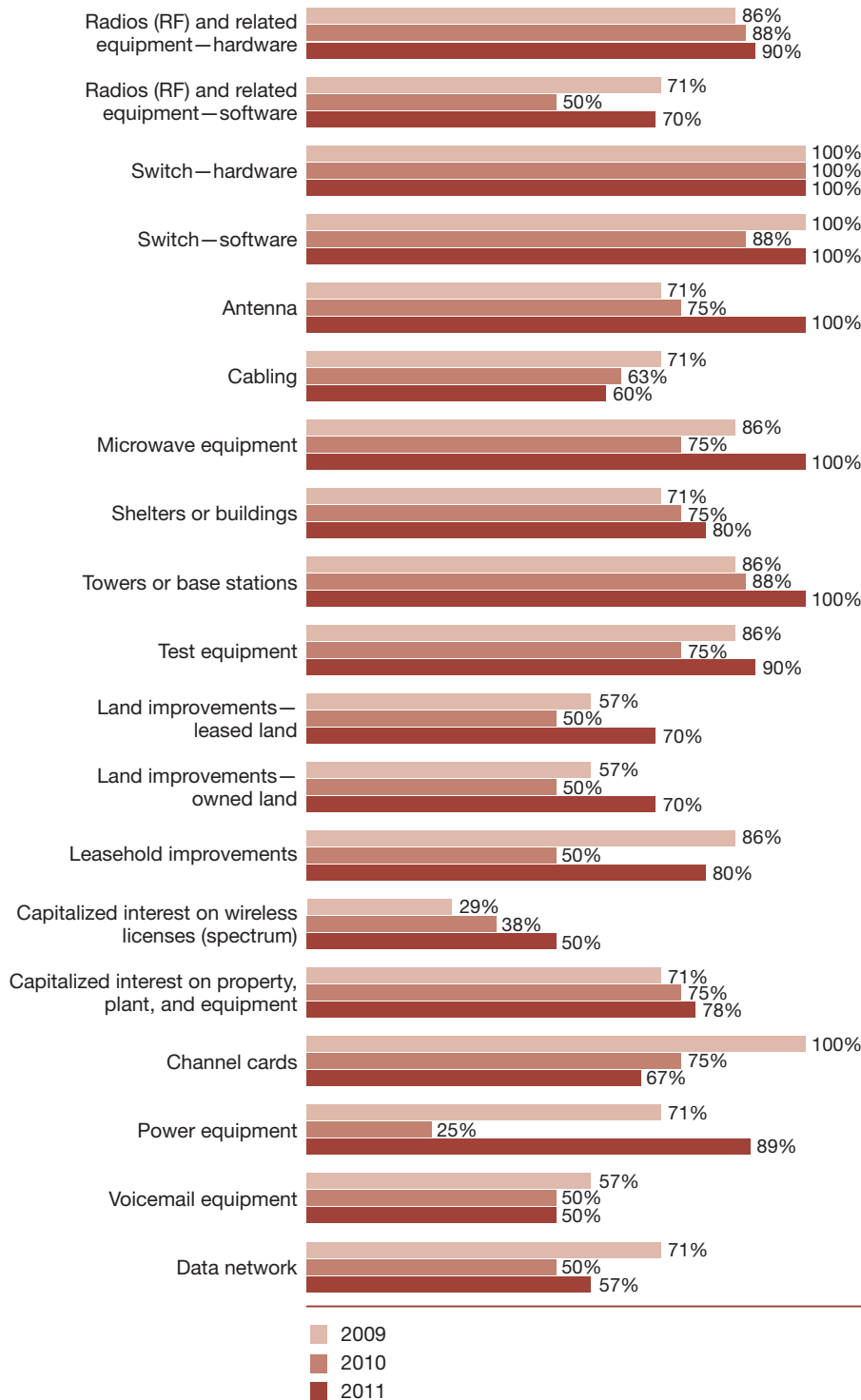
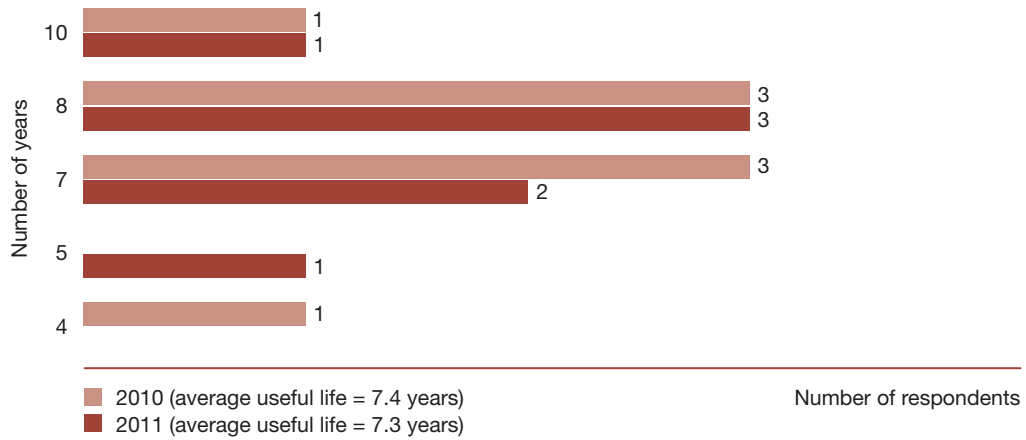


Chart sums to greater than 100% because multiple responses were allowed.

## Property, plant, and equipment

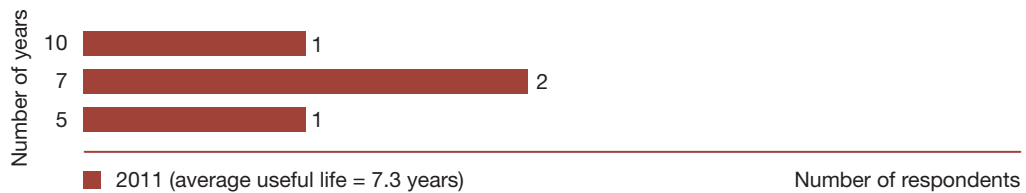
The following charts illustrate the depreciation lives for the fixed-asset components that are tracked and depreciated separately. The charts are separated into the depreciation lives for 3G and 4G for each fixed-asset component.

### Radios (RF) and related equipment—hardware 3G



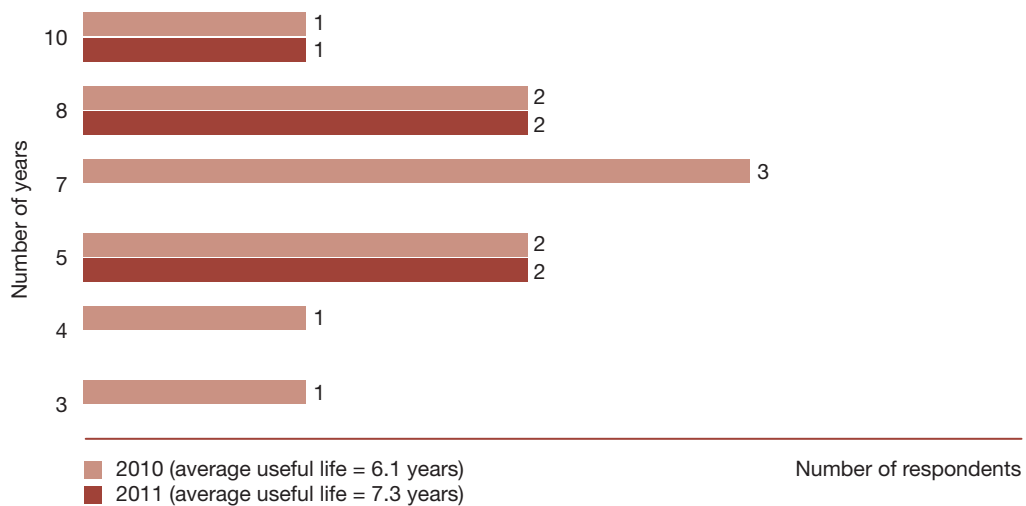
No responses were received in the 5 years category for 2010 or the 4 years category for 2011.

### Radios (RF) and related equipment—hardware 4G



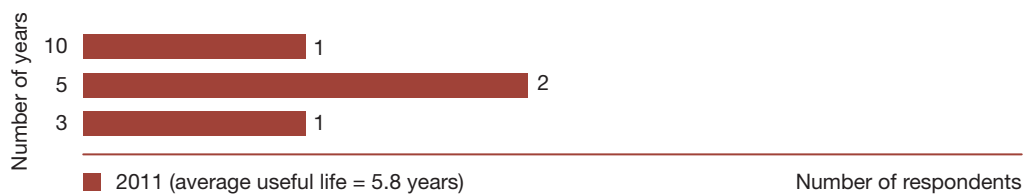
## Property, plant, and equipment

### Radios (RF) and related equipment – software 3G

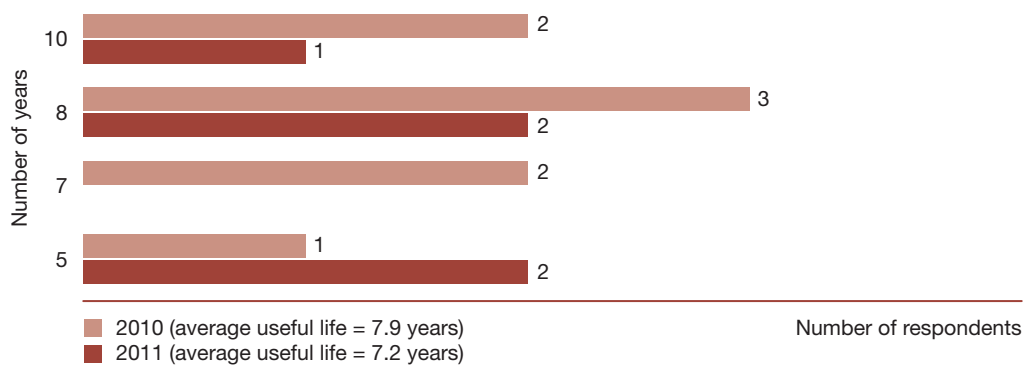


No responses were received in the 3 or 4 years category for 2011.

### Radios (RF) and related equipment – software 4G



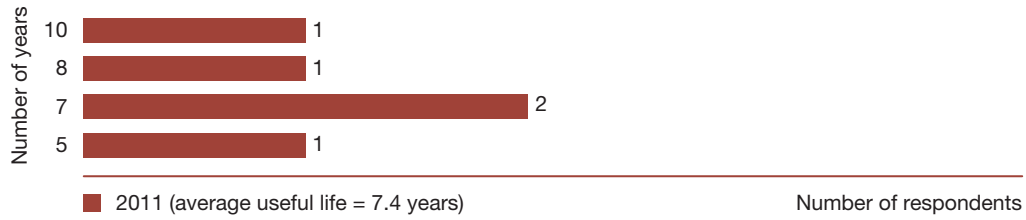
### Switch – hardware 3G



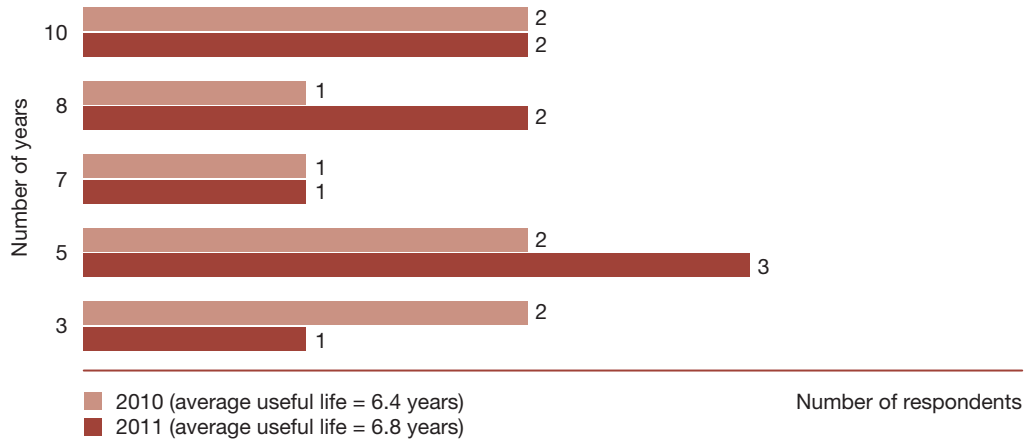
No responses were received in the 7 years category for 2011.

## Property, plant, and equipment

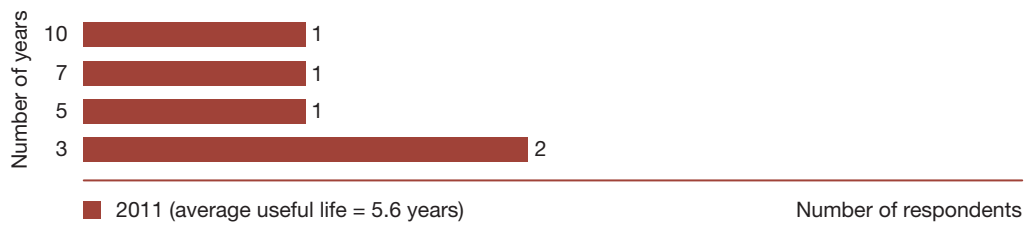
### Switch – hardware 4G



### Switch – software 3G

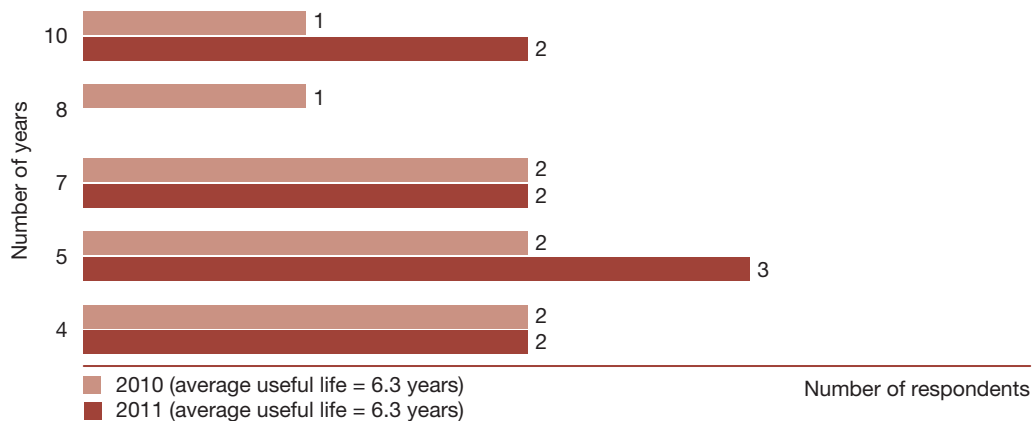


### Switch – software 4G



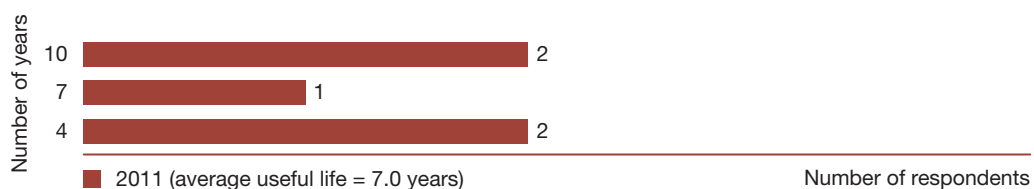
## Property, plant, and equipment

### Antenna 3G

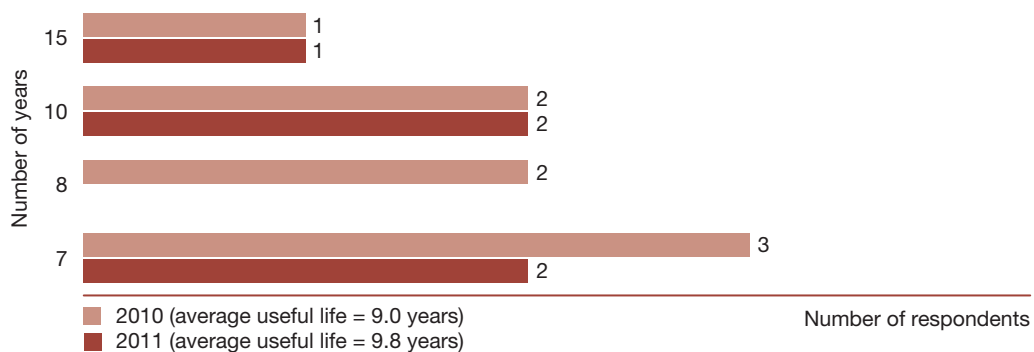


No responses were received in the 8 years category for 2011.

### Antenna 4G



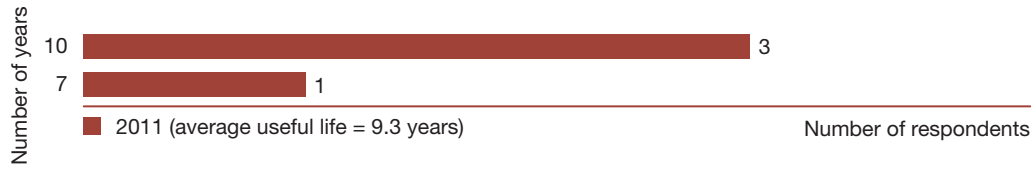
### Cabling 3G



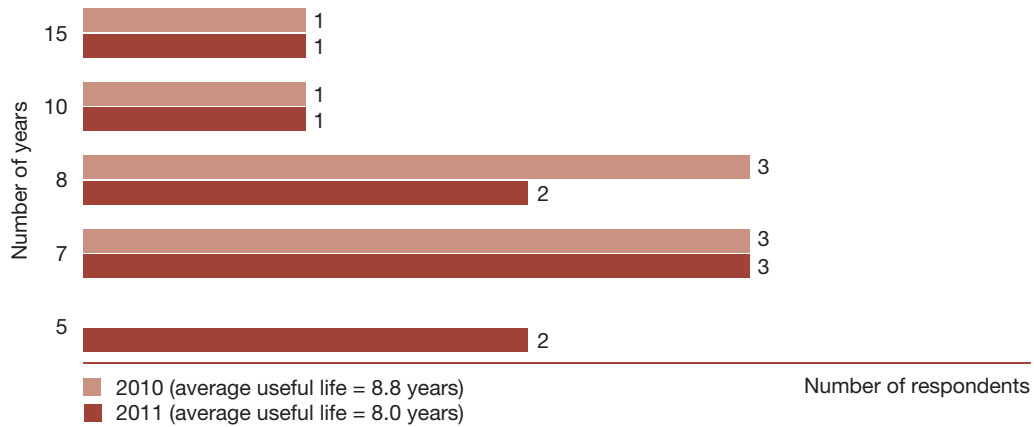
No responses were received in the 8 years category for 2011.

## Property, plant, and equipment

### Cabling 4G

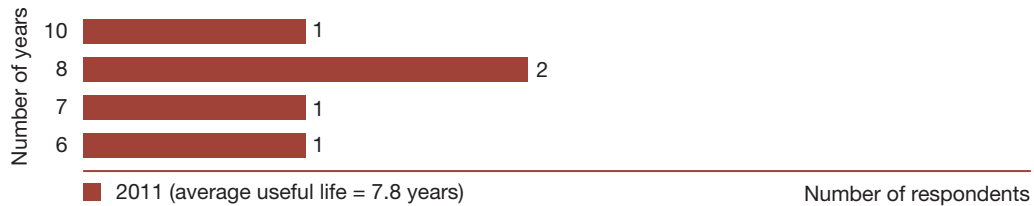


### Microwave equipment 3G



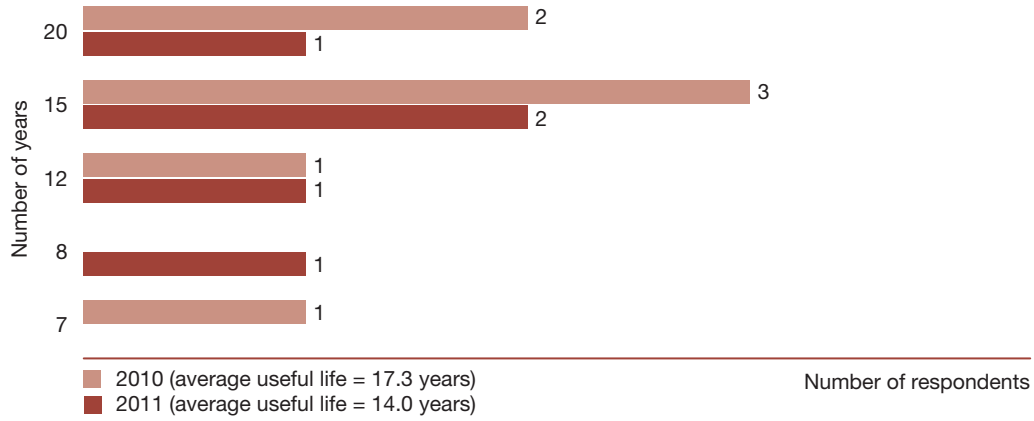
No responses were received in the 5 years category for 2010.

### Microwave equipment 4G



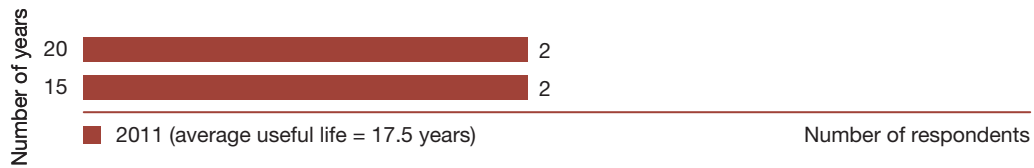
## Property, plant, and equipment

### Shelters/buildings 3G



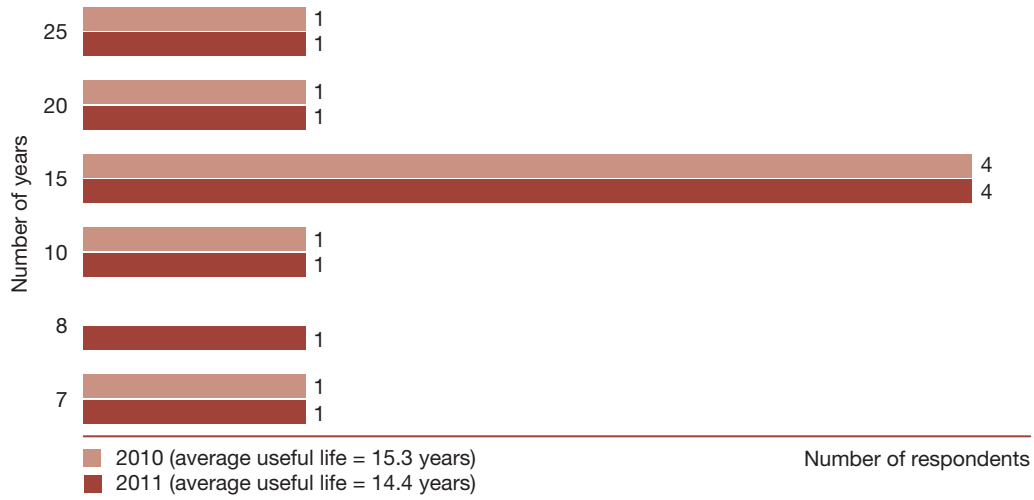
No responses were received in the 7 years category for 2011 or the 8 years category for 2010.

### Shelters/buildings 4G



## Property, plant, and equipment

### Towers/base stations 3G



No responses were received in the 8 years category for 2010.

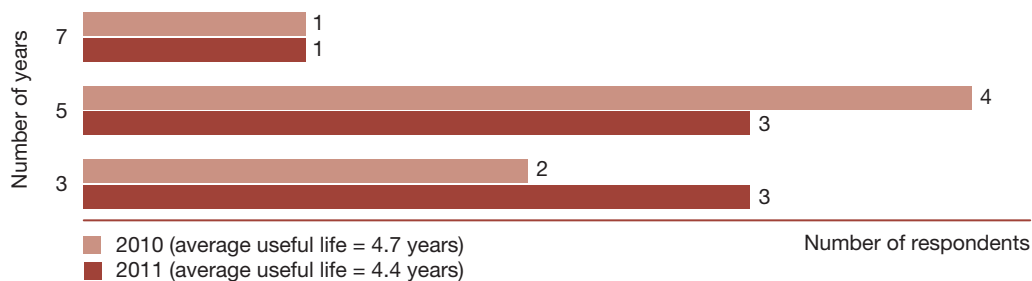
### Towers/base stations 4G



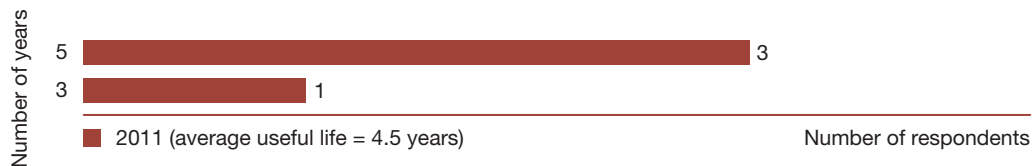


## Property, plant, and equipment

### Test equipment 3G



### Test equipment 4G

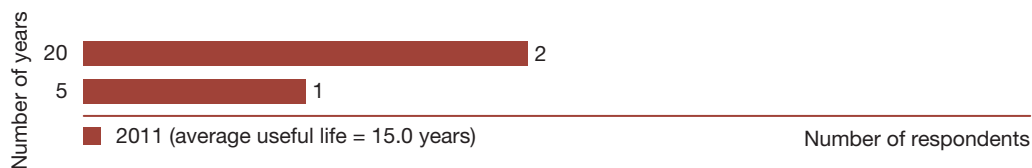


### Land improvements—leased land 3G



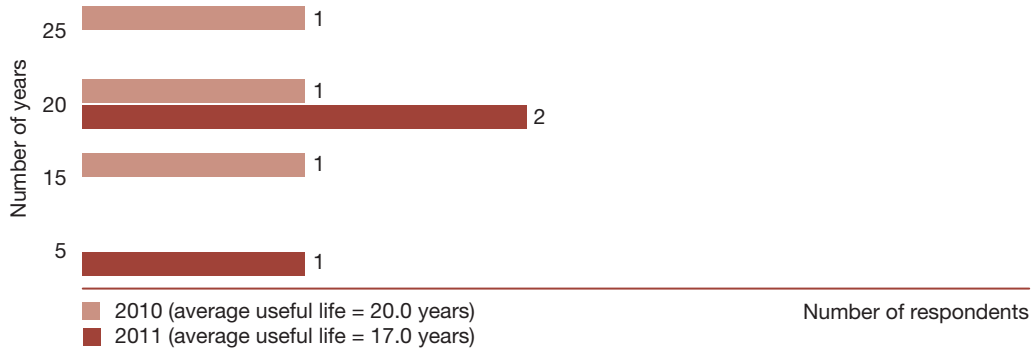
No responses were received in the 31 years category for 2010.

### Land improvements—leased land 4G



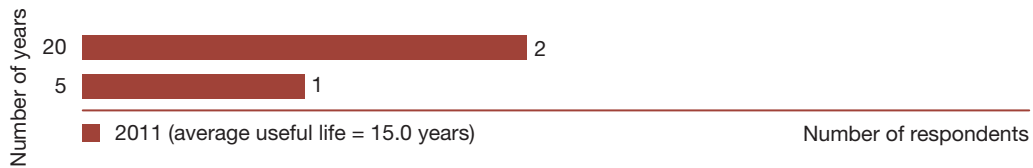
## Property, plant, and equipment

### Land improvements—owned land 3G

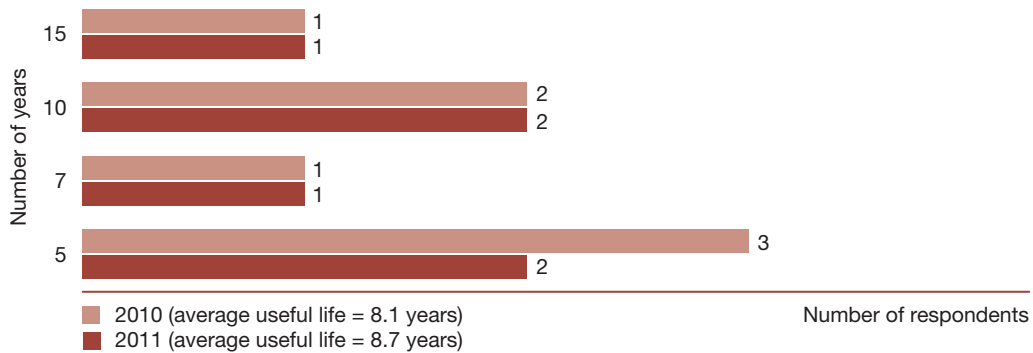


No responses were received in the 25 and 15 years categories for 2011 or the 5 years category for 2010.

### Land improvements—owned land 4G

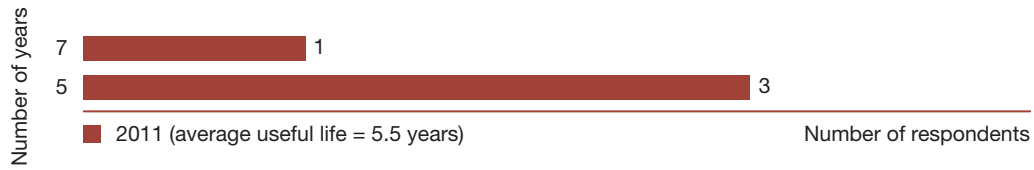


### Leasehold improvements 3G

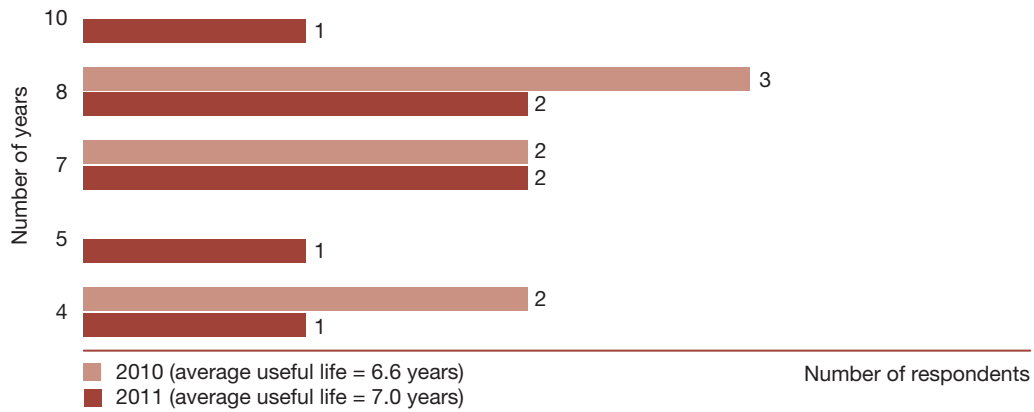


## Property, plant, and equipment

### Leasehold improvements 4G



### Channel cards 3G



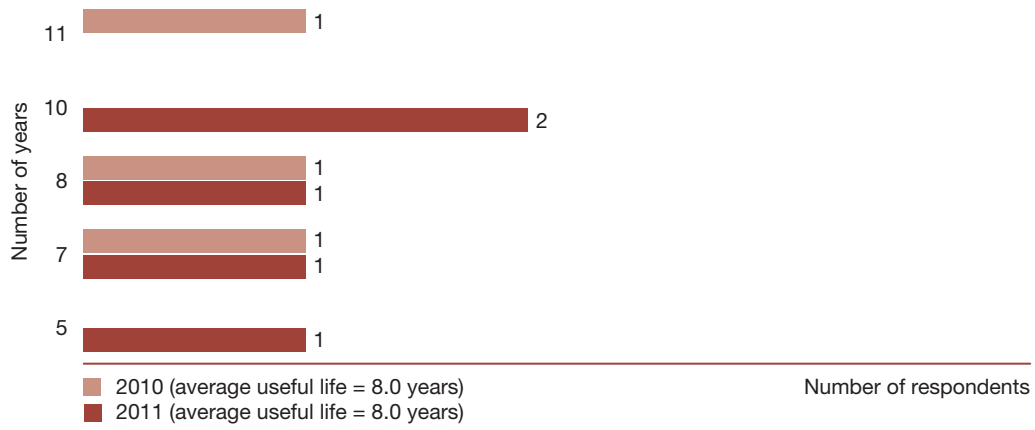
No responses were received in the 10 and 5 years categories for 2010.

### Channel cards 4G



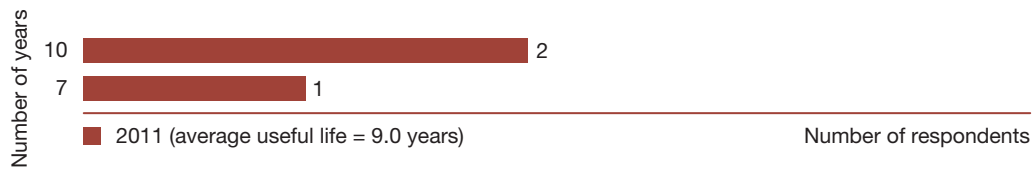
## Property, plant, and equipment

### Power equipment 3G



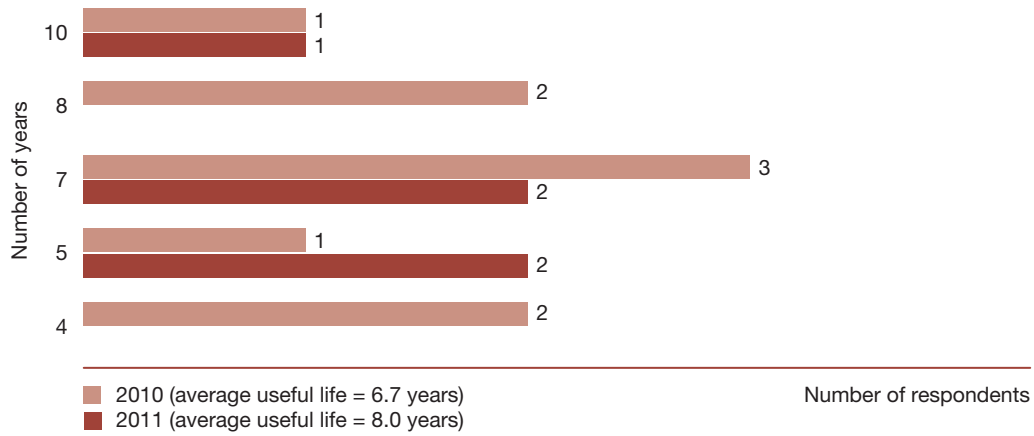
No responses were received in the 11 years category for 2011 or the 10 and 5 years categories for 2010.

### Power equipment 4G



## Property, plant, and equipment

### Voice mail equipment 3G



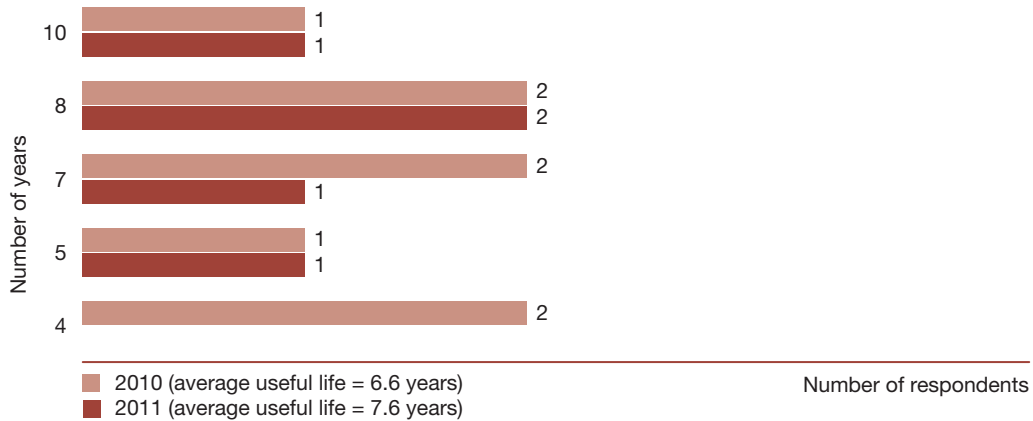
No responses were received in the 8 and 4 years categories for 2011.

### Voice mail equipment 4G



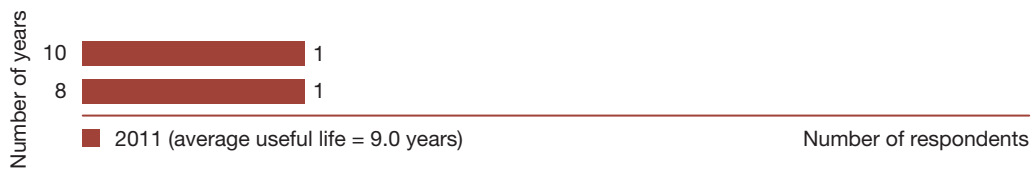
## Property, plant, and equipment

### Data network 3G



No responses were received in the 4 years category for 2011.

### Data network 4G



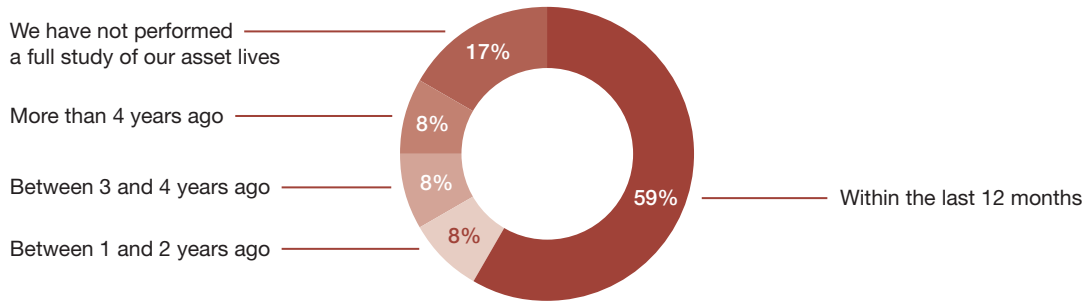
Companies were asked whether they changed any of their fixed-asset useful lives during the previous year. Fifty percent (50%) of the current-year respondents had changes in the useful lives of their fixed assets compared with 36% of respondents in the 2010 survey. Sixty-six percent (66%) of the respondents that indicated changes in their fixed-asset useful lives during the previous year said the changes generally increased depreciation expense. The responding companies indicated that the reasons for changes resulted from company-specific replacement plan of assets, analysis of asset base, lease life changes, technological developments, and conversion to International Financial Reporting Standards.

Advances in technology are a cause for review of some fixed-asset useful life assumptions. For example, as network equipment has become more compact and energy-efficient, the usefulness of large shelters, racks, and power supplies has rapidly diminished. In some cases, network operators have begun upgrading their networks to smaller, more efficient outdoor cabinets, rendering larger, older infrastructure irrelevant altogether. Just as this is likely to drive accelerated depreciation for legacy assets, it may also be an indicator that future asset lives may be shorter than previous generations as technology continues to evolve.

## Property, plant, and equipment

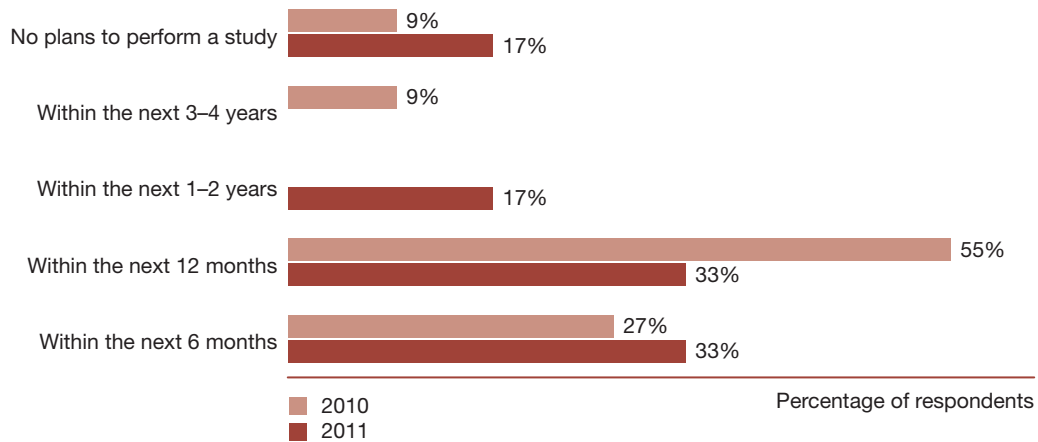
The following chart illustrates the last time the respondents performed full studies of their fixed-asset useful lives.

### Most recent fixed-asset useful-life study



Companies were asked to indicate when they plan to perform their next studies of asset lives. The chart below illustrates the responses compared with the 2010 survey. For all responding companies that indicated they do useful-life studies, they said they use internal resources when conducting analyses of asset lives.

### Next planned fixed-asset useful-life study



No responses were received in the next 3-4 years category for 2011 or the next 1-2 years category for 2010.

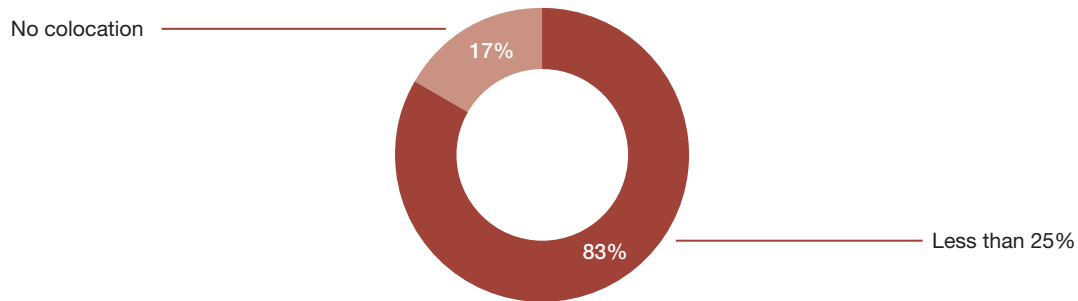
## **Colocation**

The following chart depicts the approximate percentages of respondents' total cell sites that generate colocation receipts. As has been the trend in recent years, few cell sites are currently generating colocation receipts because of the increased usage of shared towers and other site facilities owned or operated by tower leasing companies.

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### **Colocation receipts**

---

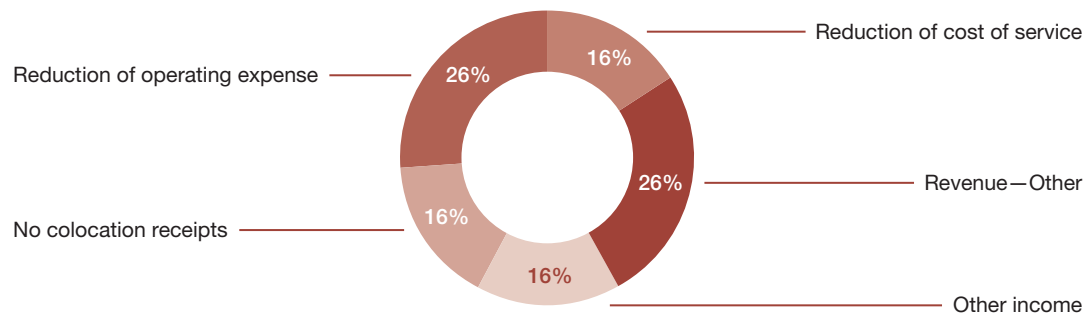


The following chart depicts where the respondents record colocation receipts on their income statements.

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### **Classification of colocation receipts on income statement**

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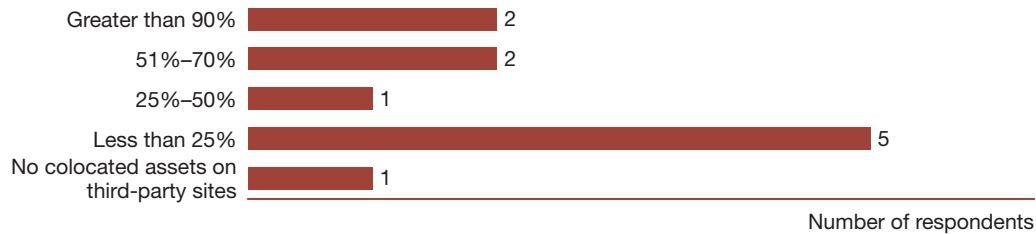
For those responding companies that record colocation receipts on the revenue financial statement line item, 60% indicated that these amounts are recorded in other revenue compared with 37% in the 2010 survey.



## Property, plant, and equipment

Companies were asked what percentage of assets are colocated on third-party sites. The results are presented in the following chart.

### Percentage of assets colocated on third-party sites

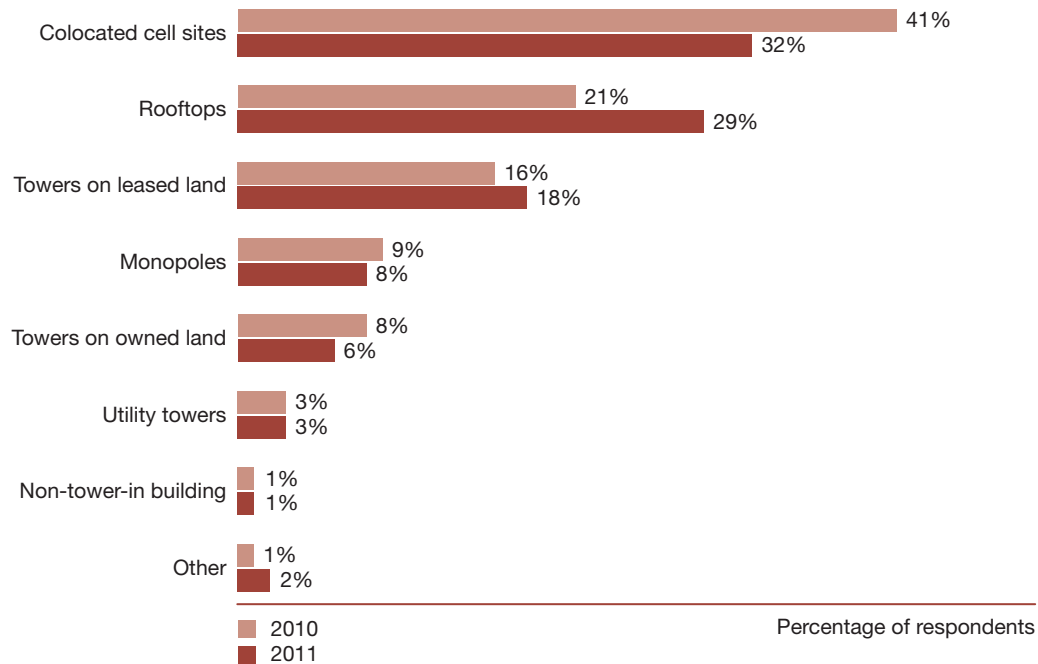


Sixty percent (60%) of the responding companies indicated they record colocation costs on the income statement in cost of services/revenue, while 20% indicated they record the costs in rent expense and 20% record in operating expense.

## Asset retirement obligations

Responding companies were asked to indicate the locations of their cell sites. The results are presented in the following chart compared with the 2010 survey.

### Type of cell site utilized



## Property, plant, and equipment

The average cost per cell site for the current year and 2010 surveys are included in the chart below.

	2011	2010
Colocated cell sites	\$211,412	\$231,386
Rooftops	\$126,012	\$218,750
Towers on leased lands	\$202,142	\$244,855
Monopoles	\$226,394	\$355,162
Towers on owned land	\$184,687	\$200,379
Utility towers	\$160,897	\$215,135
Non-tower-in building	\$103,595	\$161,099

Of the respondents that indicated they record asset retirement obligations, the following chart summarizes the costs included in the respective calculations.

### Costs included in asset retirement obligation calculation

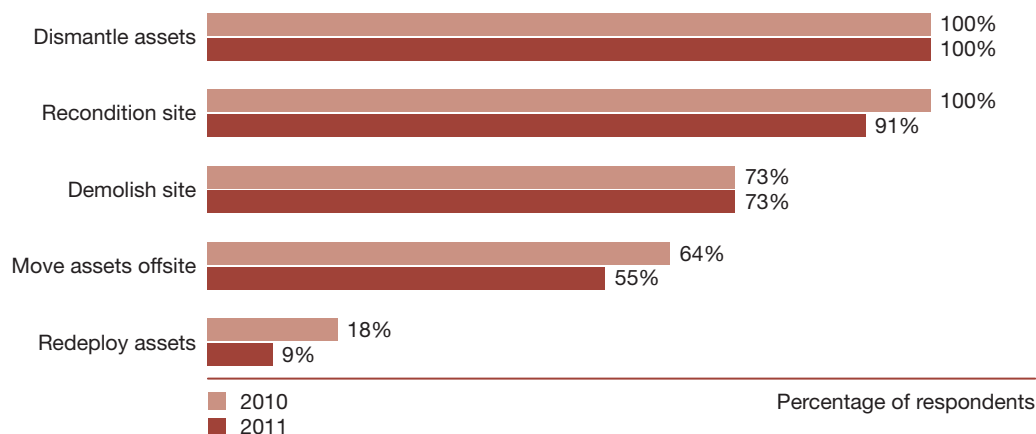


Chart sums to more than 100% because multiple responses were allowed.

Forty-five percent (45%) of the responding companies indicated that lessors have required remediation or restoration activities related to termination of cell site leases an average of 54% of the time. During 2010, responding companies completed remediation activities associated with mobile telephone switching offices, cell towers (located on rooftops, colocated, and utility towers), retail facilities, and general and administrative buildings.

The survey asked companies whether they factored the probability of the lessor enforcement into the calculation of their asset retirement obligation liabilities. Fifty-eight percent (58%) of the respondents factor the probability of lessor enforcement into the calculation of their asset retirement obligation liabilities compared with 73% in the 2010 survey.

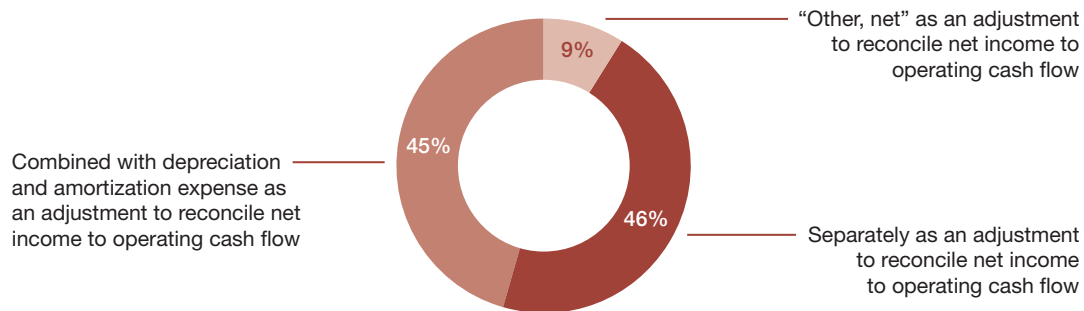
## Property, plant, and equipment

Responding companies continue to be split on the classification of asset retirement obligation accretion expense in the income statement. Fifty-four percent (54%) record the asset retirement obligation expense as an operating expense line item other than depreciation expense, and 46% record the expense within depreciation and amortization.

Of those companies that record accretion expense as an operating expense line item other than depreciation and amortization, 18% record it as cost of services or an equivalent cost line item; 18% record it in selling, general, and administrative; and 64% record it as a separate line item in the financial statements.

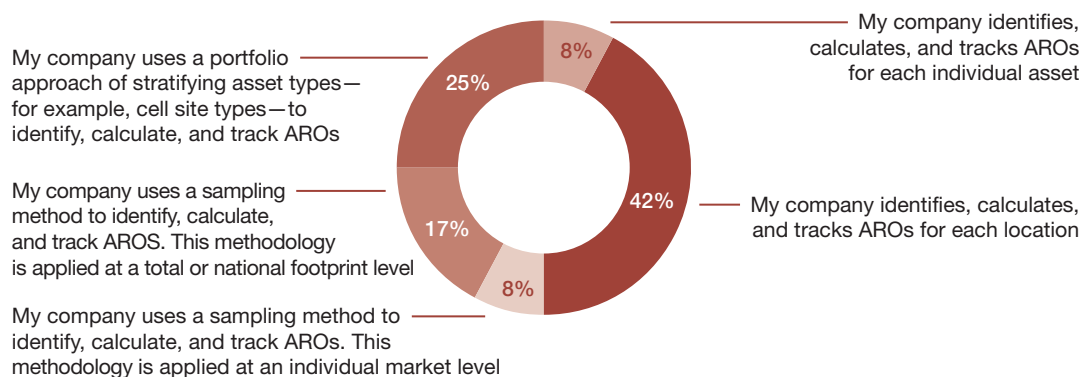
Companies were asked to identify the line items on the statement of cash flow that are utilized for reporting accretion expense. The following chart shows which items on the statement of cash flow respondents use for reporting accretion expense.

### Reporting of accretion expense on statement of cash flow



The following chart illustrates the responding companies’ various methods of identifying, calculating, and tracking asset retirement obligations (AROs).

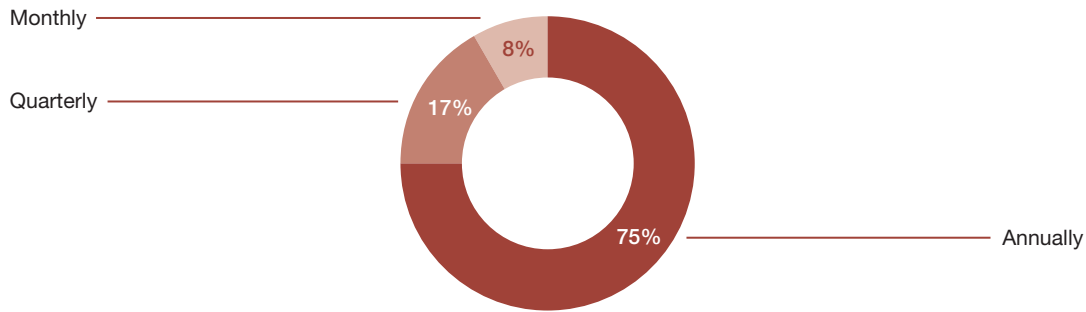
### Method of identifying, calculating, and tracking asset retirement obligations



## Property, plant, and equipment

Consistent with the 2010 survey, more than 50% of the respondents update AROs on an annual basis. The following chart depicts the frequency with which the responding companies update their ARO analyses.

### Frequency of update of asset retirement obligation analysis



Responding companies that do not use mass asset accounting were asked how they account for retirements of components of a piece of equipment. Eighty-two percent (82%) of the respondents indicated they write off the exact value because components are tracked at the component level. The remaining 18% write off a component based on an estimate of its remaining net book value.

## Tax basis

Companies were asked whether they use integrated fixed-asset systems that link book basis and tax basis calculations for recording additions, disposals, transfers, and the like. Fifty-eight percent (58%) of respondents indicated they use integrated fixed-asset systems. The remaining 42% of respondents that do not have integrated fixed-asset systems said they use two or more fixed-asset systems.

Companies were asked when they last reconciled their fixed-asset tax basis and book basis differences. All of the respondents indicated they performed such reconciliations within the previous 12 months, and 45% indicated they perform reconciliations regularly (at least semiannually).

As business, accounting, and tax advisors to many of the world's leading Entertainment, Media, and Communications (EMC) companies, PwC has an insider's view of trends and developments driving the industry. With approximately 600 practitioners serving EMC clients in the United States, PwC is deeply committed to providing clients with industry expertise and resources. In recent years, our pioneering work in EMC has included developing strategies to leverage digital technology, identifying new sources of financing, and marketplace positioning in industries characterized by consolidation and transformation. Our experience reaches across all geographies and segments of the EMC sector, including broadband, wireless, the Internet, music, film, television, publishing, advertising, gaming, and theme parks. With thousands of practitioners around the world, we are always close at hand to provide industry specialist expertise and resources.

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## Of further interest

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**CTIA Wireless 2012 Conference (New Orleans, May 8–10, 2012)** At CTIA, PwC will moderate a session on the topic of “*Mobile Broadband—IP and Wireless Convergence*.” CTIA is the premier marketplace for wireless, telecom and broadband companies as well as the key vertical markets that have entered into wireless. Forty thousand service providers, manufacturers, developers, retailers, enterprise end users and the media gather to dialogue about the future of wireless.

**TeleStrategies' Communications Taxation Conference (Orlando, May 16–18, 2012)** This will be PwC's 10th Telestrategies conference where we will be presenting a number of topics including a legislative update, cash saving opportunities, M&A tax considerations and tax implications of cloud computing. TeleStrategies' 13th Annual Communications Taxation Conference brings together the nation's top tax professionals to address the challenging and complex domain of telecommunications taxation.

**Global Communications GAAP Summit (Dublin, June 18–19, 2012)** The theme of the 2012 GAAP Summit will be ‘*Accounting for the 21st Century*.’ With the constant change in technology and customer demands, many operators are working through issues such as accounting for strategic alliances that support product and market expansion together with cost sharing; and the recognition of revenue from products such as The Cloud, Apps and other globalized solutions. We will cover these newer aspects of the industry while also focusing on the high-impact areas of the proposals relating to revenue recognition and leases.



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