Streaming live: Operating in the age of innovation

The 2013 North American wireless industry survey

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A publication from the 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 United States and Canada

pwc

Acknowledgments

The PwC 2013 North American wireless industry survey was led by Pierre-Alain Sur, PwC's Global Communications and US TICE Leader; Shara Slattery; and Michael Gibbs and represents the efforts and ideas of many members of the firm's Entertainment, Media and Communications Industry group. The principal contributors were Nathan Buckmiller, Cristina Balderas Gallegos, Megan Gillespie, Shaun Goldfarb, Marik Grosmann, Callie Haley, Lauren Hill, Carlin Simmons, and Jason Waldie. PwC also thanks the companies that contributed topics and participated in the survey. Their support for this project, their time in completing the survey and their candid responses are much appreciated. Together, we have created this survey to provide valuable insight into the operations, changes, and challenges of the wireless industry.

About this survey

The 2013 survey is an annual publication covering the financial and operational reporting policies and practices of wireless telecommunications service providers. PwC solicits survey participation from each of the largest US and Canadian carriers based on domestic subscriber counts. The responses of the carriers who elect to participate are included in the report. 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, 2013. Companies participate voluntarily, and individual survey results are kept confidential by PwC. Certain information related to the previous year has been updated based on the survey responses, in which two years of data was requested to take into account the difference in the participating companies year over year.

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.

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Executive Summary

We are pleased to publish the 17th 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 hopes this survey (1) helps companies better understand industry performance measures and their evolution with the changing industry, (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. As the industry continues to shift towards data and future changes to the revenue recognition framework, we will continue to adapt to the changing needs of the companies. This Executive Summary provides highlights of the 2013 survey results. We hope you find this year's survey results informative, pertinent, and stimulating.

The 2013 survey results reflect the participation of five US companies, including 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 the North American market.

Following are a few highlights from this year's results that cover 2013 year-end metrics.

Revenue and performance measures

While subscriber growth has continued to be strong across the wireless industry, the pace of expansion continues to slow, due in large part to market saturation. The United States has exceeded 100 percent market saturation and most, if not all, of the addressable market now has a mobile device and service. Increasingly, respondents are turning to new growth areas such as multi-device data connection plans, tablets, and machine-to-machine (M2M) subscriptions for additional growth in the number of connections. In recognition of this trend, some respondents have begun to measure and report connections and accounts, rather than simply tracking individual subscribers. For the survey respondents, average total connections grew 7.3 percent year over year.

The survey results indicate that the average postpaid connections grew by just 1.2 percent year over year in 2013. On the other hand, the average prepaid connections grew 30.2 percent year over year. The launch of affordable smartphones under the prepaid category, coupled with low-cost and unlimited data plans, has made prepaid even more popular, resulting in higher growth than postpaid. Average tablet connections increased by approximately 69 percent year over year. This high growth in tablet connections is primarily attributable to higher demand for mobility among enterprises and

subscribers, better network connectivity (4G), and higher data demand, particularly for video. As the market for wireless phone services becomes saturated, carriers can expect to increase the number of connections for existing and new subscribers through the sale of tablet data services and other devices.

Demand for machine-to-machine (M2M) devices and services is witnessing enormous growth in North America across a number of industries, such as automotive, transportation, utilities/ energy, security, finance, retail, healthcare, and public safety. The growth has been driven by the availability of innovative technologies, the growing availability of data information and analysis, new applications, low-cost communication services, and falling hardware costs. Coverage and service level consistency has been more important than bandwidth to users. Seven of the nine companies surveyed offer M2M services as of December 31, 2013, and M2M connections averaged 5.1 million as of December 31, 2013, compared with 4.1 million as of December 31, 2012, for the responding companies.

Releases of operating results and statistics by the operators for the fourth quarter and year-to-date 2014 indicate that these trends have done nothing but continue to accelerate and tablets, M2M, and wireless cards continue to be key drivers of growth.

Smartphone devices sales to new postpaid subscribers has almost doubled in the past four years as carriers continue to increase the number of devices offered and more data features become available. The average of all responding companies for the percentage of new postpaid phone sales related to smartphones was 79 percent for fiscal 2013 compared with 74 percent for fiscal 2012 but up from just 41 percent for fiscal 2010. This trend is even more prevalent for customers who upgrade their devices. The average of all responding companies for the percentage of upgrade postpaid phone sales related to smartphones was 87 percent for fiscal 2013, compared with the fiscal 2012 average upgrade phone sales of 77 percent.

The increase in prepaid subscribers using smartphones is growing at a faster rate with an almost 50 percent increase on a year over year basis; driven largely by availability of devices to this customer segment. An average of 35 percent of the prepaid subscriber base utilized a smartphone as of December 31, 2013, compared with 17 percent as of December 31, 2012. Smartphones are also increasingly becoming a more significant part of prepaid phones sales with smartphones averaging 38 percent of prepaid phones sales for the fiscal year ended December 31, 2013, as compared with 27 percent for the year ended December 31, 2012. This trend is also seen in the percentage of upgrade prepaid phone sales that are smartphones, which increased to 43 percent in the most recent fiscal year (2013) from 29 percent in the previous fiscal year (2012).

The average revenue per user (ARPU) for postpaid customers as of December 31, 2013 and 2012, decreased slightly to $57.37 from $57.86, respectively. 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; however, it did decline at December 31, 2013 to $70.34 for postpaid subscribers, compared with $75.93 at December 31, 2012. Prepaid smartphone subscribers had an average revenue per user of $34 as of December 31, 2013, compared with $39 as of December 31, 2012. The decrease in ARPU reflects the continuing pricing challenges carriers are experiencing while competing for new customers.

For all respondents, the percentage of postpaid service revenue related to data increased to 44 percent as of December 31, 2013, up from 38 percent for the same period in 2012. The companies indicated that their postpaid wireless subscribers use various operating systems. However, Android and Apple iOS continue to dominate at the expense of others. The percentage of postpaid subscribers

utilizing Apple iOS devices increased to 41 percent at December 31, 2013 up from 34 percent at December 31, 2012 while Android operating systems users remained relatively flat on a year over year basis with an average of 49 percent of users as of December 31, 2013 compared to 50 percent as of December 31, 2012.

Smartphone users on average consumed 776 MBs of data per month as of December 31, 2013, compared with 478 MBs of data per month at the same time in 2012. Among the mobile operating systems utilized, Apple iOS, Android, and Windows are the largest drivers of MB usage on a monthly basis with all but Windows averaging roughly 1,000 MBs per month on average for fiscal year 2013. Apple iOS and Android users on average increased their average MBs per month by approximately 50 percent on a year over year basis. The data usage continues to increase for all responding carriers in regards to prepaid customers as well and grew by 76 percent on a year over year basis from 548 MBs as of December 31, 2012, to 966 MBs as of December 31, 2013.

Property, plant, and equipment

The scarcity of spectrum and desire of the industry to increase capacity has resulted in the 2014 Advanced Wireless Services (AWS-3) license sale to surpass expectations of preliminary winning bids. As carriers look to increase spectrum, they are also taking a number of steps to meet their capacity needs today, aside from aggressively seeking opportunities for mergers and acquisitions or network sharing; these steps include launching tiered data plans in an effort to partially control traffic loads and investing in a next-generation 4G network and backhaul technologies such as Wi-Fi and small cells. We are also seeing carriers selling femtocells to their end users as signal extenders or boosters, as well as exploring options such as spectrum refarming and even downsizing by decommissioning certain assets to optimize their networks.

The growing adoption of smartphones, tablets, and other connected devices, coupled with the corresponding high consumption of data, including video, gaming, mobile commerce, and social networking, has left no choice for carriers but to adapt to the new technologies. But while carriers are trying to leverage these opportunities, their network capacities are struggling to meet the growth in data traffic, and their network upgrade initiatives have been hampered by the limited availability of spectrum. Carriers indicated that they continue to experience significant increases in network traffic. The average increase in network traffic from December 31, 2012 to December 31, 2013 was 59 percent which is slightly down from the 63 percent average increase between December 31, 2011 and December 31, 2012. While these increases are lower than the rapid rates of the early years of smartphones and the introduction of data services, carriers continue to feel the demand for continued capital requirements and deployment of new technology challenges. The increased data traffic continues to impact the overall capital expenditures as a percentage of revenue, which approximated 16 percent of service revenue as of December 31, 2013.

During 2013 and in 2014 we saw a number of carriers enter into agreements to sell and leaseback certain cell towers in their portfolio. While this did not hinder an overall increase in the average number of cell sites, respondents operated 27,167 cell sites as of December 31, 2012, to 29,254 as of December 31, 2013, it does indicate that operators are aware that near-term liquidity versus supporting an aging infrastructure subject to technological change may be preferable. The trend becomes even more relevant as carriers continue the deployment of small cells in densely populated areas.

The majority of responding carriers indicated they have plans for, or are currently in the process of decommissioning network assets. Generally, the assets being decommissioned consist of cell site and switch equipment, radio equipment, and broadband wireless networks. On average, responding carriers indicated they physically removed 75 percent of these assets and abandoned 25 percent. Carriers were specifically asked with more subscribers opting for 3G/4G networks what was the plan regarding 2G assets. Four of the five respondents with 2G assets indicated planning had begun for the decommissioning of those assets.

As these trends continue to evolve, we hope you will find the results presented in this survey useful, and we invite you to explore the in-depth results in the full report.

Participating company information

The 2013 survey represents nine wireless companies in North America. 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 revenue and EBITDA
Connections
Employee base
Sales locations
Outsourcing
Customer care
Social Media
Inventory management

Participating companies:

United States

AT&T Mobility
Sprint Nextel
T-Mobile USA
US Cellular
Verizon Wireless

Canada

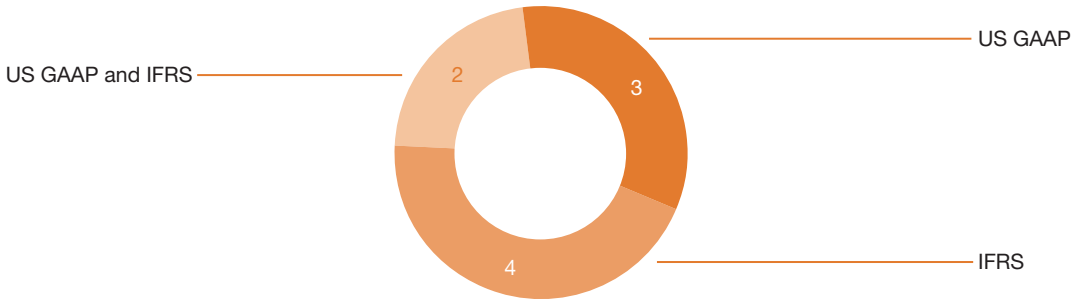
Bell Mobility
Rogers Wireless
TELUS Mobility
Wind Mobile

Company type and subscriber base

Of the nine companies surveyed, all are listed on a public stock exchange 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). Figure 1.1 provides the breakdown of reporting principles for the responding carriers.

Figure 1.1: Generally accepted accounting principles

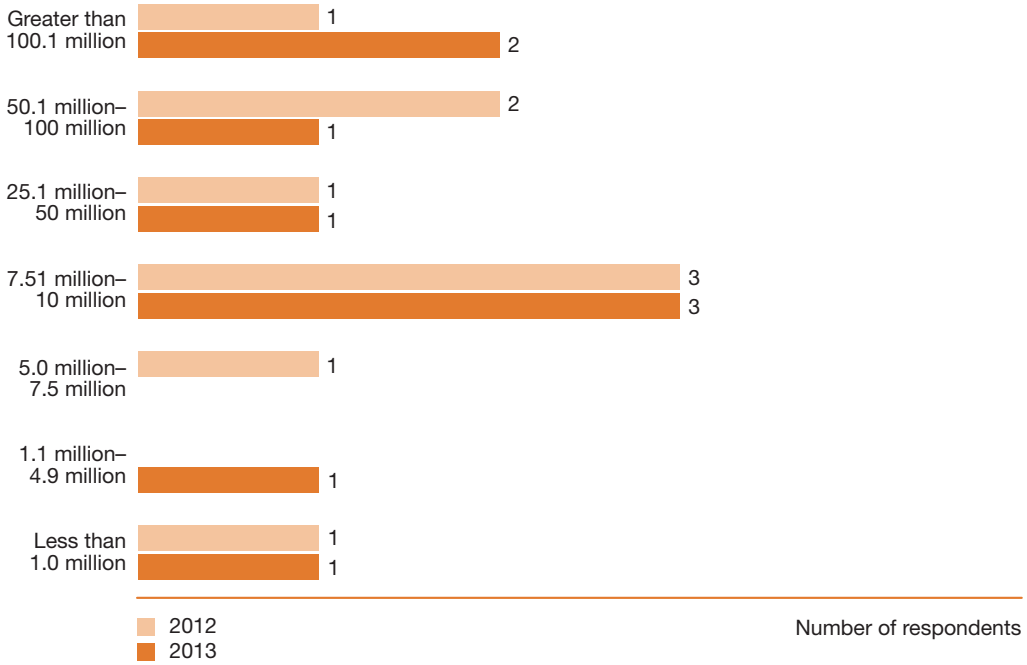


The industry continues to experience subscriber growth as more and more people utilize wireless devices as a substitute for traditional wireline service. The average number of total subscribers was 38.4 million as of December 31, 2013, compared with 36.2 million as of December 31, 2012.

While subscriber growth has continued to be strong across the wireless industry, the pace of expansion continues to slow, due in large part to market saturation. The United States has exceeded 100 percent market saturation and most, if not all, of the addressable market now has a mobile device and service. Increasingly, respondents are turning to new growth areas such as multi-device data connection plans, tablets, and machine-to-machine (M2M) subscriptions for additional growth in the number of connections. In recognition of this trend, some respondents have begun to measure and report connections and accounts, rather than simply tracking individual subscribers. These opportunities and approaches are described in more detail on the pages that follow.

Figure 1.2, below, shows the responding companies' reported subscribers as of December 31, 2013 and December 31, 2012.

Figure 1.2: Subscribers as of December 31



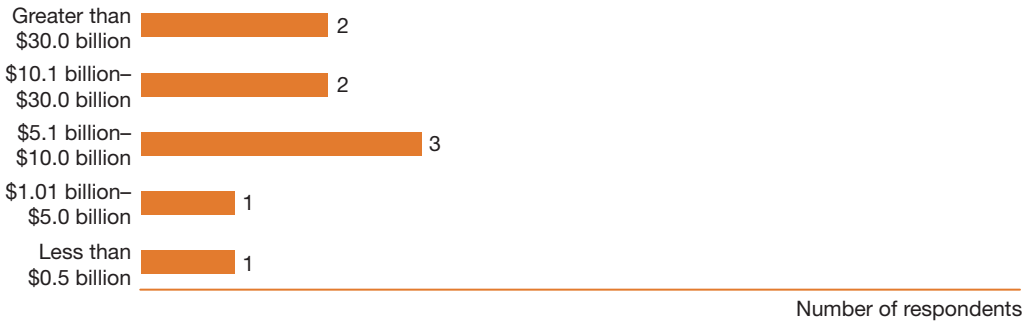
No responses were received in the 1.1 million-4.9 million category in 2012, the 5.0 million-7.5 million category in 2013, or the 10.1 million-25.0 million category in 2013 or 2012.

Four of the nine responding carriers externally report their subscriber numbers counted through resellers (third-party companies) or mobile virtual network operators (MVNOs). For these carriers who include MVNO or reseller subscribers in externally reported subscriber numbers, the average number of MVNO subscribers included was 7 million as of December 31, 2013, and 6.8 million as of December 31, 2012.

Annual revenue and EBITDA

Figure 1.3 illustrates the responding companies' service revenue reported for the most recent fiscal year, which ended December 31, 2013, for all respondents.

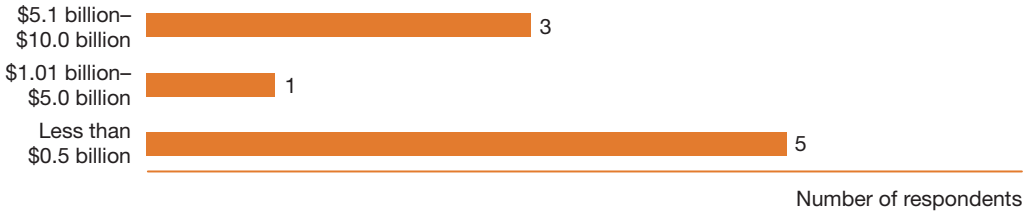
Figure 1.3: Annual service revenue



No responses were received in the $.51 billion-$1.0 billion service revenue category.

Figure 1.4 illustrates the responding companies' equipment revenue reported for the most recent fiscal year, which ended December 31, 2013, for all respondents. The average equipment revenue was $2.97 billion for 2013.

Figure 1.4: Annual equipment revenue

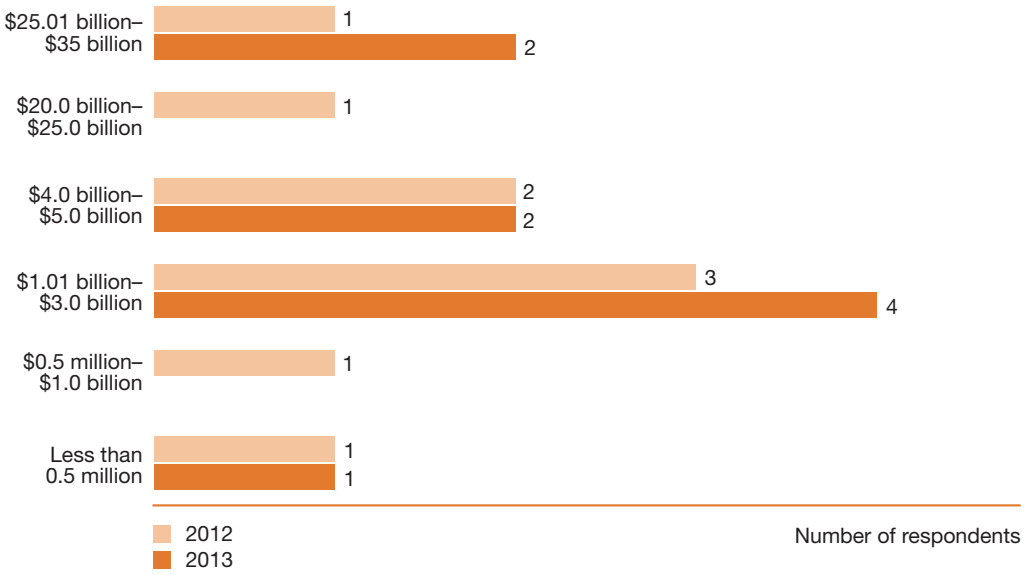


No responses were received in the $.51 billion-$1.0 billion equipment revenue category.

Equipment revenue averaged 14.1 percent of total company revenue, while the average other revenues (non-service or equipment revenue) were 3.7 percent of total company revenue for those respondents.

Figure 1.5 shows the responding carriers EBITDA (earnings before interest, tax, and depreciation/amortization) on an actual as reported basis under generally accepted accounting principles for fiscal year 2013 and fiscal year 2012 for all respondents.

Figure 1.5: Annual EBITDA



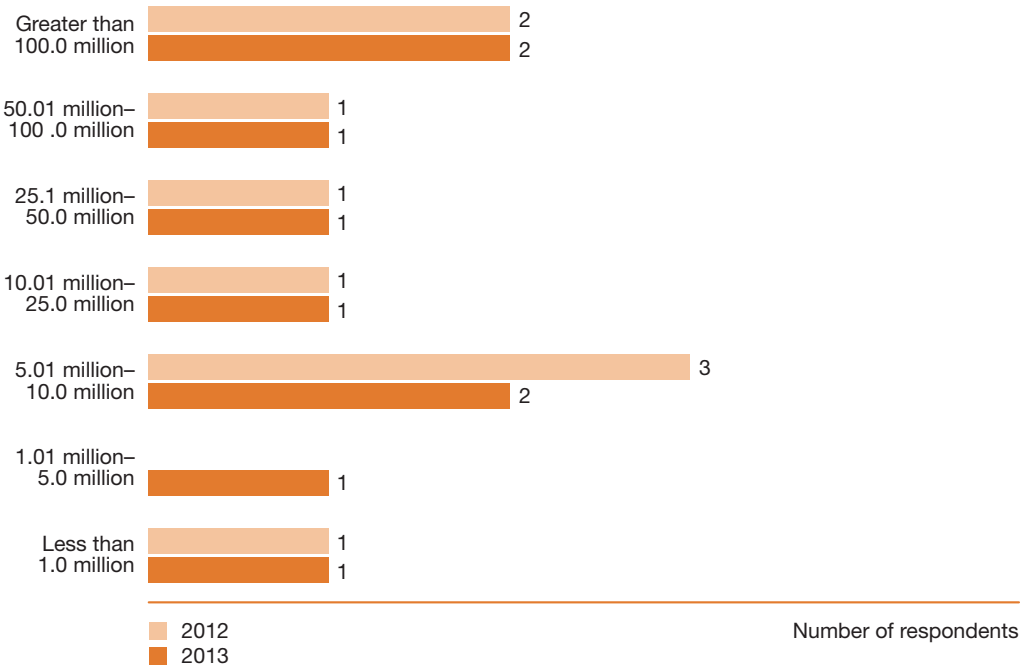
No responses were received in the $0.5 million-$1.0 billion category in 2013, the $3.01 billion-$4.0 billion and $5.01 billion-$20.0 billion categories in 2012 or 2013 or the $20.0 billion-$25.0 billion category in 2013.

Connections

For the survey respondents, average total connections grew 7.3 percent year over year. While changes in total connections varied for the responding carriers, the range was a loss in customers of over 17 percent compared to a gain of approximately 40 percent. The survey results indicate that the average postpaid connections for the respondents grew by just 1.2 percent year over year, which may be due to continued economic conditions and wider options available under the prepaid segment. On the other hand, the average prepaid connections grew 30.2 percent year over year. Given the slow postpaid growth, operators are promoting prepaid services to maintain overall growth, although not to the extent of cannibalizing their existing base of postpaid subscribers. The launch of affordable smartphones under the prepaid category, coupled with low-cost and unlimited data plans, has made prepaid even more popular, resulting in higher growth than postpaid. Average tablet connections increased by approximately 69 percent year over year. As the market for wireless phone services becomes saturated, carriers can expect to increase the number of connections for existing and new subscribers through the sale of tablet data services and other devices.

Illustrated in Figure 1.6 is the responding companies' number of connections reported as of December 31, 2013 and December 31, 2012. The number of connections may be equal to or greater than the number of subscribers if a customer has more than one mobile device (e.g., a wireless phone, a tablet, a wireless access card) or multiple mobile lines on an account. Each device and mobile line is counted as a separate connection. The average total connections for all respondents were 41.2 million as of December 31, 2013, compared to 38.4 million as of December 31, 2012.

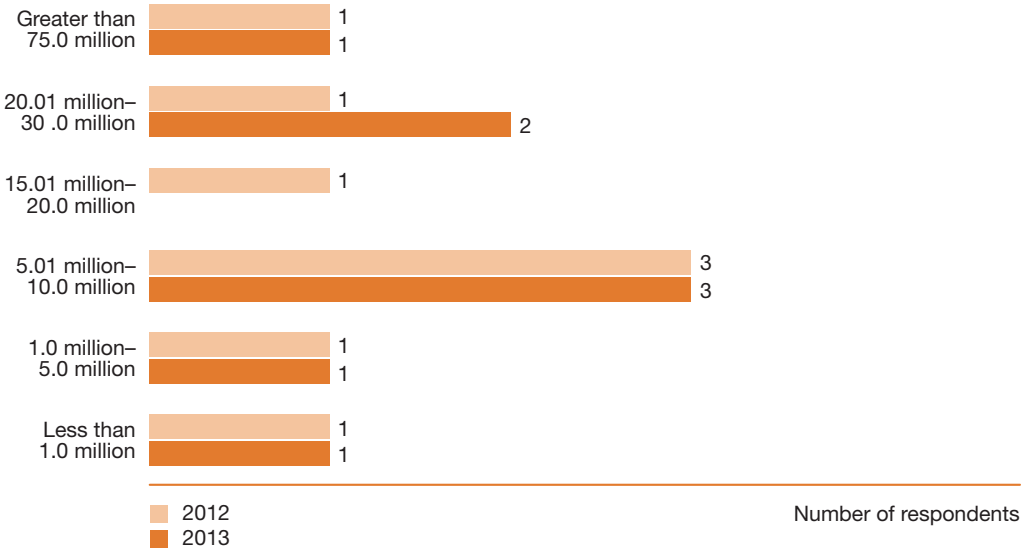
Figure 1.6: Total connections as of December 31



No responses were received in the 1.01 million-5.0 million category in 2012.

Categories of connections included wireless postpaid, wireless prepaid, tablets, laptop cards/wireless access cards, and other. Figure 1.7 illustrates the number of postpaid connections recorded by eight responding carriers as of December 31, 2013 and December 31, 2012. The average number of wireless postpaid connections was 19.8 million as of December 31, 2013, compared with 19.6 million as of December 31, 2012.

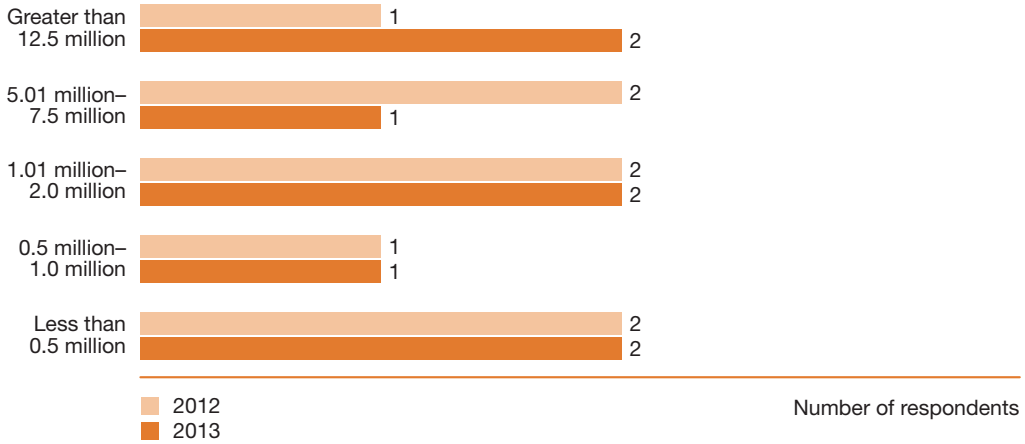
Figure 1.7: Wireless postpaid connections as of December 31



No responses were received in the 15.01 million-20.0 million category in 2013.

The companies surveyed had an average of 5 million prepaid connections as of December 31, 2013, compared to 3.9 million as of December 31, 2012, as depicted in Figure 1.8.

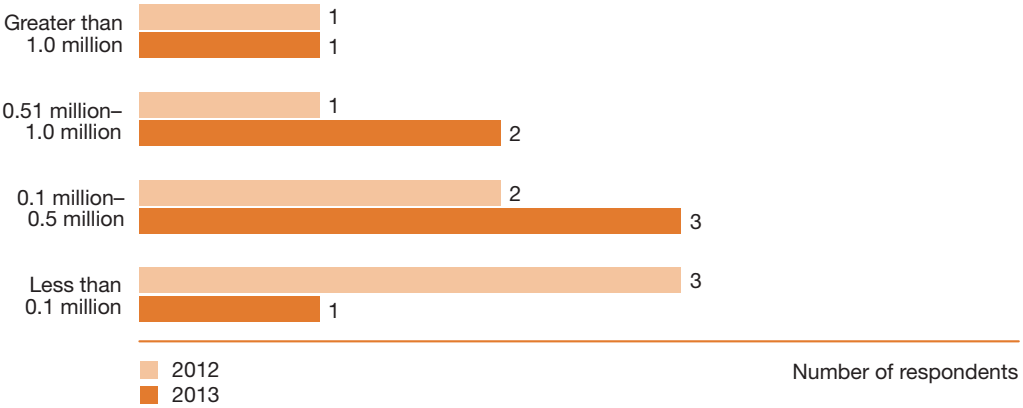
Figure 1.8: Wireless prepaid connections as of December 31



No responses were received in the 2.01 million-5.0 million category in 2013 or 2012.

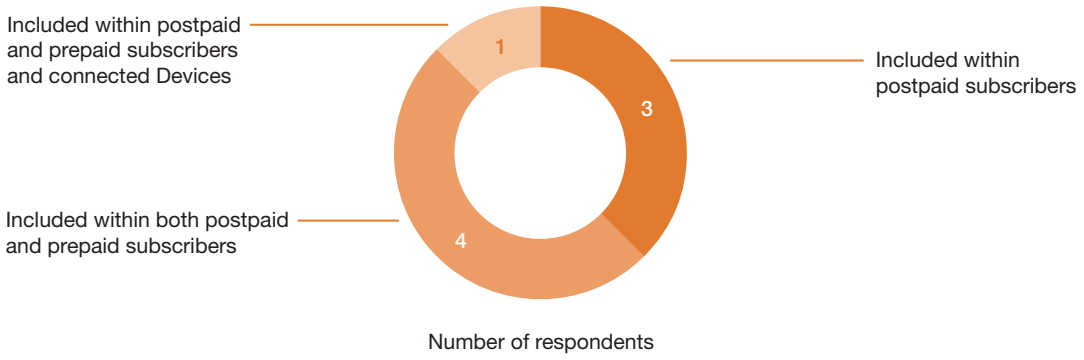
Eight of the nine responding carriers have a tablet offering available to customers. The average number of tablet connections grew nearly 69 percent year over year. This high growth in tablet connections is primarily attributable to higher demand for mobility among enterprises and subscribers, better network connectivity (4G), and higher data demand, particularly for video. The average number of tablet connections for the seven responding carriers with tablet offerings was 0.8 million as of December 31, 2013, and 0.5 million as of December 31, 2012. The total tablet connections are shown in Figure 1.9.

Figure 1.9: Tablet connections as of December 31



Eight of the nine companies surveyed offer tablet and related data services to subscribers as of December 31, 2013. The eight responding companies that offer tablet and related data services to subscribers as of December 31, 2013, report tablet subscribers within three subscriber categories: postpaid subscribers, a combination of both postpaid and prepaid subscribers, or a combination of postpaid and prepaid subscribers and connected devices. Figure 1.10 shows the number of surveyed companies offering a tablet and related data services that report tablet subscribers within the three aforementioned categories.

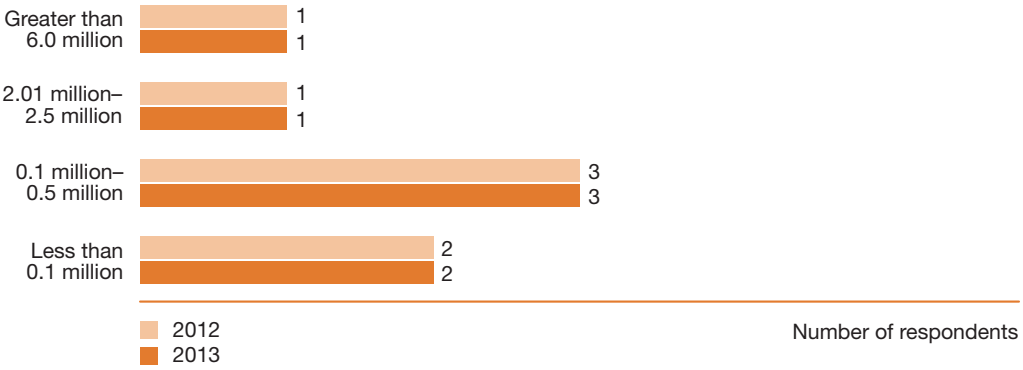
Figure 1.10: Classification of tablets within subscribers



Three of the seven responding companies subsidized tablets as of December 31, 2013, by selling them at a loss or below cost to their subscribers.

Figure 1.11 provides the number of laptop card/wireless access card connections as of December 31 for the responding carriers. The average number of laptop card/wireless access card connections was 1.4 million as of December 31, 2013 and December 31, 2012, for all respondents.

Figure 1.11: Laptop card/wireless access card connections as of December 31



No responses were received in the 0.51 million-2.0 million or the 2.51 million-6.0 million categories in 2013 or 2012.

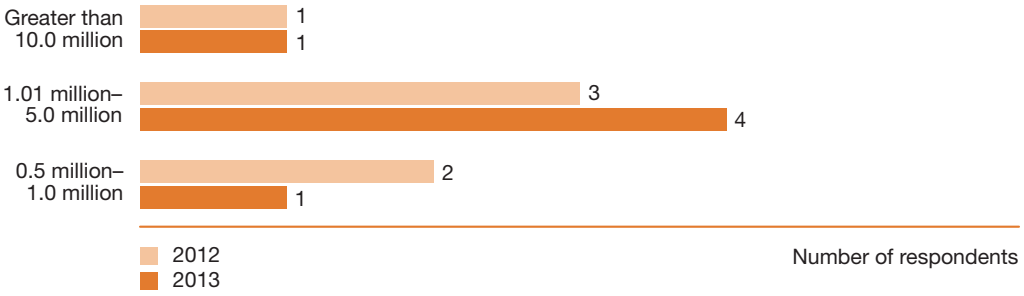
Five of the responding carriers also indicated that they offered other connections, such as e-readers, home/auto security monitoring, voice terminals, and hot spots. The average number of other connections was 2.3 million as of December 31, 2013, and 1.8 million as of December 31, 2012, for these five respondents.

Machine-to-machine services are defined as a wireless two-way connection across a broad range of devices on a network. This connection takes place in real time with little human intervention and can be accessed remotely. Demand for M2M devices and services is witnessing enormous growth in North America across a number of industries, such as automotive, transportation, utilities/energy, security, finance, retail, healthcare, and public safety. The growth has been driven by the availability of innovative technologies, new applications, low-cost communication services, and falling hardware costs. Coverage and service level consistency has been more important than bandwidth to users.

Seven of the nine companies surveyed offer M2M services as of December 31, 2013, and M2M connections averaged 5.1 million as of December 31, 2013, compared with 4.1 million as of December 31, 2012, for the responding companies.

Figure 1.12 shows the total number of M2M connections as of December 31, 2013 and December 31, 2012, for responding carriers.

Figure 1.12: Total number of machine-to-machine connections as of December 31



No responses were received in the 5.1 million-10 million category in 2013 or 2012.

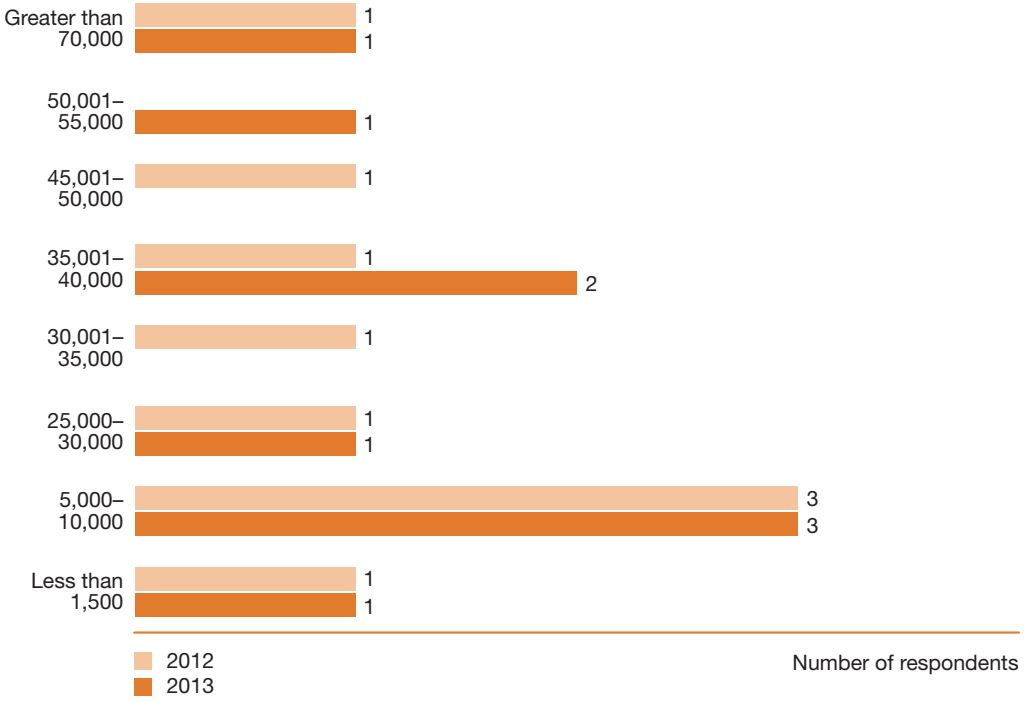
We asked survey participants how M2M connections are reported in their subscriber count. Of the seven companies offering such services, four do not include M2M connections in any subscriber counts. The remaining three companies divide these subscribers into postpaid subscriber counts, wholesale customer category, or separately as connected devices. This highlights the newer service offering and diversity in practice based upon the type of service provided.

Employee base

Carriers averaged 34,562 employees as of December 31, 2013, compared with the average of 33,455 employees as of December 31, 2012. These increases could be the result of continued investment in advancing the network and customer service to enhance their subscriber base. Carriers are looking for sustainability in the capital-intensive industry and are streamlining their overall operational costs to enhance their cash flow and profitability.

Figure 1.13 represents the number of full-time employees as of December 31, 2013 and 2012.

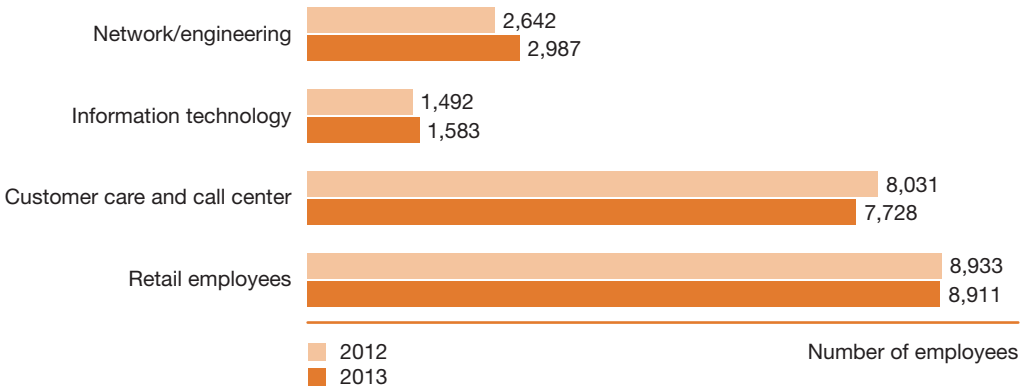
Figure 1.13: Full-time employees



No responses were received in the 1,500-4,999, the 10,001-24,999 and the 40,001-45,000 employees' categories in 2013 and 2012, in the 30,001-35,000 and 45,001-50,000 categories in 2013 or in the 50,001-55,000 category in 2012.

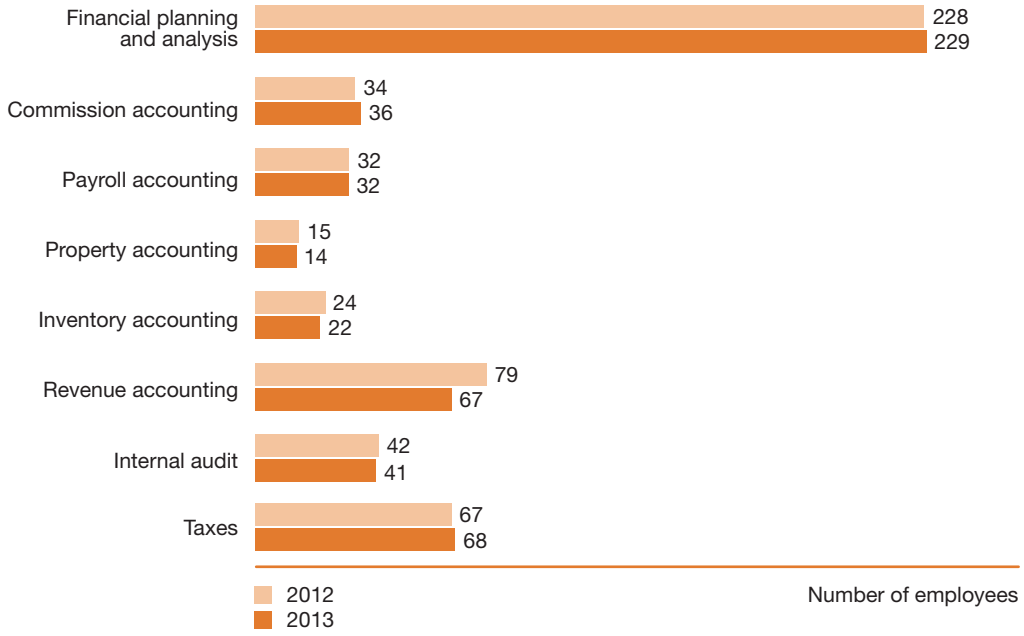
Considering the average number of employees per functional position, most carriers have the maximum percentage of their workforce working under the retail and customer care segments (approximately 35 percent). In a highly saturated market with intense competition, carriers are deploying a large portion of their workforce into sales and customer service in order to add and retain customers. The number of full-time employees in each functional category as of December 31, 2013, is shown in Figures 1.14 and 1.15 compared to 2012.

Figure 1.14: Average employees per functional position



Additionally, the average number of employees per functional accounting and finance position is highest for financial planning and analysis (FP&A), revenue, and taxation for all carriers. The growing need to control budgets and improve profitability has led to more employees being deployed for FP&A.

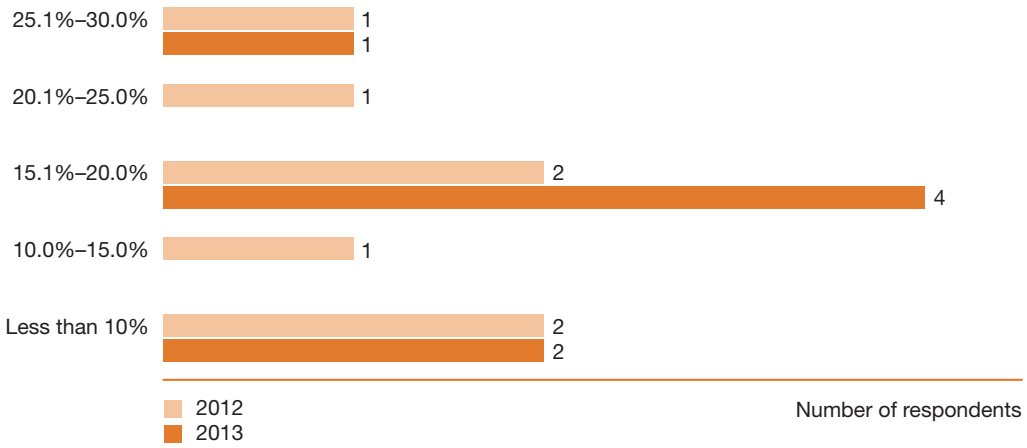
Figure 1.15: Average employees per functional accounting and finance position



Sales locations

All of the responding carriers reported using company-owned retail and kiosk locations to sell and provide services for customers. The average total retail presence related to retail and kiosk locations for the responding carriers was 15.6 percent as of December 31, 2013, and 16 percent as of December 31, 2012. Figure 1.16 depicts the reported percentage of total retail presence represented by company-owned retail and kiosk locations as of December 31, 2013 and 2012.

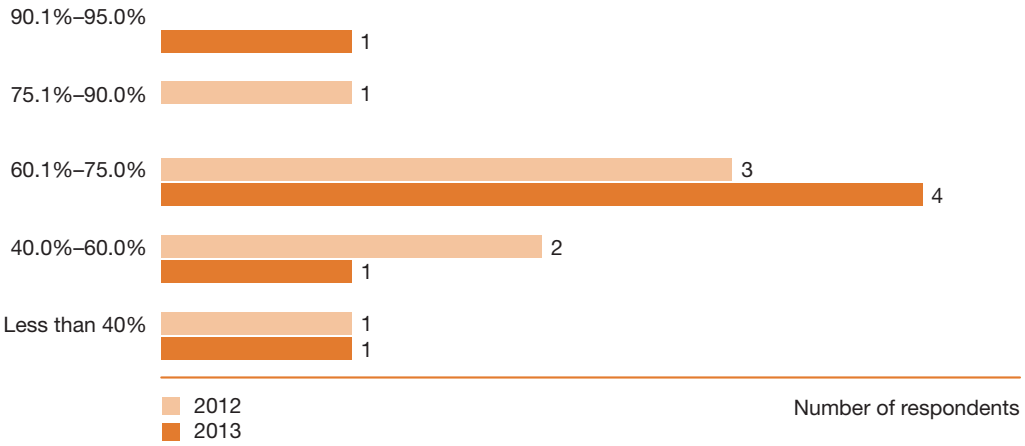
Figure 1.16: Company-owned retail and kiosk locations percentage of total retail presence as of December 31



No responses were received in the 10.0%-15.0% and 20.1%-25.0% categories in 2013.

The percentage of total retail presence represented by reseller/retail locations (third-party companies) and branded franchise locations that sell each carrier's services as of December 31 is shown in Figures 1.17 and 1.18. Most carriers primarily use reseller/retailer locations or branded franchise locations to sell their products and services. The reseller/retailer locations as a percentage of total retail presence as of December 31 grew from 62 percent in 2012 to 65 percent in 2013. The growth in reseller/retailer locations as a percentage of total retail locations is attributable to a decline in company-owned stores, a rise in real estate costs, and carriers trying to expand their market presence to enhance subscriber growth.

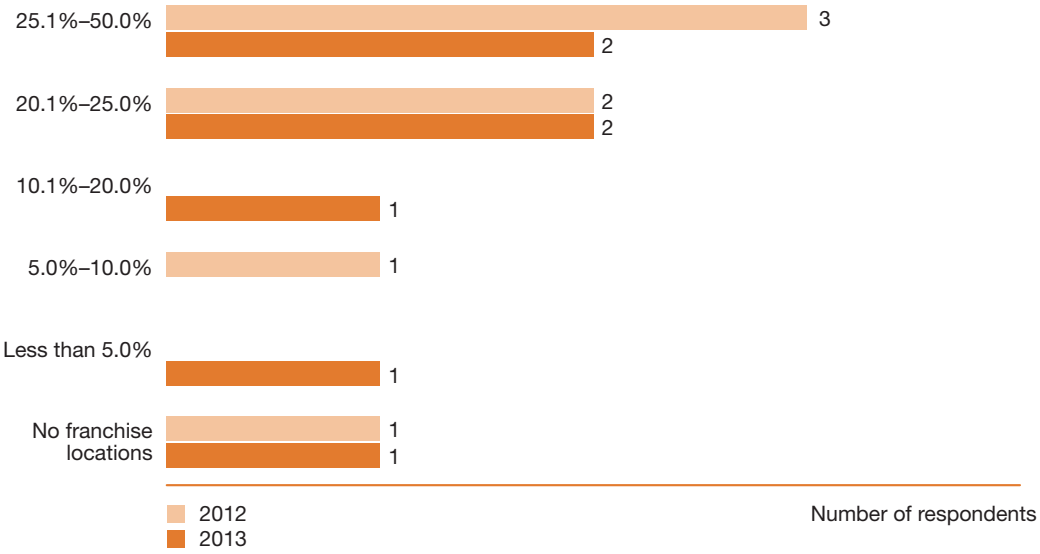
Figure 1.17: Reseller-retail locations percentage of total retail presence as of December 31



No responses were received in the 75.1%-90.0% category in 2013 or the 90.1%-95.0% category in 2012.

Branded franchise locations represent stores that are independently owned by third parties, but whose branding is exclusive to one carrier. The average total retail presence related to these branded franchise locations for the responding carriers was 19 percent as of December 31, 2013, and 22 percent as of December 31, 2012. This decline may be due to increased costs of commissions in this channel and an increase in buyers in the online channels.

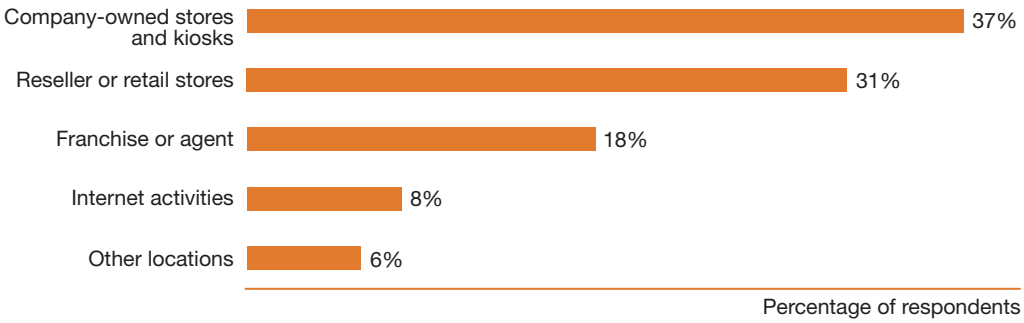
Figure 1.18: Franchise and exclusive agent locations percentage of total retail presence as of December 31



No responses were received in the Less than 5.0% and the 10.1%-20.0% categories in 2012 or the 5.0%-10.0% category in 2013.

Company-owned retail and kiosk locations and reseller/retail locations (third-party companies) generate the majority of the responding company's handset revenue, 68 percent as of December 31, 2013. On average for the six responding companies, 37 percent of their handset revenue is generated by company-owned retail stores, which make up an average of approximately 16 percent of the responding companies total retail presence. Third-party reseller/retail locations represent on average a much larger portion of the responding carriers retail presence, nearly 65 percent, however, these locations represent 31 percent of total average handset revenue. Figure 1.19 depicts the handset revenue by presence.

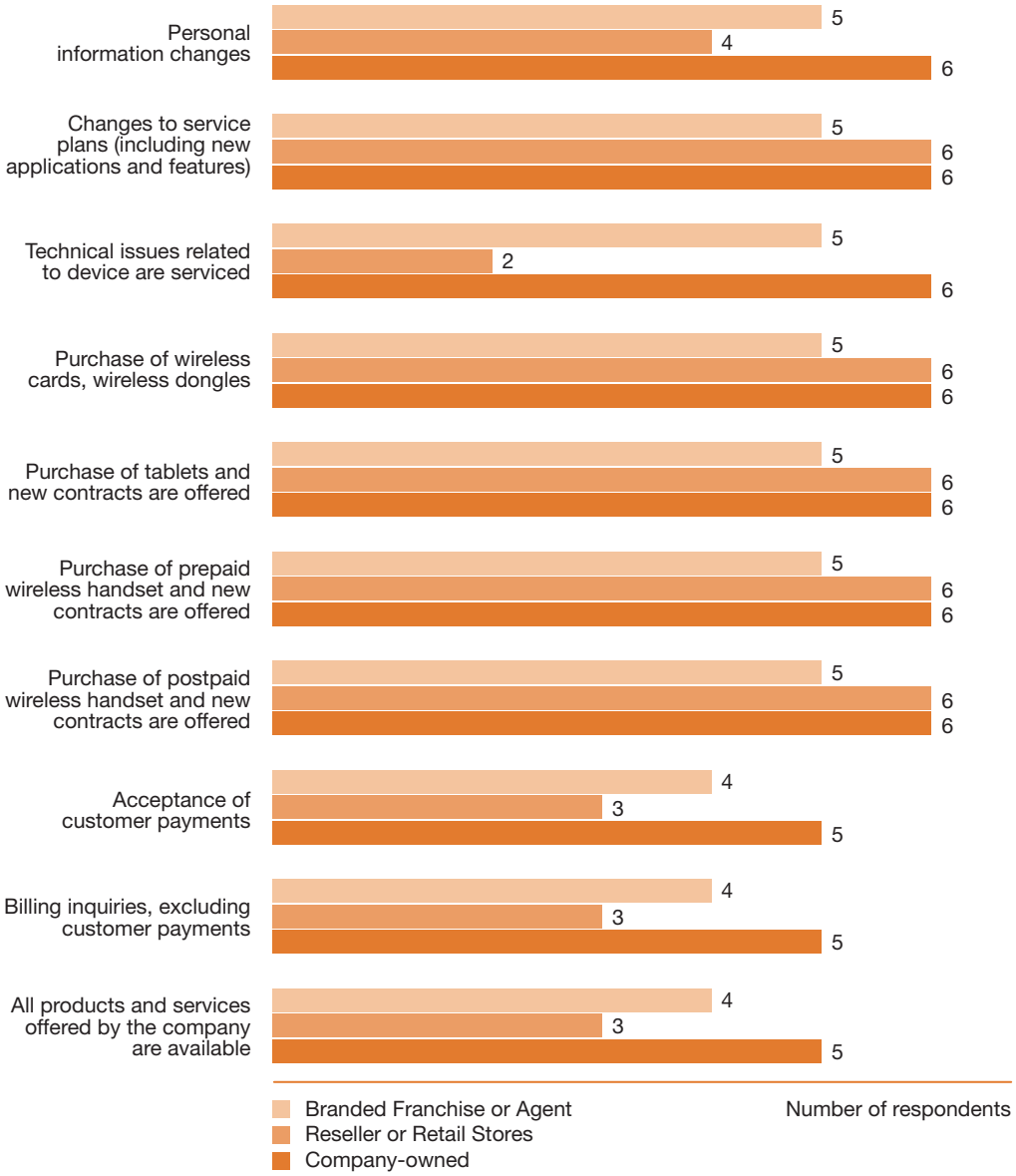
Figure 1.19: Handset revenue by type of retail presence



The type of products and services offered at a retail location varies depending on the type of retail store, whether the location is company-owned, a third-party reseller/retail store, or a branded franchise location. Five of the six responding companies offer all products and services at company-owned locations. The most common service that is not offered across all retail location types is the ability to accept customer payments, make billing inquiries, resolve technical issues related to devices, or make changes to a customer's service plan or personal information.

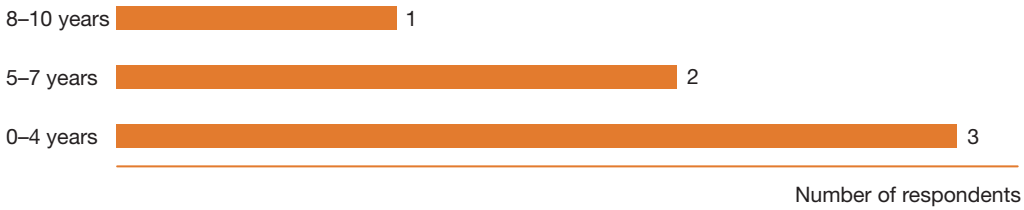
Figure 1.20 illustrates the type of activities that a subscriber may perform in either a company-owned store, franchise store or a reseller/retail store.

Figure 1.20: Products and services offered to customers within each retail location



All of the responding companies leased between 99 and 100 percent of all company-owned and operated retail store locations. Lease terms for the company-owned retail stores varied among the responding companies, with 0-4 years being the most common lease term. Average lease terms are included in Figure 1.21.

Figure 1.21: Average lease term for retail locations



Consistent with the rise in online retailing, seven of the responding companies operate an online store.

All of the companies surveyed utilize an omnichannel strategy by integrating a variety of channels used for customer acquisition. The surveyed companies collect and analyze customer data through all customer acquisition channels.

Outsourcing

Outsourcing is already a mature trend in the telecommunication industry, and it is still growing. Functions related to accounting, billing and transaction processing, marketing, and distribution are those most often outsourced. Quality of service and quality control of outputs are ever-present concerns for companies that outsource, causing some carriers to look to rural, domestic insourcing and onshoring.

All six of the responding carriers reported that they outsource certain business functions. Figure 1.22 depicts the nature of outsourced functions, excluding the customer care function, among survey participants.

Figure 1.22: Outsourcing

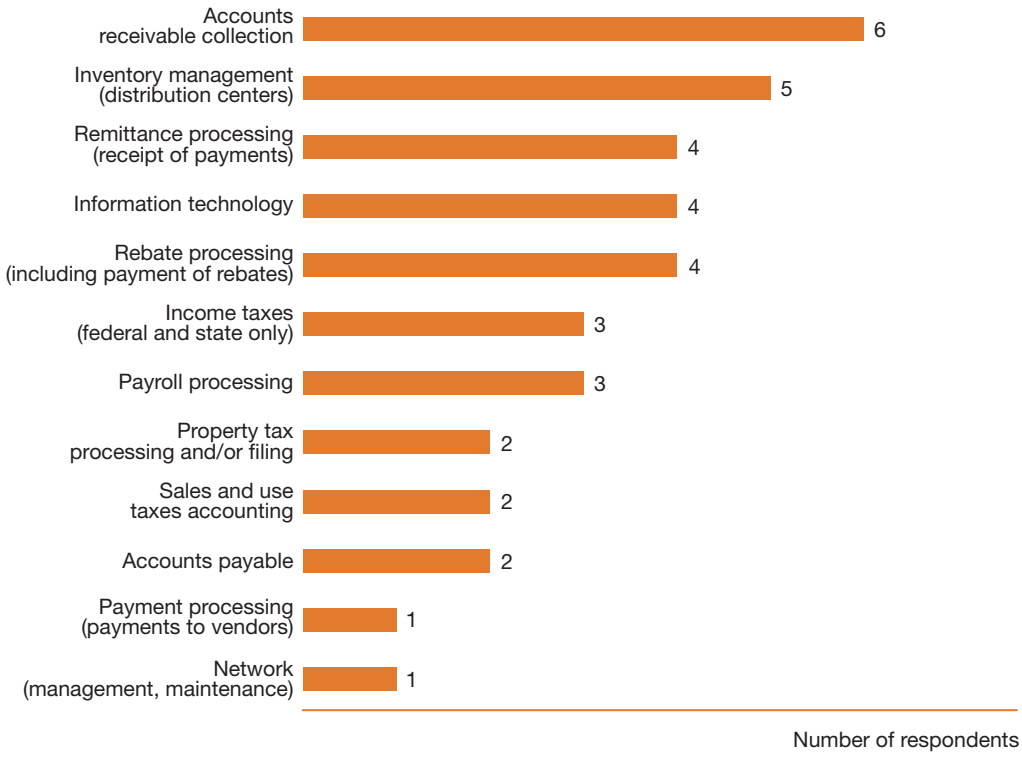


Chart totals greater than the number of responding companies because multiple responses were allowed.

Customer care

As of December 31, 2013, customer care costs as a percentage of total revenue for the responding companies were 4.5 percent, down from 4.8 percent the previous year. These costs include all costs associated with the operation of the call centers (domestic and international, outsourced or in-house), including infrastructure costs of the building (allocations), furniture, and fixtures.

The responding carriers' percentages of customer care activity provided for postpaid and prepaid subscribers, categorized by the source, are shown in Figures 1.23 and 1.24.

Figure 1.23: Sources of postpaid customer care as of December 31

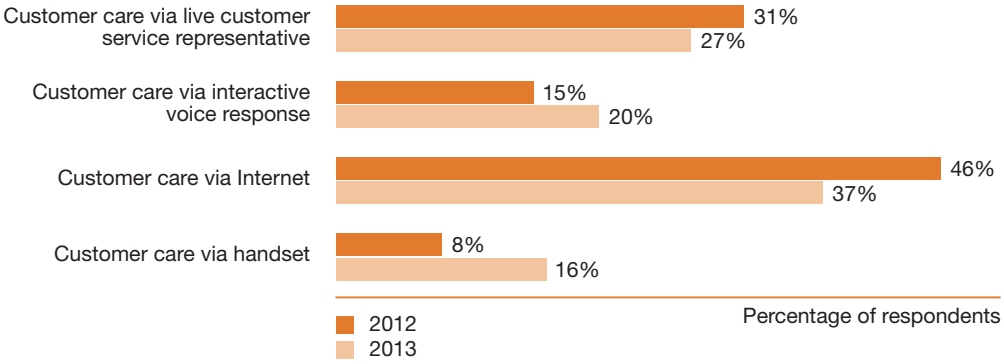
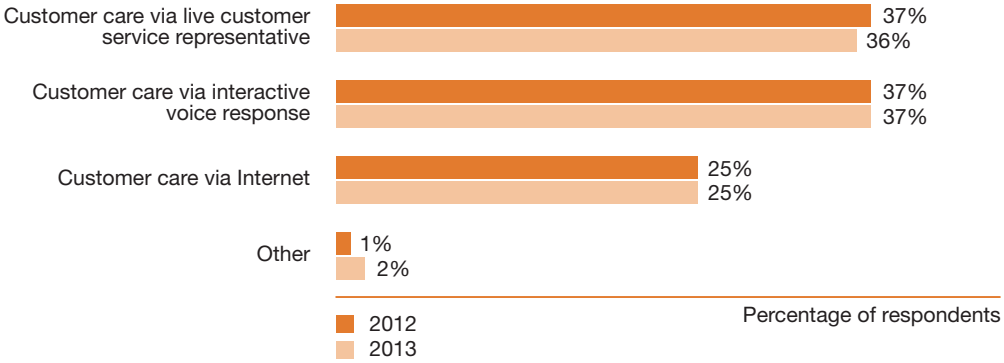


Figure 1.24: Sources of prepaid customer care as of December 31



The average customer care activity via interactive voice response (IVR) for all carriers was 20 percent for postpaid customers and 37 percent for prepaid customers as of December 31, 2013, compared with 15 percent and 37 percent, respectively, as of December 31, 2012. Three of six carriers indicated that there has been a reduction in the amount of calls that are routed via IVR to shift more towards live customer service or other customer service activities during fiscal 2013.

The use of IVR for postpaid was less than half of that for prepaid. This may be because prepaid are lower ARPU customers and use mostly limited services; for that reason, IVR is an effective way to pass on information at a lower cost. In contrast, postpaid services are mostly complex and carry higher ARPU and contracts, so carriers use their employees to interact with and retain these customers. The need to enhance the customer experience and provide easy accessibility to information without undergoing extensive customer care processes may also have led to this growth in the use of automated services.

Growth in the use of IVR for customer care has led to an equivalent decline in customer care via live customer service representatives, both for prepaid and postpaid segments. With their subscriber base increasing, carriers are finding it difficult to deploy an equal number of representatives to cater to these customers. The high cost of hiring and retaining scarce talent is also a big challenge for these carriers.

In addition, postpaid customers utilized their handsets to complete 16 percent of customer care transactions on average as of December 31, 2013, which is an increase from the average as of December 31, 2012, of 8 percent, as illustrated in Figure 1.23 above. For prepaid customers, respondents indicated that minimal customer care transactions were completed via the handset as of December 31, 2013 and December 31, 2012.

We asked companies to indicate the coverage related to customer care per 1,000 subscribers. Responding carriers had between one-half and four customer care representatives for each 1,000 subscribers as of December 31, 2013, with the majority of respondents having one customer care representative per 1,000 subscribers. Responding carriers also indicated that on average approximately 78 percent of issues or inquiries are resolved on the first call from a customer and ranged from 72 percent to 89 percent.

Five of six responding carriers indicated that they segment subscribers' customer care calls into call prioritizations—meaning, for example, that high-value customers have a separate prioritization line or answer queue. Responding carriers that do prioritize customer care calls based upon subscriber type have various numbers of segments and criteria for each segment. Segmentation approaches vary from prioritizing customer care calls by value to prioritizing corporate accounts.

Figure 1.25 shows the types of customer care activities available for subscribers to complete or perform via their handsets based on the responses from seven carriers. Most of the carriers offer payment and billing activities on the handset, which eases the bill payment process and could result in reduced payment collection costs.

Figure 1.25: Customer care activities via a handset

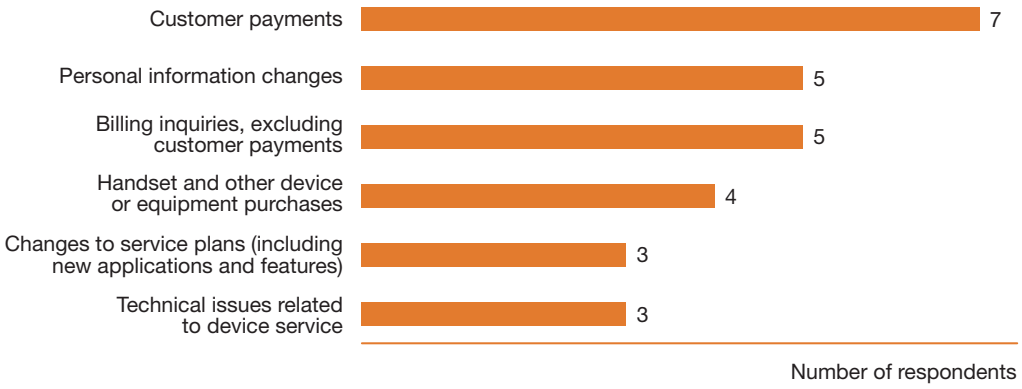


Chart totals greater than the number of responding companies because multiple responses were allowed.

Carriers offer more customer care activities via the Internet because it is a more dynamic and interactive platform through which carriers can resolve customer queries and processes in much less time. In addition, the use of additional resources, such as video and audio, can provide demos and resolve queries, which in turn enhance the customer experience. Figure 1.26 shows the types of customer care activities available to subscribers over the Internet, based on responses from seven carriers. For those carriers that track what percentage of Internet activity relates to each activity, the most frequent activity related to billing inquiries at 34 percent followed by customer payments at 27 percent.

Figure 1.26: Customer care activities over the Internet

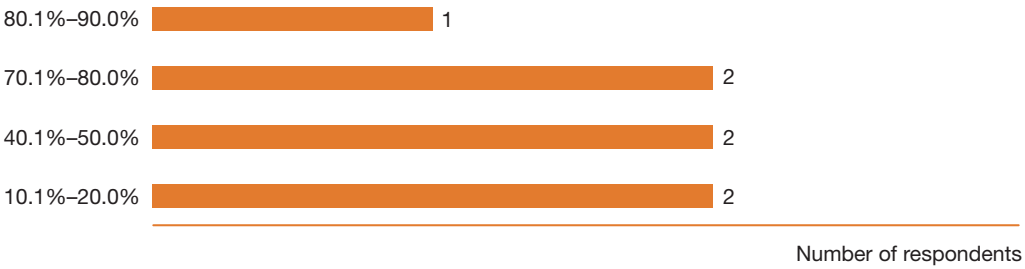
Chart totals greater than the number of responding companies because multiple responses were allowed.

We asked companies to indicate the level of customer care activities that are outsourced to third parties. Seven 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; this is due to the complex nature of postpaid services. Additionally, as postpaid ARPU is 2-3 times that of prepaid, retaining these customers are critical to the carriers. All of the responding companies outsource at least some portion of postpaid customer care activity, while 57 percent of the companies outsource all of their prepaid customer care activity.

The average percentage of postpaid customer care volume handled by third parties is 51 percent for 2013 compared to 58 percent in 2012.

Figure 1.27 indicates the percentage of outsourced activity for all respondents who outsource a portion of their postpaid customer care volume to third parties.

Figure 1.27: Outsourced customer care activity percentages (postpaid) as of December 31



No responses were received in the 10.0% or less, 20.01%-40.0%, 50.01%-70.0% and 90.01%-100.0% categories.

Four of the responding carriers outsource all prepaid customer care, while three responding carriers outsource only a portion. The average percentage of prepaid customer care volume handled by third parties is 94 percent, regardless of the size of the company.

Figures 1.28 and 1.29 show the types of activities carriers outsource for both postpaid and prepaid customer care activities, and whether those activities are completed domestically (primary country of operation) or internationally, for the seven responding carriers.

Figure 1.28: Postpaid customer care services outsourced

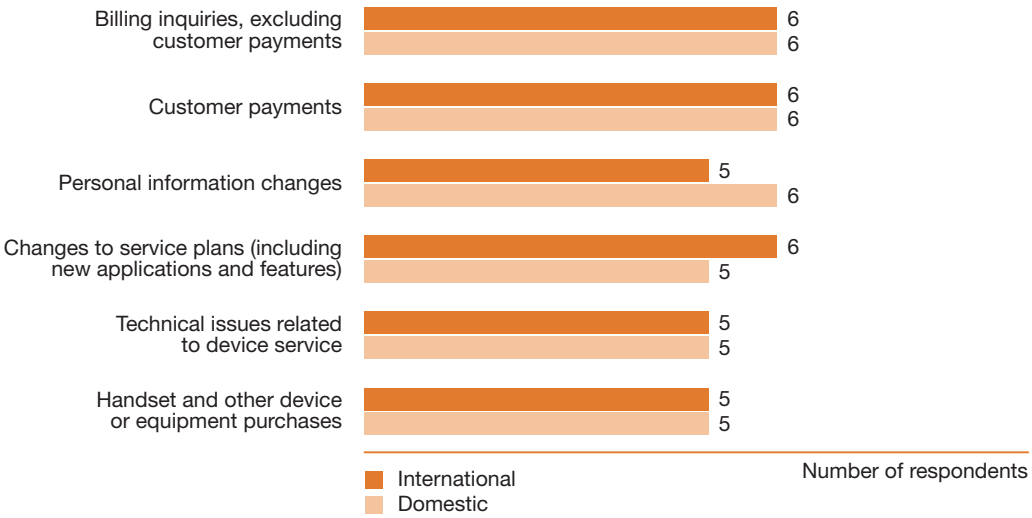


Chart totals greater than the number of responding companies because multiple responses were allowed.

Figure 1.29: Prepaid customer care services outsourced

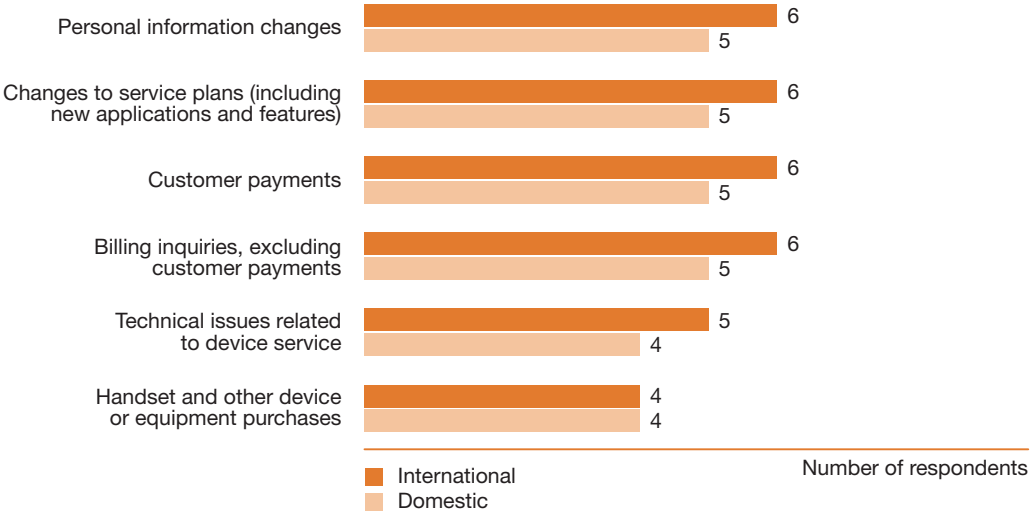


Chart totals greater than the number of responding companies because multiple responses were allowed.

Figures 1.30 and 1.31 reflect the percentage of outsourced volume that was handled domestically (primary country of operation) or internationally. Responding carriers indicated a slight shift toward international outsourcing for prepaid customer care and postpaid customer care in fiscal 2013, as compared with fiscal 2012.

Figure 1.30: Domestic versus international outsourcing (postpaid)

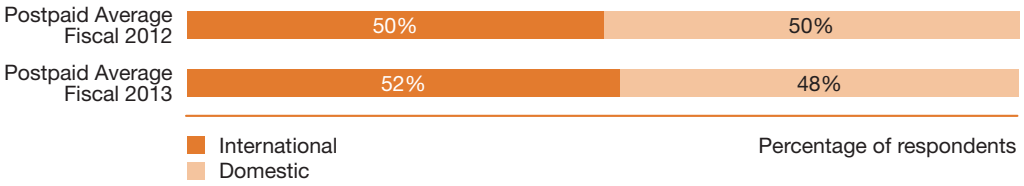
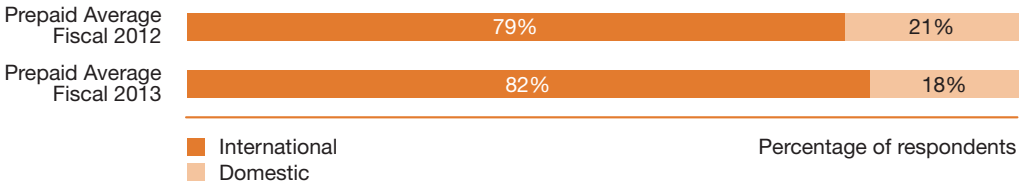


Figure 1.31: Domestic versus international outsourcing (prepaid)

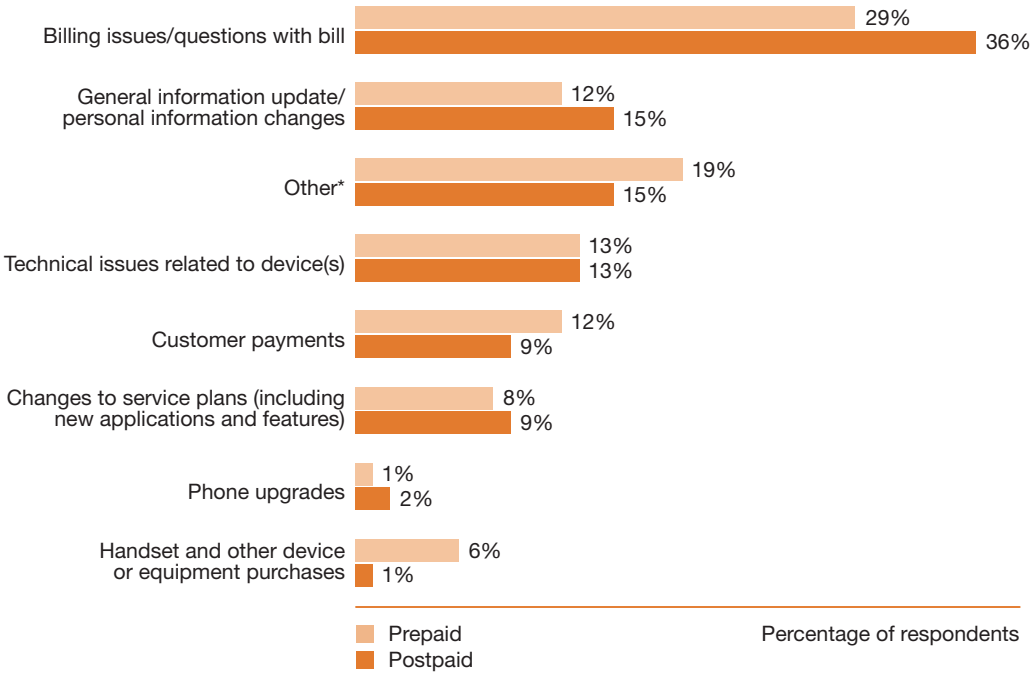


Outsourced locations for postpaid customer care activities included Canada, Mexico, Philippines (utilized by the most carriers), Dominican Republic, Colombia, India, Tunisia, Panama, Guatemala, Honduras, US, El Salvador, and Egypt. In addition to the postpaid locations, prepaid customer care activity was also outsourced to Costa Rica and Nicaragua.

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

Figure 1.32 depicts the average call categories for postpaid and prepaid customer care calls.

Figure 1.32: Postpaid and prepaid customer care call categories



*Other includes Products, Services and Ordering.

Social Media

Social media use has become the top Internet activity for Americans and businesses have followed suit to engage consumers over social networking sites. All eight of the responding companies indicated that they have some sort of social media policy, whether it is in regards to employees' use of social media related to company business or how the company provides or responds to information through social media. The Internet has changed the way that businesses reach out to customers as part of their customer service strategy and social media sites have become a popular way for businesses to resolve customer complaints and issues. All eight of the responding carriers indicated that they engage in social media to resolve customer complaints and issues. Four of those seven respondents track whether the complaints were resolved through social media interaction.

Figure 1.33 illustrates the number of carriers that use each of the various types of social media platforms for the eight respondents.

Figure 1.33: Carriers use of specific social media platforms

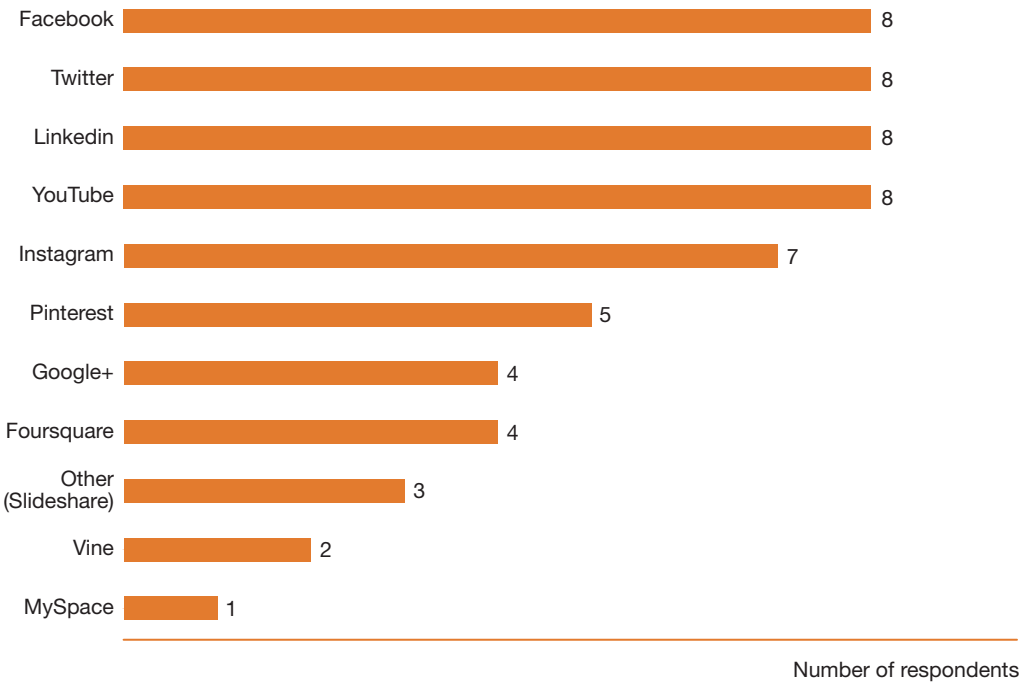


Chart totals greater than the number of responding companies because multiple responses were allowed.

Inventory management

Of the seven responding companies, 14 percent indicated that they utilize vendor-managed inventory (VMI) to maintain the inventory levels within their distribution networks for mobile devices (down from 31 percent of respondents in the 2012 survey). The one carrier that utilized VMI managed just 3 percent of its inventory through VMI.

Postpaid revenue

The following pages cover wireless company practices related to 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.

Customer metrics
Service contracts
Smartphones
Data services
Family plans
Features revenue
Termination fees and bad debt expense
Customer billings and payments
Activation channels
Devices

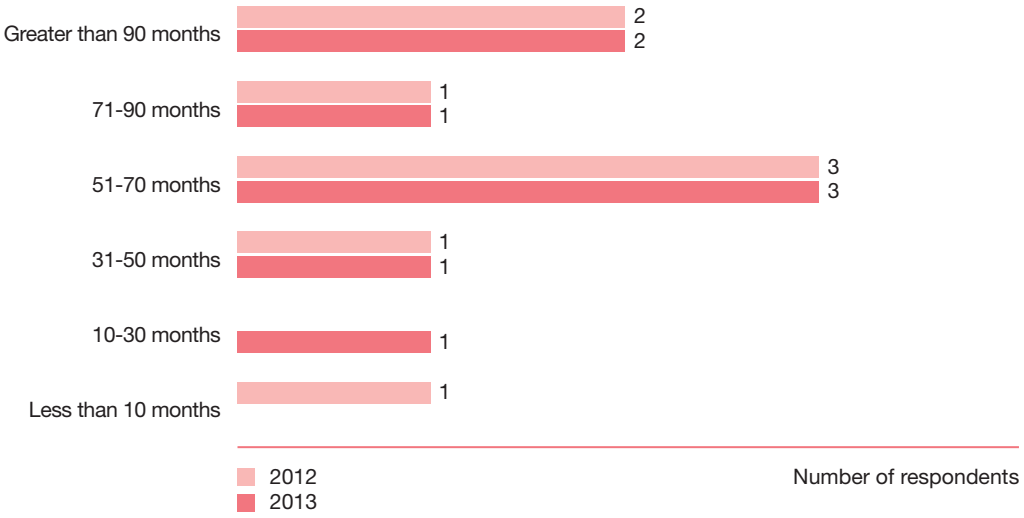
Customer metrics

Postpaid is defined as a type of mobile phone account for which service is typically provided by a prior arrangement with a carrier, with the user typically billed after the service is provided. According to an initial contract, customers are charged a flat rate for a certain amount of minutes/texts, etc., and usage above the limit incurs additional charges (billed in subsequent periods).

The average length of postpaid customer relationships was approximately 65 months at December 31, 2013, compared with 64 months at December 31, 2012. Net subscriber growth in the traditional postpaid segment will continue to be difficult to come by as US penetration of wireless service has increased to greater than 100 percent, which means customer growth is largely driven by customers changing carriers, rather than by adding new subscribers, highlighting the importance of maintaining customer relationships.

Figure 2.1 depicts the average length of the responding companies' relationships with postpaid customers.

Figure 2.1: Average length of customer relationships at December 31



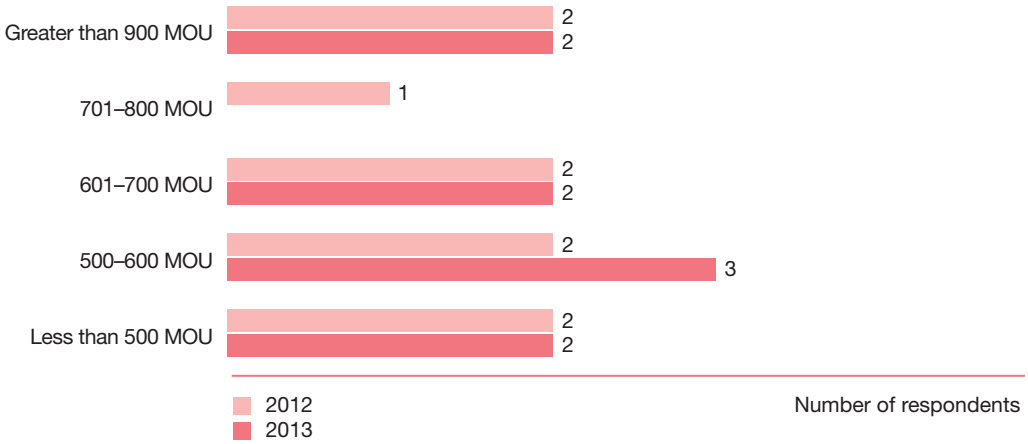
No responses were received in the 10–30 months category in 2012 or in the Less than 10 months category in 2013.

Respondents were also asked to provide the average customer lifetime value with the average being $1,780 and $1,679 as of December 31, 2013 and December 31, 2012, respectively.

Respondents noted that the average minutes of use (MOU) among respondents continues to decline, shrinking from 643 MOU per month as of December 31, 2012, to 624 MOU per month for 2013, which is consistent with trends reported around the world and previous surveys. 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 and/or non-verbal communication, such as text messaging and e-mail. However, Internet-based messaging services such as Apple iMessage and Facebook could be replacing traditional text messaging.

The average monthly minutes of use per postpaid subscriber at December 31, 2013, compared with December 31, 2012, is shown in Figure 2.2.

Figure 2.2: Average monthly minutes of use per postpaid subscriber as of December 31

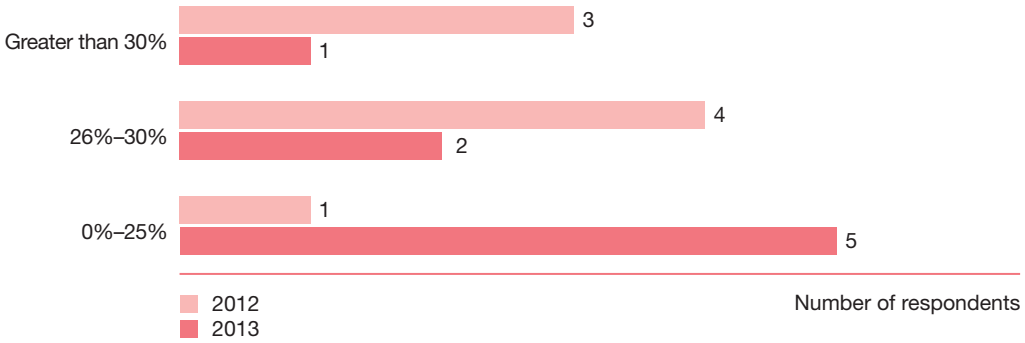


No responses were received in the 701–800 MOU category in 2013.

The average monthly excess MOU billed to postpaid subscribers was 52 in 2013 compared to 37 in 2012.

Eighty-nine percent of the responding companies report postpaid churn externally. The responding carriers indicated that an average of 26 percent of all churn is a result of involuntary disconnects (company-induced disconnects or terminations of service), down from 30 percent as reported in the previous year. Figure 2.3 shows the postpaid involuntary disconnections as of December 31, 2013 and 2012. Voluntary churn was essentially unchanged in 2013 at 1.10 percent compared to 1.11 percent in 2012 while involuntary churn increased to 5.23 percent in 2013 from 5.07 percent in 2012.

Figure 2.3: Involuntary disconnect churn as of December 31

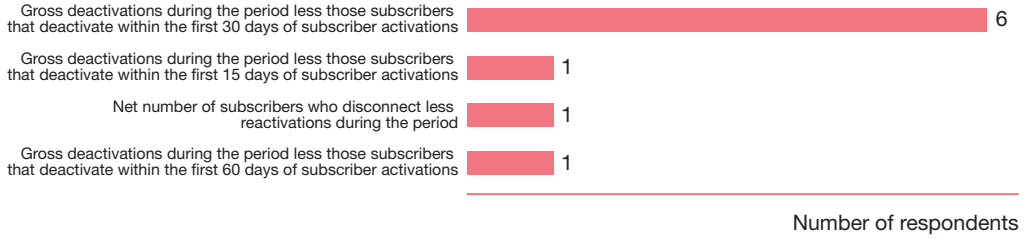


We asked the companies how postpaid churn is calculated.

- Seven of the nine respondents use net deactivations for the numerator, while two use gross deactivations.
- Seven respondents use average number of subscribers for the denominator, while two use beginning subscribers for the period.

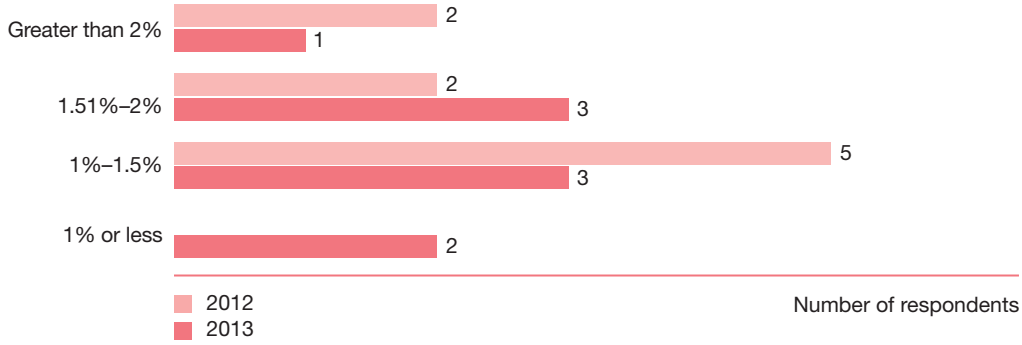
We also asked participants how they define net deactivations (or "buyer's remorse") for postpaid subscribers. Figure 2.4 shows how the responding companies define net deactivations.

Figure 2.4: Definition of net deactivations as of December 31, 2013



Because many carriers offer postpaid and prepaid services, we asked how companies account for a subscriber who moves from being a postpaid subscriber to being a prepaid subscriber, and vice versa. Six of the responding carriers indicated that they exclude migration activities from the churn calculation, while two carriers include the migration activity in either net or gross activations and deactivations, and thus impact the churn calculation. For responding companies that track postpaid information separately, Figure 2.5 details churn rates for postpaid subscribers. Churn overall is trending in the right direction on a year-over-year basis with average churn decreasing from 1.54 percent to 1.46 percent from 2012 to 2013. Churn for 2013 ranged from 0.98 percent to 2.24 percent.

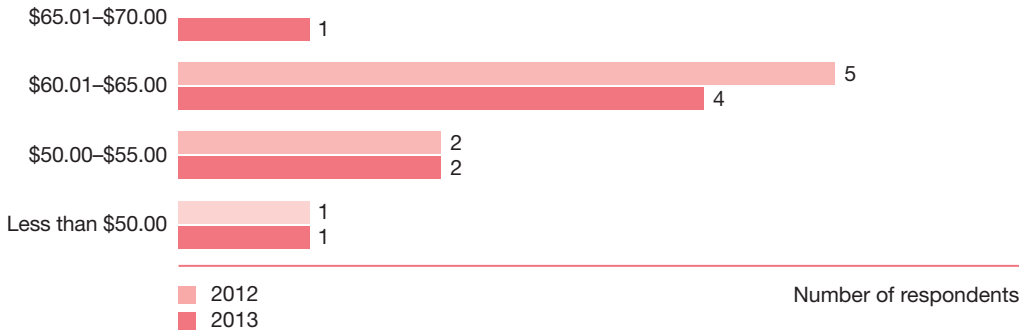
Figure 2.5: Churn for postpaid subscribers as of December 31



No responses were received in the 1% or less category for 2012.

Total ARPU as of December 31, 2013 and 2012, slightly decreased $57.37 from $57.86, respectively. Figure 2.6 highlights how many carriers are in each category of ARPU for postpaid subscribers.

Figure 2.6: Average revenue per user for postpaid subscribers as of December 31



No responses were received in the $65.01–$70.00 category in 2012 or the $55.01–$60.00 category in 2012 or 2013.

We asked the responding companies whether they include any non-subscriber revenue in calculating average revenue per user (such as roaming revenue, wholesale revenue, and advertising revenue). Eighty-nine percent of the responding companies include other non-subscriber revenue in their ARPU. Figure 2.7 indicates the number of respondents that include varying types of non-subscriber revenue in calculating ARPU.

Figure 2.7: Revenue included in ARPU calculation

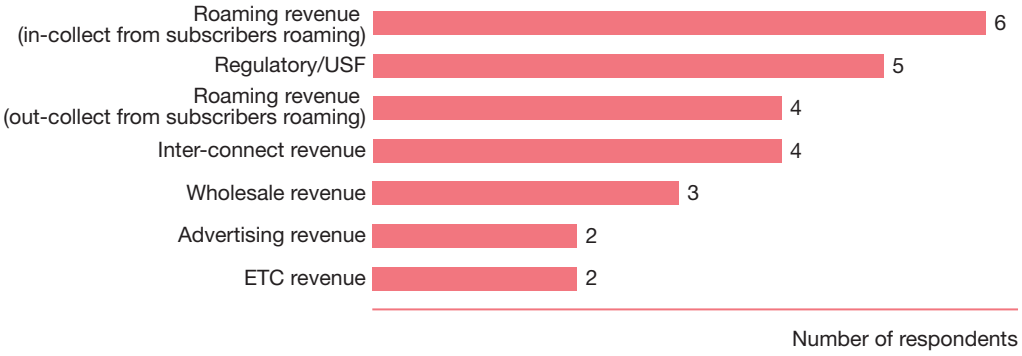


Chart totals greater than the number of responding companies because multiple responses were allowed.

Eighty-five percent of the respondents' revenue is the result of access, which is slightly higher than the previous year's 84 percent. 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.

Figure 2.8 shows the average postpaid subsidy (defined as the cost of handset less cash received) per customer as of December 31, 2013 and 2012, for new customers, retention customers and total customers.

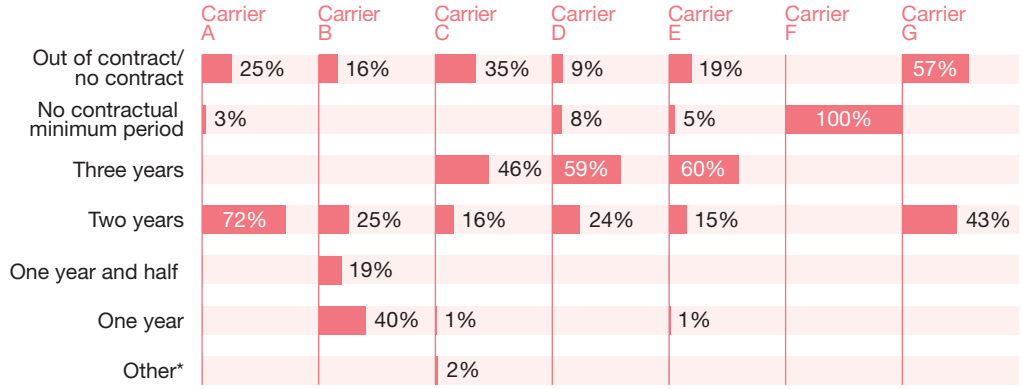
Figure 2.8: Average subsidy as of December 31

Service contracts

All of the responding companies indicated they have postpaid service contracts with their subscribers. In combination with device subsidies and offsetting termination fees, the use of postpaid service contracts had been a popular mechanism for attracting and retaining subscribers who do not wish to make large, up-front investments in costly smartphones. The industry is beginning to shift to alternative pricing options as well, such as leasing and device financing which could have a dramatic impact on service contracts.

Figure 2.9 illustrates the responding companies' terms of postpaid service contracts and the approximate percentage of subscribers on each contract term.

Figure 2.9: Percent of subscriber base by contract length as of December 31, 2013



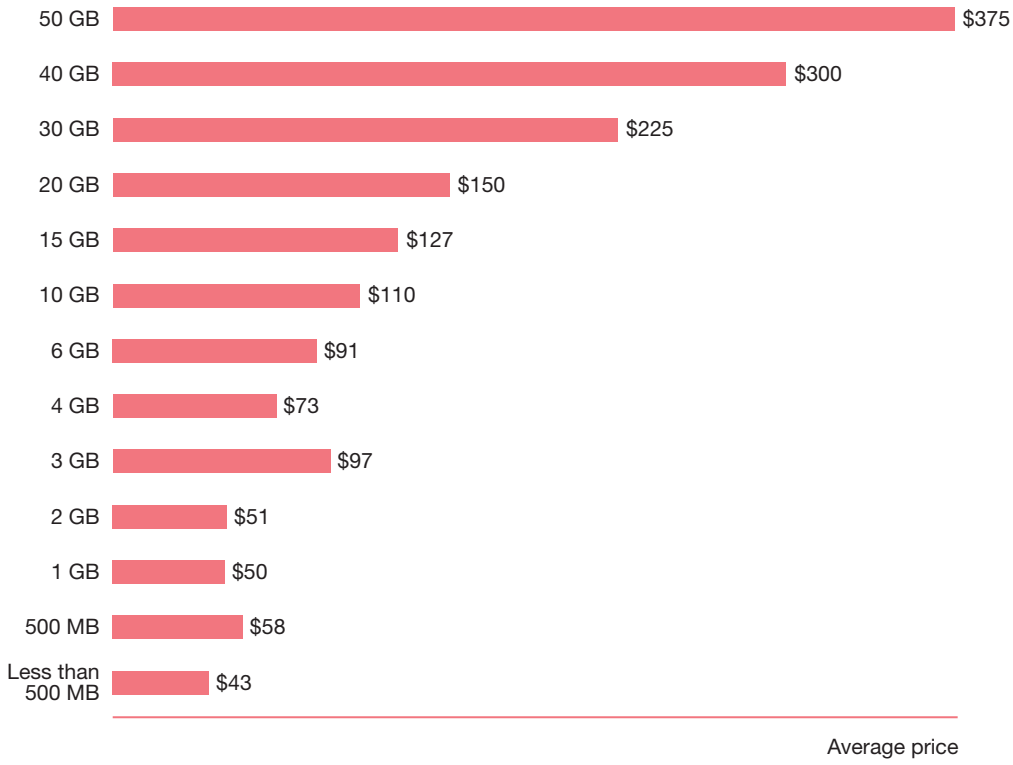
*One carrier responded with a 27 month contract length

Carriers confirmed recent trends with four respondents answering that they plan on reducing or eliminating postpaid smartphone subsidies as of December 31, 2013. While two responded they had no plans to reduce subsidies and three of the carriers were uncertain as to any plan.

Three of the carriers offer unlimited data plans with speed throttling and three others offer tiered data plans. One carrier offers unlimited data plans with no speed throttling.

Five of the nine responding carriers offer shared data plans and those that do not have no current plans to begin offering them. For the carriers that do offer shared data plans, the average percentage of postpaid subscribers on those plans remains low at 15 percent and 13 percent as of December 31, 2013 and 2012, respectively. Further, the cost of those plans varies widely depending on the size of the data plan with the average monthly cost ranging from $43 for plans less than 500 MBs to $375 for 50 GBs. Figure 2.10 shows the average prices for shared data as of December 31, 2013.

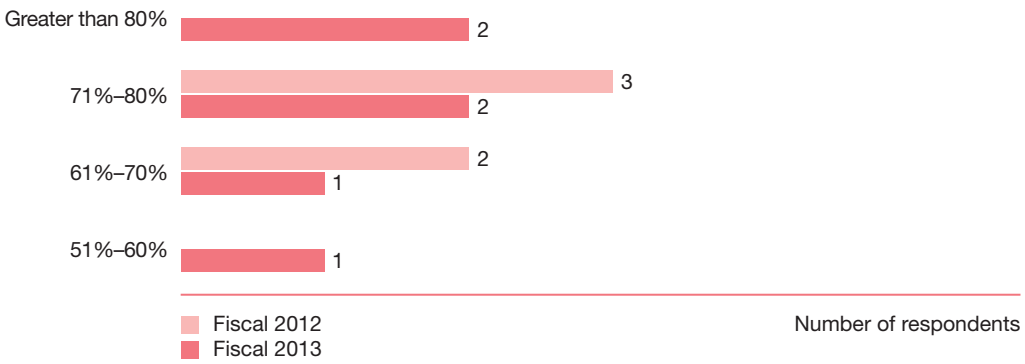
Figure 2.10: Average monthly price for shared data plans based on MBs/GBs as of December 31, 2013



Smartphones

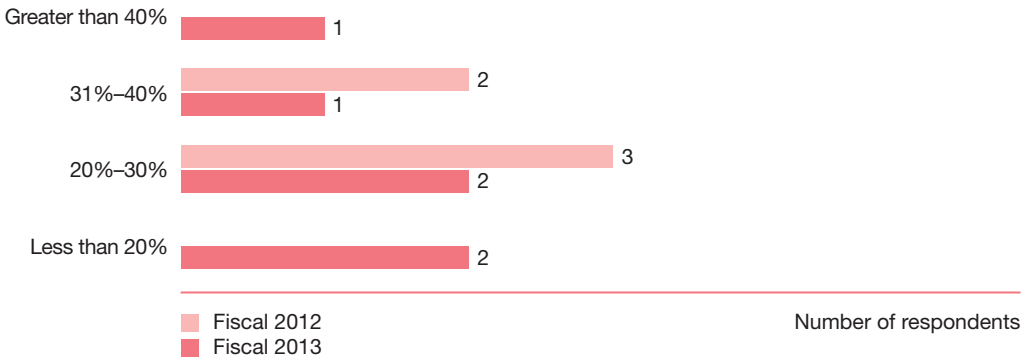
Companies were asked to specify service revenue by device type as a percentage of total service revenue. Smartphones were defined as mobile phones offering advanced capabilities with PC-like functionality (such as Android, Apple iPhone, BlackBerry, and Windows). Smartphone device sales are cannibalizing the sales of other phones that may be more profitable to sell. An average of 49 percent of the responding companies' total service revenue was for smartphone services for fiscal 2013, compared with 44 percent as of fiscal 2012; this illustrates the average decrease in non-smartphone services year over year (51 percent, compared with 56 percent in fiscal 2012). Figures 2.11 and 2.12 illustrate the percentage of service revenue to total revenue associated with smartphone and non-smartphone devices as of fiscal 2013 and fiscal 2012.

Figure 2.11: Smartphone service revenue as a percentage of total service revenue



No responses were received in the 51%–60% or Greater than 80% categories in 2012.

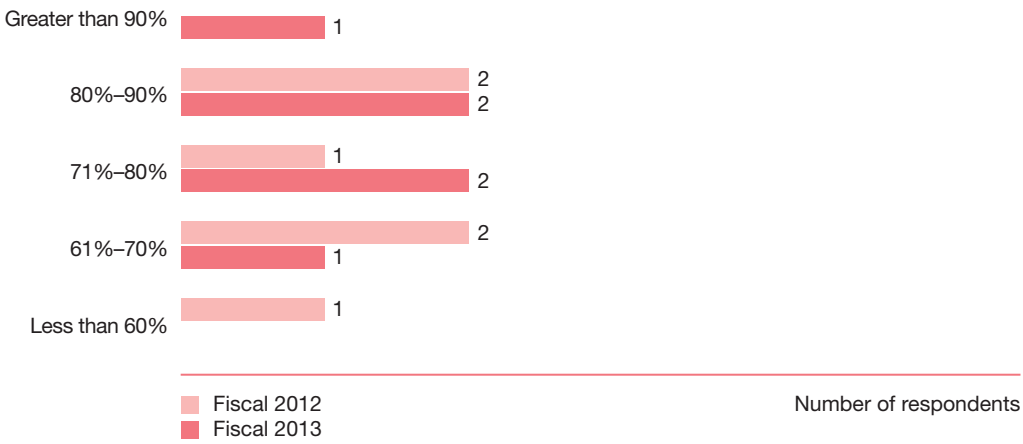
Figure 2.12: Non-smartphone service revenue as a percentage of total service revenue



No responses were received in the less than 20% or Greater than 40% categories in 2012.

We asked participating companies what percentage of new postpaid phone sales and postpaid customer upgrade sales were related to smartphones for fiscal 2013 and 2012. The results are depicted in Figures 2.13 and 2.14. The average of all responding companies for the percentage of new phone sales related to smartphones was 79 percent for fiscal 2013 compared with 74 percent for fiscal 2012. The profitability of smartphones and other mobile devices is mutually dependent on handset/device subsidies, which indicates that the growing smartphone sales may not be the most profitable category due to the high subsidies in terms of the impact on profit margins.

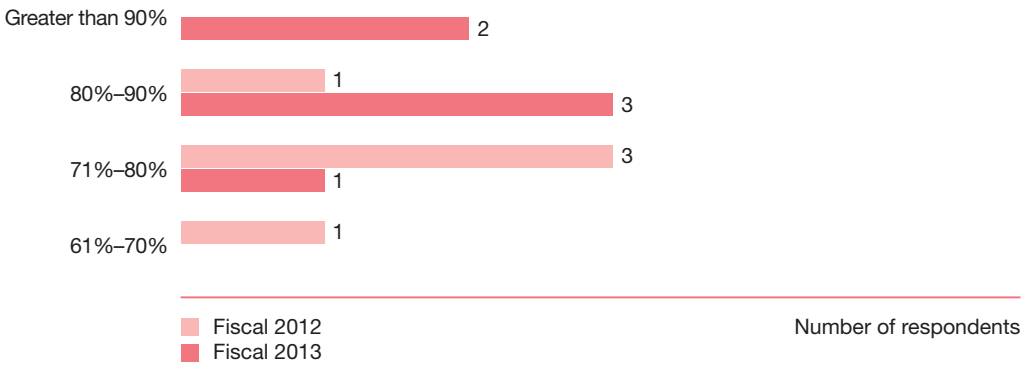
Figure 2.13: Smartphone sales as a percentage of new phone sales



No responses were received in the Greater than 90% category for 2012 or in the Less than 60% category for 2013.

The average of all responding companies for the percentage of upgrade phone sales related to smartphones was 87 percent for fiscal 2013, compared with the fiscal 2012 average upgrade phone sales of 77 percent. As carriers continue to offer new plans and incentives for upgrades, the percentage of upgrades that relate to smartphones is likely to continue to increase; as can be seen with two carriers having more than 90 percent of upgrades related to smartphones. Figure 2.14 provides the responses for the upgrade phone sales related to smartphones.

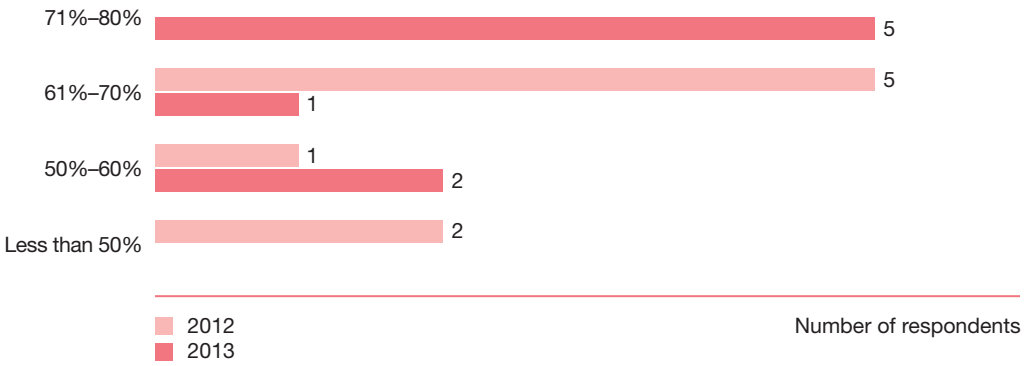
Figure 2.14: Percentage of customer upgrade phone sales related to smartphones



No responses were received in the Greater than 90% category for 2012 or in the 61–70% category for 2013.

Figure 2.15 illustrates the carriers' percentage of smartphone subscribers for postpaid customers as of December 31. The average percentage of smartphone subscribers at December 31, 2013, was 68 percent, compared with 59 percent at December 31, 2012.

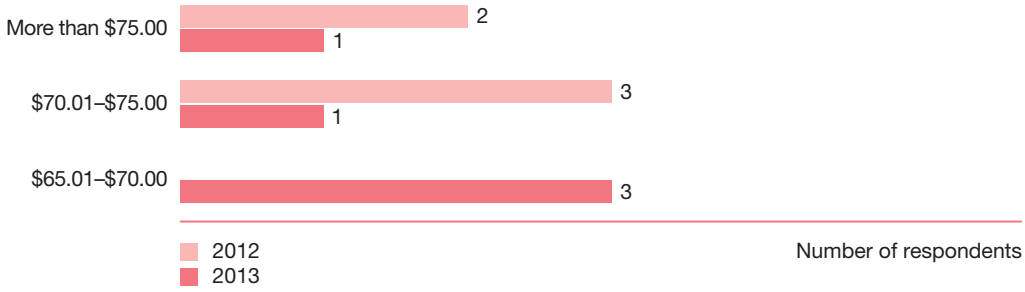
Figure 2.15: Smartphone subscribers as a percentage of total subscribers as of December 31



No responses were received in the 71%–80% category for 2012 or in the Less than 50% category for 2013.

The ARPU of smartphone subscribers at December 31, 2013, declined to $70.34, compared with $75.93 at December 31, 2012. Figure 2.16 shows the ranges of average revenue per postpaid user for smartphones. The decrease in ARPU reflects the continuing pricing challenges carriers are experiencing while competing for new customers.

Figure 2.16: Average revenue per postpaid user for smartphone users as of December 31

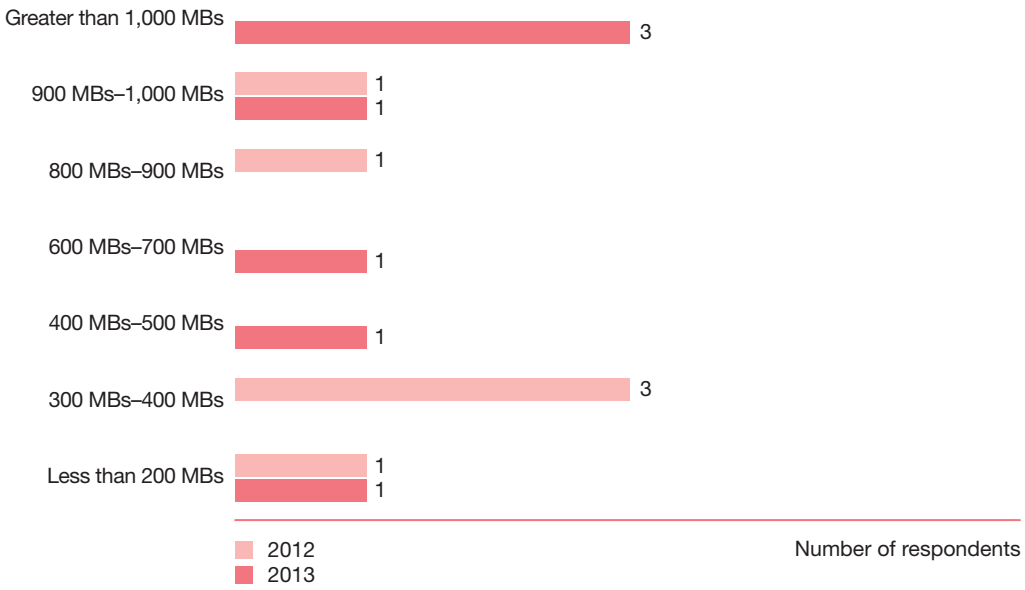


No responses were received in the $65.01–$70.00 category in 2012.

While smartphone penetration has continued to grow, adoption by the mass market is clearly beginning to slowly degrade ARPU. While the overall benefit of such growth may outweigh the costs, continued rapid annual increases of nearly 62 percent in data usage per subscriber demand that operators take steps to achieve step-level increases in efficiency. The ongoing rollout of spectrally efficient 4G/LTE networks may contribute to this, but will likely require additional support and evolved network operating models.

Smartphone users on average consumed 776 MBs of data per month as of December 31, 2013, compared with 478 MBs of data per month at the same time in 2012. Figure 2.17 compares the MBs per user per month as of December 31, 2013 and December 31, 2012.

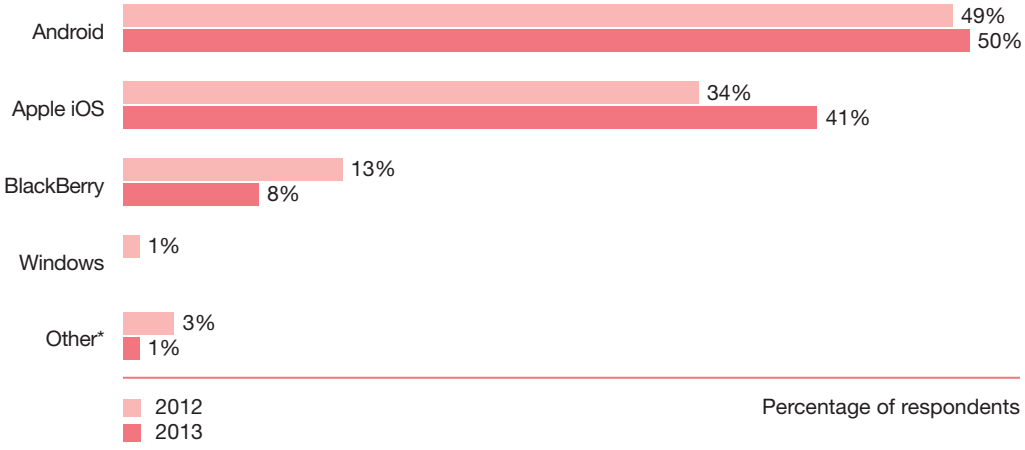
Figure 2.17: Megabytes per postpaid smartphone per month as of December 31



For 2012, no responses were received in 400 MBs-500 MBs, 600 MBs–700 MBs, or Greater than 1,000 MBs categories.
For 2013, no responses were received in 300 MBs–400 MBs or 800 MBs–900 MBs categories.

The companies indicated that their postpaid wireless subscribers use various operating systems. However, Android and Apple iOS continue to dominate at the expense of others. Figure 2.18 indicates the percentage of postpaid smartphone subscribers operating on the available operating systems as of December 31, 2013 and 2012.

Figure 2.18: Smartphones per operating system as of December 31



*Other includes Smartphone Lite or all other smartphones. No responses were received in the Windows category in 2013.

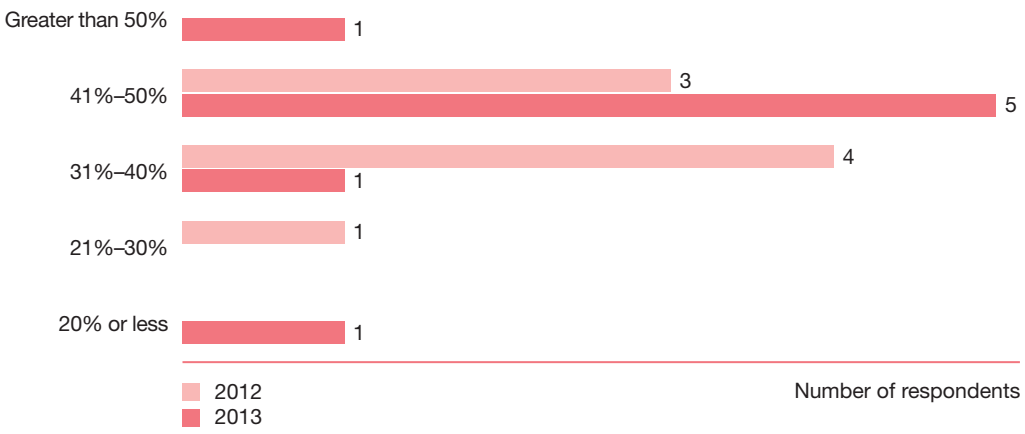
Data services

Data services continue to be an area of focus and are offered by all the responding companies to postpaid subscribers. Carriers are continuing to look at data services as opportunities to grow revenue.

Figure 2.19 illustrates the percentage of responding companies' postpaid service revenue attributed to data services. For all respondents, the percentage of postpaid service revenue related to data increased to 44 percent as of December 31, 2013, up from 38 percent for the same period in 2012.

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.

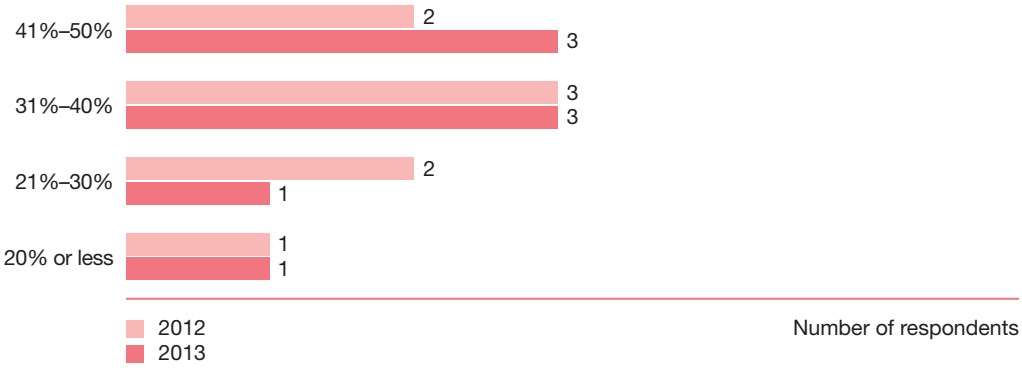
Figure 2.19: Percentage of postpaid service revenue generated by data services as of December 31



No responses were received in the 20% or less or Greater than 50% categories for 2012 or in the 21%–30% category in 2013.

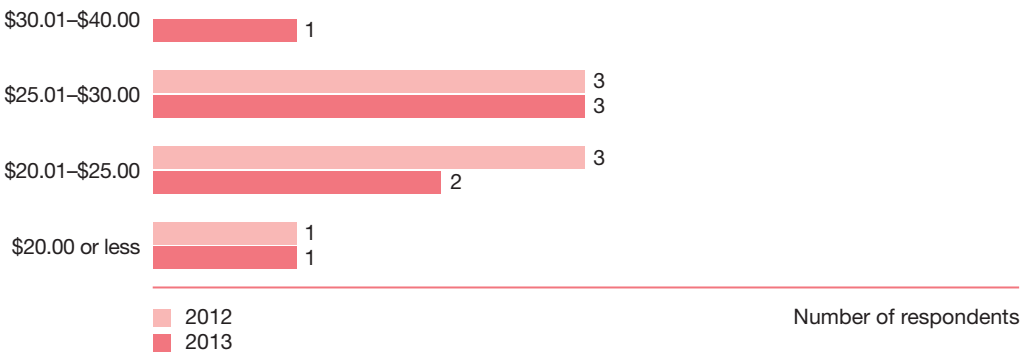
Figure 2.20 illustrates the percentage of responding companies' total service revenue generated by data services as of December 31. Data services continue to be an area of growth for wireless operators, with many attributing a growing percentage of their revenue to these services as of December 31, 2013.

Figure 2.20: Percentage of total service revenue generated by data services as of December 31



The approximate monthly contribution to postpaid ARPU by each postpaid data services user is shown in Figure 2.21. The ARPU per postpaid data service user increased more than 10 percent to $21 as of December 31, 2013, from $19 as of December 31, 2012.

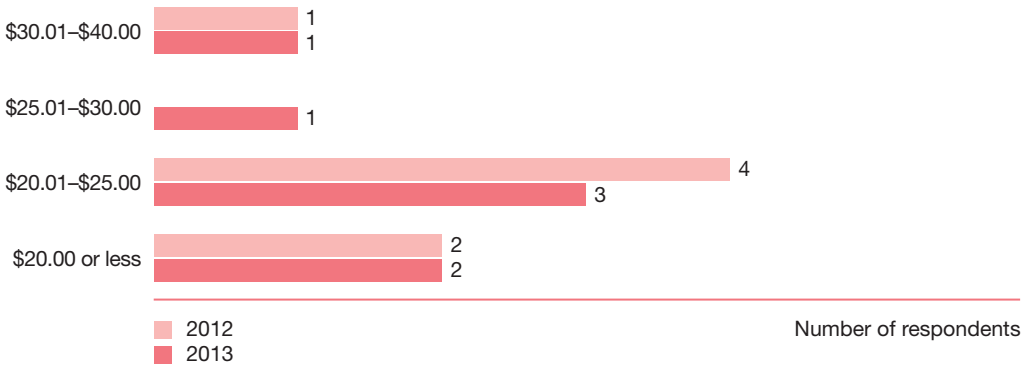
Figure 2.21: Monthly contribution to postpaid ARPU by data service user as of December 31



No responses were received in the $30.01–$40.00 category for 2012.

The approximate monthly contribution to total average revenue per data services user is shown in Figure 2.22. Data users on average contributed $21 to total ARPU as of December 31, 2013, which is up from the average of $19 at December 31, 2012.

Figure 2.22: Monthly contribution to total ARPU per data service user as of December 31

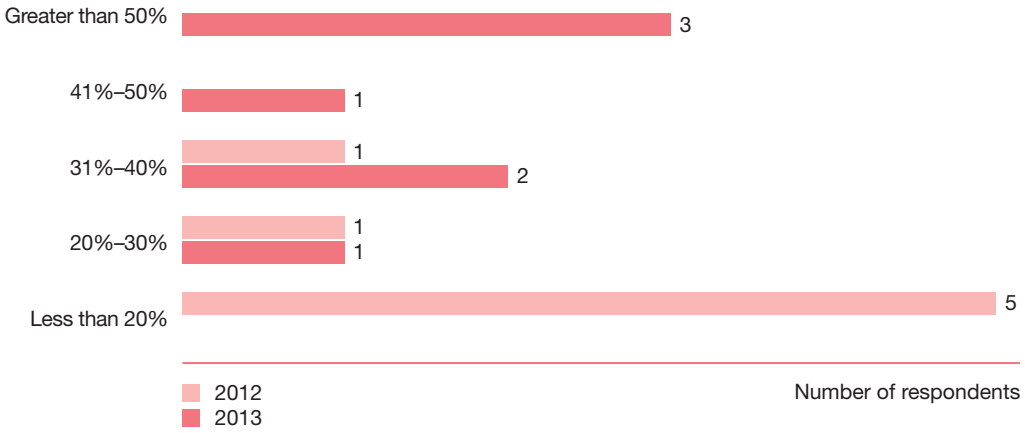


No responses were received in the $25.01–$30.00 category in 2012.

While data ARPU continues to grow, this growth is coming with additional cost as the volume of data services is growing. The data growth is codependent on and highly impacts the network costs and network technology upgrades. Generally, data traffic is expensive, and the carriers are looking to mitigate the toll on their networks through gaining additional capacity, either by adding more spectrum or more cell sites.

Given the increasing importance of data services, companies were also asked what percentage of postpaid smartphone customers use 4G/LTE-enabled devices. Figure 2.23 shows the averages as of as of December 31, 2013, compared to December 31, 2012.

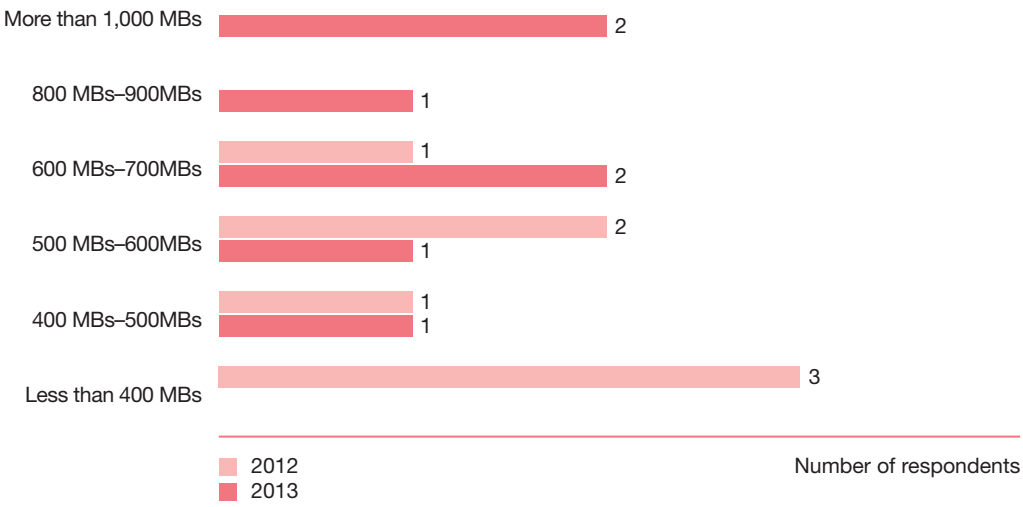
Figure 2.23: Percentage of postpaid customers using 4G/LTE smartphones as of December 31



No responses were received in the 41%–50% or Greater than 50% categories in 2012 or in the Less than 20% category for 2013.

The rising use of 4G/LTE smartphones is also driving further data usage as speed is faster and the availability to data streaming and watching live programming expands. The average total MBs used for fiscal years 2013 and 2012 were 4.9 billion MBs and 2.5 billion MBs, respectively. Figure 2.24 shows the average MBs per postpaid subscriber per month as of December 31, 2013, over December 31, 2012.

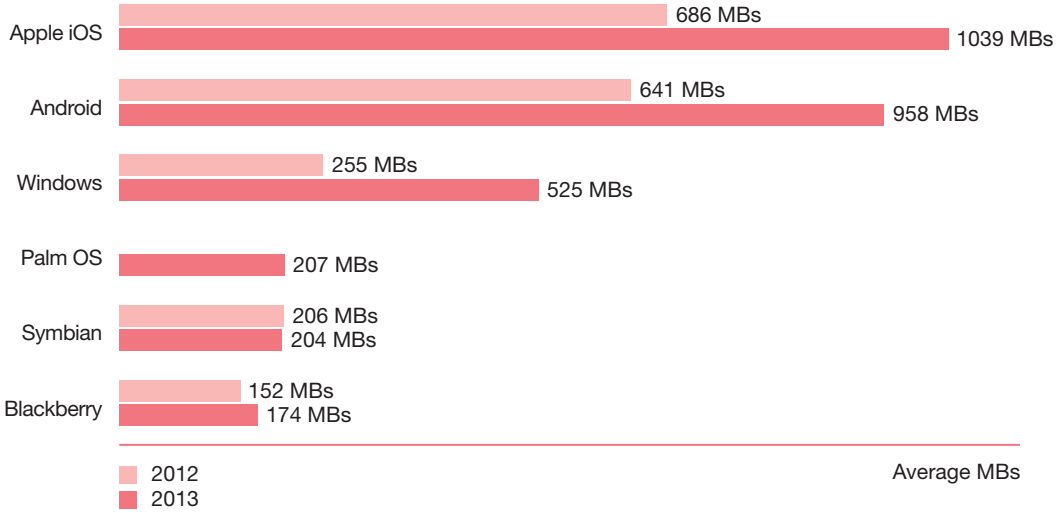
Figure 2.24: Average MBs per postpaid subscriber per month as of December 31



No responses were received in the 800 MBs–900 MBs and More than 1,000 MBs categories in 2012 or in the Less than 400 MBs category in 2013.

Among the mobile operating systems utilized, Android, Apple iOS, and Windows are the largest drivers of MB usage on a monthly basis with all but Windows averaging roughly 1,000 MBs per month on average for fiscal year 2013. Figure 2.25 indicates the average MBs per postpaid customer on each category of operating system as of December 31.

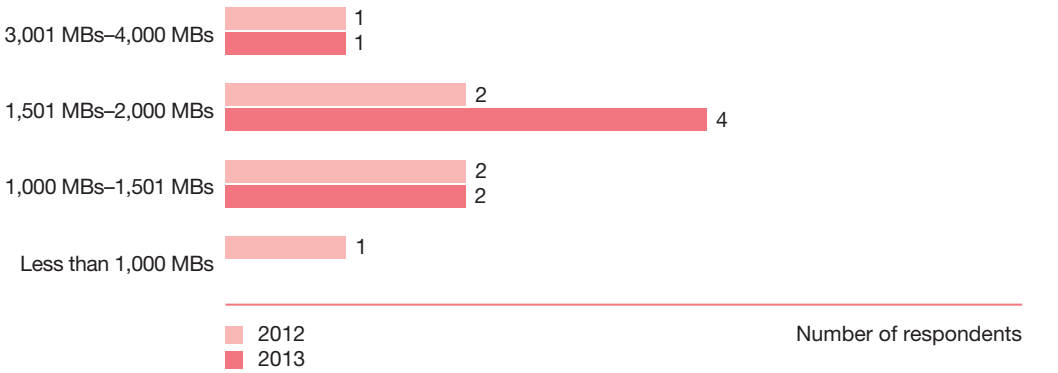
Figure 2.25: Average MBs per postpaid subscriber per month per operating system as of December 31



No responses were received in the Palm OS category in 2012.

Mobile broadband customers on average use 200 percent more data service per subscriber compared with all postpaid subscribers. The average MBs per mobile broadband subscriber per month was 2,105 at December 31, 2013, compared with 1,766 at December 31, 2012. Figure 2.26 indicates the average MBs per postpaid mobile subscriber for the responding carriers as of December 31, 2013 and 2012.

Figure 2.26: Average MBs per postpaid mobile broadband subscriber per month as of December 31

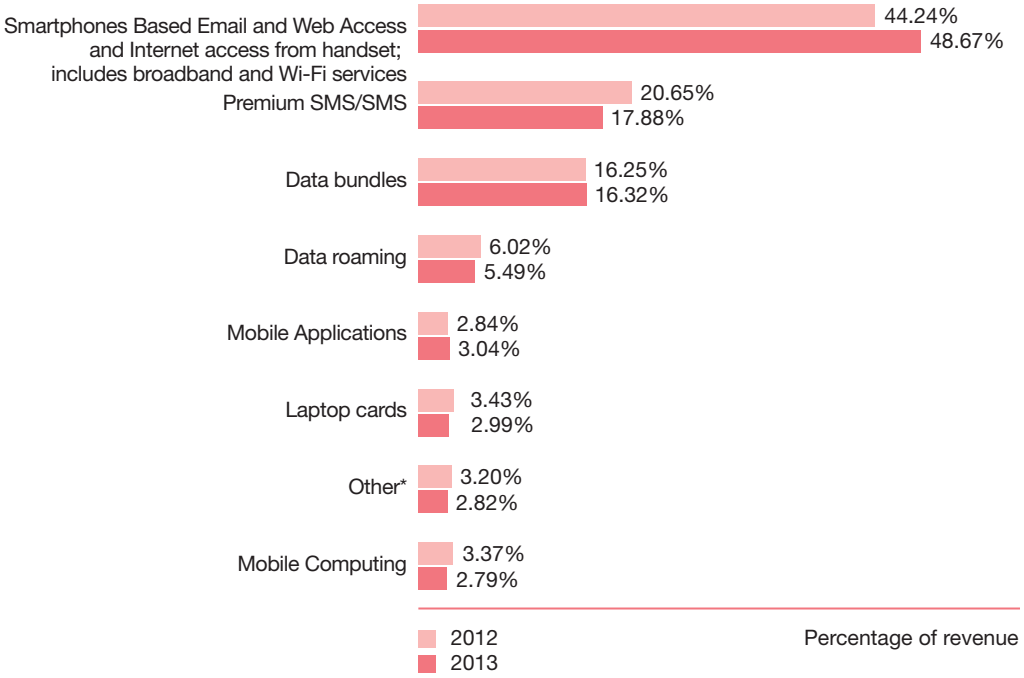


No responses were received in the Less than 1,000 MBs category in 2013 or the 2,001 MBs-3,000 MBs category in 2012 or 2013.

We asked responding companies who have an application store or website enabling subscribers to purchase and download applications, ring tones, games, etc., how the revenue associated with these purchases is being recognized. Of the responding companies, four recognize revenue gross with the cost reflected in cost of service, and four indicated that it depends on the specific facts to determine gross revenue or net revenue reporting. All four carriers that indicated it depends on gross or net reporting indicated that the following criteria were evaluated: whether the third-party content provider is the primary obligor with the end user, if the amount the service provider earns is fixed, and who bears the credit risk for non-payment.

The responding companies offer multiple types of data services to customers. Figure 2.27 depicts the percentage of total revenue generated from each type of data service identified as related to postpaid data services as of December 31, 2013 and 2012

Figure 2.27: Postpaid data revenue by source as of December 31



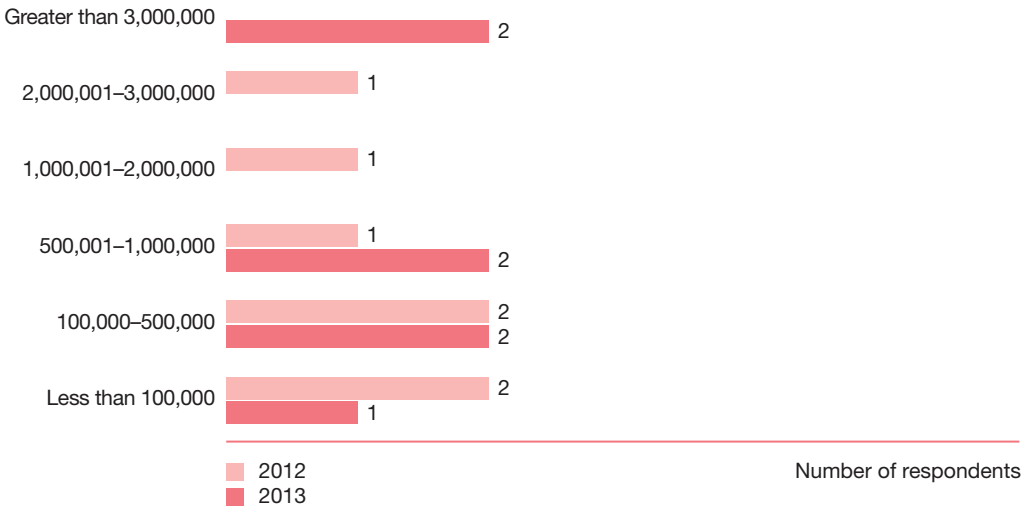
*Other includes ring tones, games-downloading, premium SMS, location based services, ringback tones, video and music downloads, pictures, etc.

The above Figure 2.27 suggests some significant changes in the usage of services by customers:

- With the continued expansion of data hungry smartphones, access to e-mail and mobile Internet continues to increase
- Two key factors contribute to the decline in Premium SMS/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.

Eighty-nine percent of the postpaid carriers offered a tablet device to their subscribers as of December 31, 2013. On average, the carriers offer nine different tablet options. The responding carriers that do offer a tablet indicated that the ARPU as of December 31, 2013, averaged $26.77, which was a more than 10 percent decline from ARPU of $30.68 as of December 31, 2012. The average number of subscribers was 1.2 million and ranged from 13,000 to 3.6 million as depicted in Figure 2.28.

Figure 2.28: Tablet subscribers as of December 31

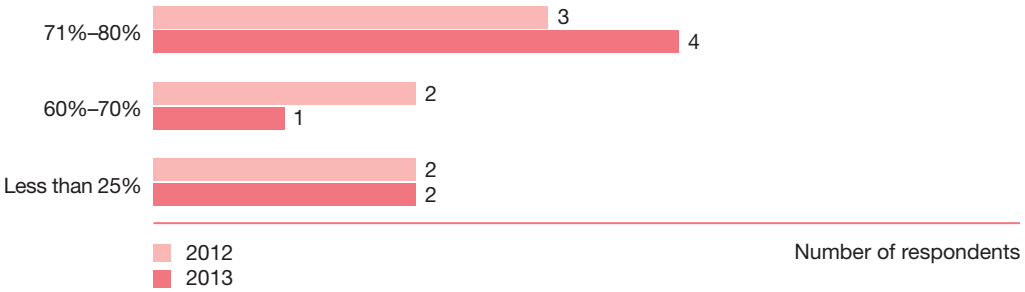


No responses were received in the Greater than 3,000,000 category in 2012 or in the 1,000,001–2,000,000 and 2,000,001–3,000,000 categories in 2013.

Family plans

A large number of companies continue offering family plans to their customers. We are also seeing carriers expand these family plans to include tablets and hot spots. Eighty-nine percent of responding companies offer family plans to their postpaid subscribers. Figure 2.29 shows the percentage of postpaid subscribers who are enrolled in family plans as of December 31, 2013 and 2012. On average, 57 percent of subscribers are on family plans as of December 31, 2013, which is a slight increase from 54 percent as of December 31, 2012.

Figure 2.29: Percentage of postpaid subscribers on family plans as of December 31

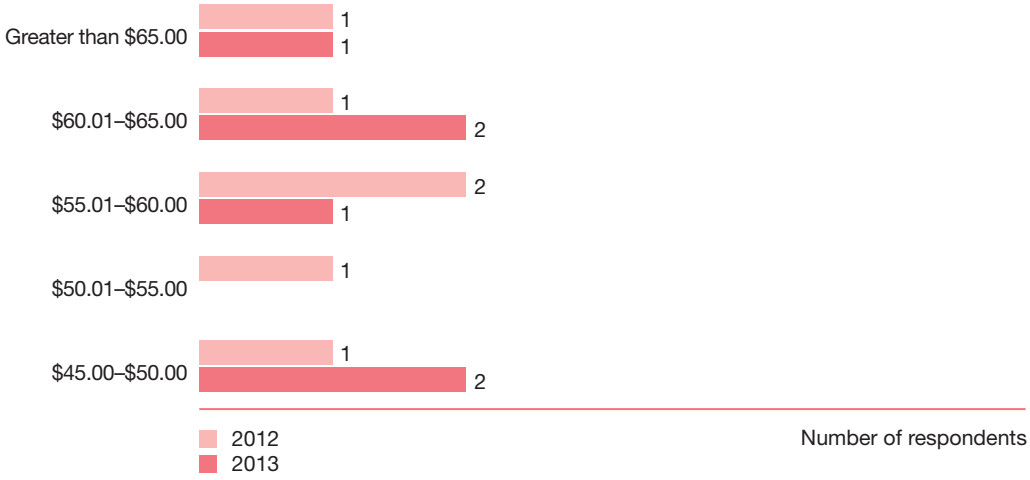


While family plans can be a slight drag on ARPU, they are an effective means of deterring churn since they require the conversion of an entire set of devices and customers in order to effect a change. We also believe that family plans may also yield significant secondary benefits, particularly in terms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

Only 63 percent of responding companies include the use of wireless cards, wireless data dongles, or embedded devices such as tablets as part of postpaid family plan account options as of December 31, 2013. As carriers begin to offer more incentives for multi-device users to subscribe to 3G and 4G services, we expect the percentage to continue to increase in future years.

The average total revenue per family plan increased as of December 31, 2013, to $290.40 from $242.96 as of December 31, 2012. The increase in ARPU for family plan subscribers is likely due to data usage and tiered plans. The overall ARPU per user associated with family plans slightly increased as of December 31, 2013, to $59.27, compared with ARPU of $59.08 as of December 31, 2012. Figure 2.30 depicts the ranges of ARPU for monthly family plan subscribers.

Figure 2.30: Average monthly family plan subscriber revenue per user as of December 31



No responses were received in the $50.01–$55.00 category in 2013.

To add subscribers to family plans, many of the responding companies charge for each additional subscriber enrolled. Forty-three percent of the respondents charged $30 or more per additional subscriber on family plans. Forty-three percent varied based on plan and current promotions, and the remaining carrier charged $10.

As of December 31, 2013 and 2012, average postpaid family plan churn for all respondents was 1.21 percent and 1.36 percent, respectively.

In general, family plans appear to be an effective way to increase the length of subscriber relationships and reduce churn; churn continues to be lower for family plan customers than for overall postpaid. As of December 31, 2013, family plan churn of 1.21 percent is 20 percent lower than the overall total postpaid subscriber churn of 1.46 percent.

Features revenue

Sixty percent of responding companies indicated that features revenue made up less than 2 percent of total service revenue. Figure 2.31 shows the number of respondents and the percentage of feature revenue to total service revenue. On average, total feature revenue was flat from 2012 to 2013 at 5 percent of total service revenue.

Figure 2.31: Feature revenue as a percentage of total service revenue as of December 31

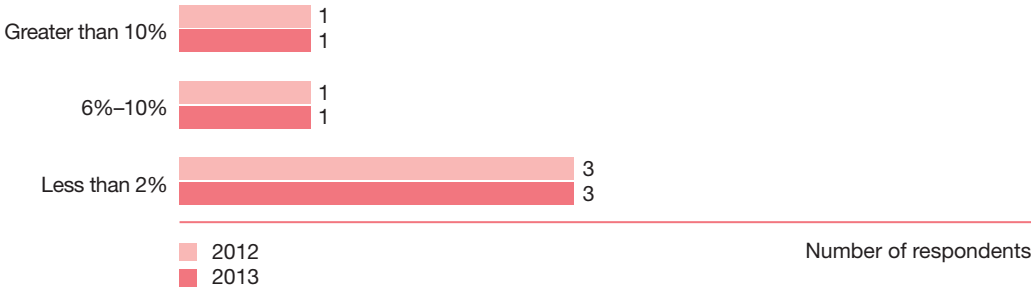


Figure 2.32 illustrates the various features offered to subscribers by the responding companies.

Figure 2.32: Features offered to subscribers

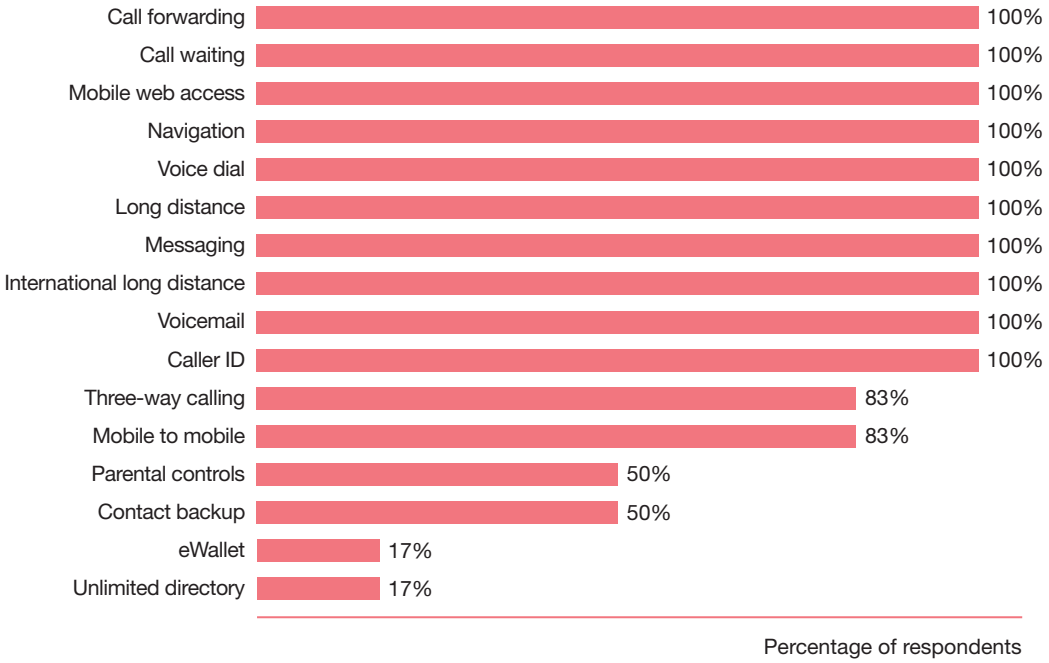


Chart totals greater than 100% because multiple responses were allowed.

Companies were asked if they report third-party revenues on a net basis and for those that do what significantly influenced that conclusion. The most significant factor was whether the third-party content provider was the primary obligor in the arrangement with the end user customer. The respondents also considered whether the amount the service provider earns is fixed and whether the third-party content provider bears credit risk for non-payment from the end user customer.

Termination fees and bad-debt expense

The responding companies use three methods to record revenue related to termination fees, which are illustrated in Figure 2.33.

Figure 2.33: Method of accounting for termination fee bad debt expense

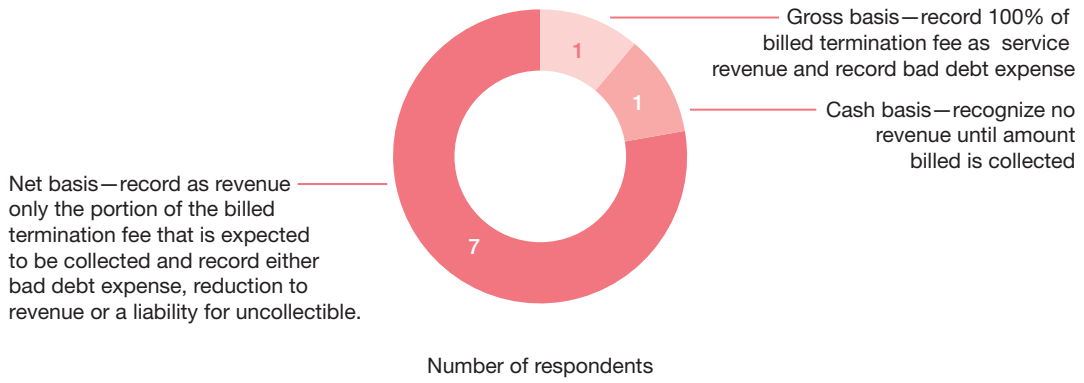
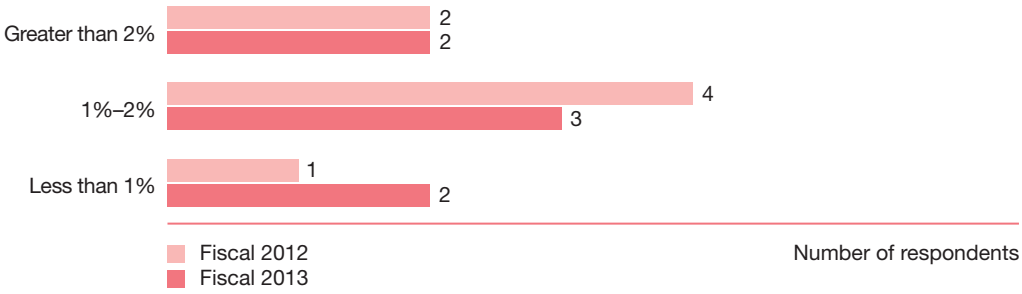


Figure 2.34 illustrates bad debt expense related to postpaid receivables as a percentage of total postpaid revenues. As the economic climate continues to see large changes, responding companies are having increased volatility related to bad debt expenses over the past few years, with fiscal 2013 seeing overall reduced expense. The average bad debt expense as a percentage of postpaid revenues decreased 2.5 percent from 1.99 as of December 31, 2012, to 1.94 percent in 2013.

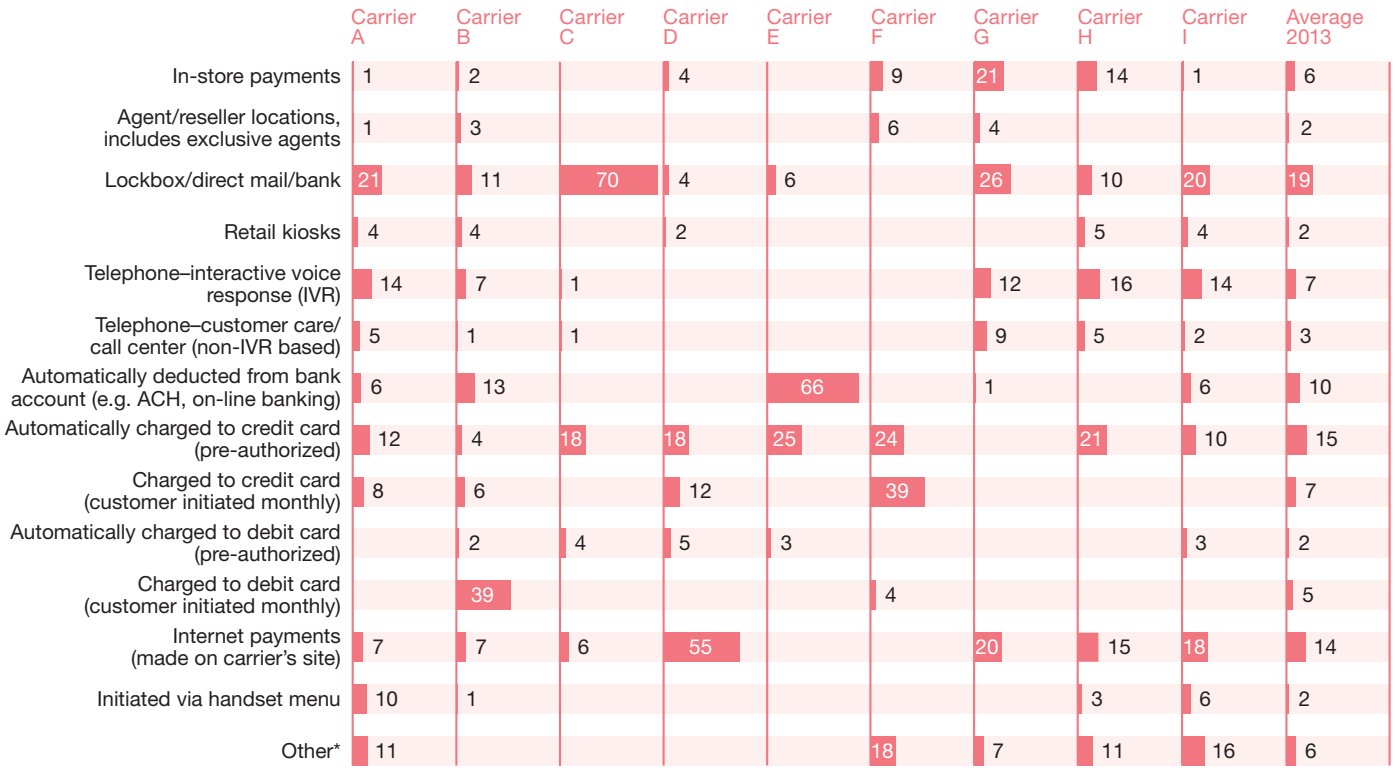
Figure 2.34: Postpaid bed-debt expense as a percentage of total postpaid revenues



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 Figure 2.35, including the average of all responding companies. The trending of the results indicates that customers increasingly prefer electronic forms of payment due to the time savings and convenience of these payment methods.

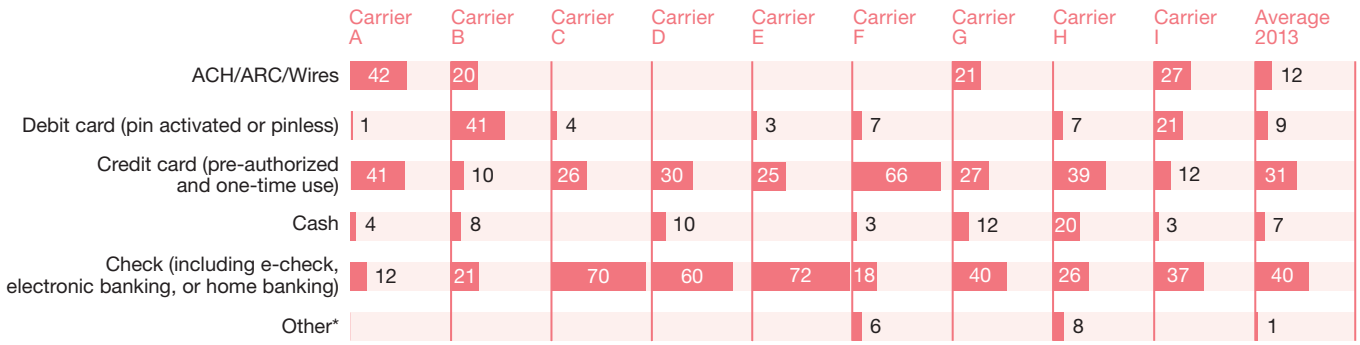
Figure 2.35: Postpaid customer payment channel



Other includes online bill pay, EDI, check, outside collection agent, or other.

Figure 2.36 shows the sources of payments by percentage for postpaid subscribers and compared with the average of all responding companies.

Figure 2.36: Methods of postpaid customer payments



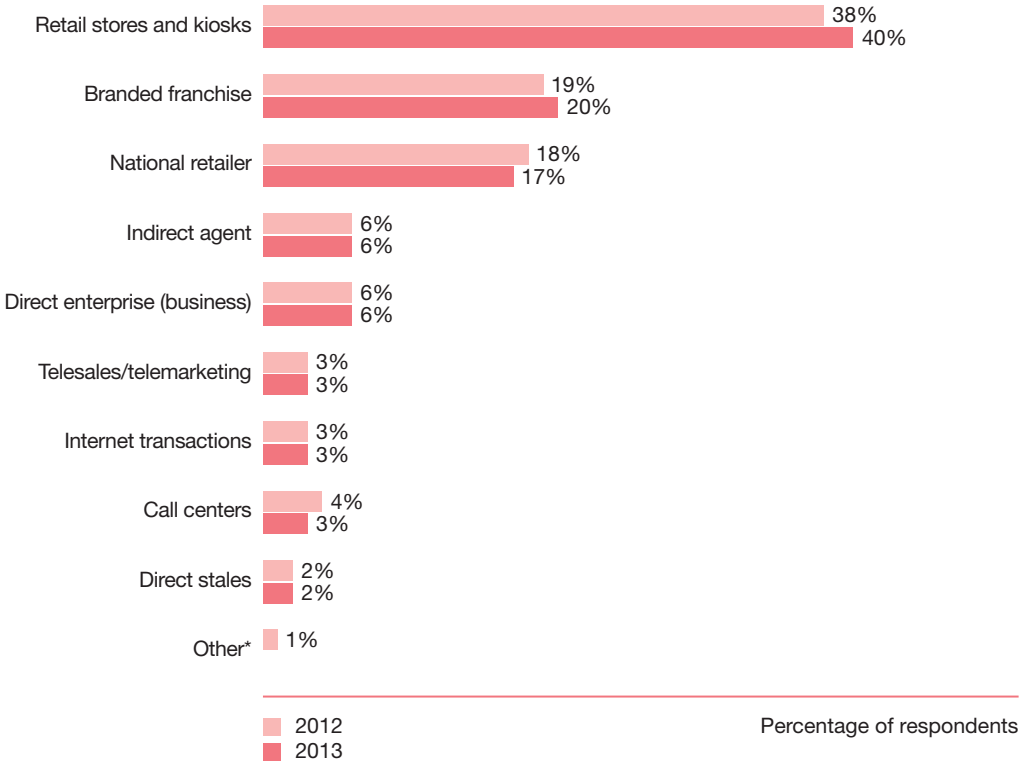
*Other includes online bill pay, EFT, or other

Responding carriers indicated that an average of 30 percent of the postpaid base of subscribers pay using recurring payments (such as credit card, debit card, ACH, check) each month.

Activation channels

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 Figure 2.37. There were no significant changes on a year-over-year basis. Consistent with previous years, postpaid subscribers prefer to activate their phones in the retail stores or kiosks. This is likely because subscribers like the customer service and the ability to look at and physically interact with the handset portfolios on display.

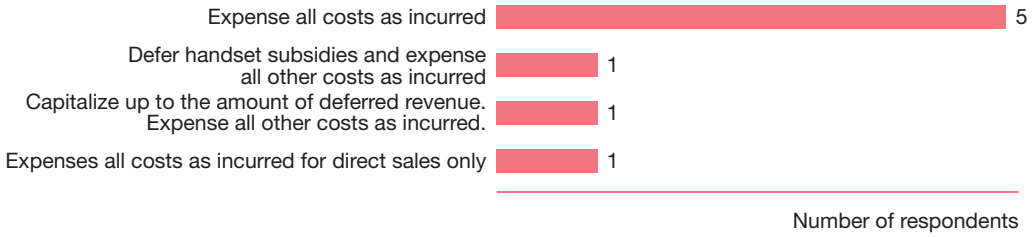
Figure 2.37: Postpaid subscriber activation channels by size



*Other includes affiliates/partnerships.

We asked respondents how they account for customer acquisition and retention costs. Figure 2.38 summarized how companies treat postpaid customers acquisition costs.

Figure 2.38: Treatment of customer acquisition costs



Responding carriers indicated that an average of 30 percent of the postpaid base of subscribers pay using recurring payments (such as credit card, debit card, ACH, check) each month.

Devices

All of the responding carriers allow a postpaid customer to utilize their own device for service on the carrier's network (i.e., customers bring their own device). Additionally, all responding carriers that allow a customer to bring in their own device to activate postpaid service require a credit check before service begins. Fifty-five percent of carriers offer a form of subsidy to a customer who brings their own device and activates postpaid service, with the type of subsidy varying amongst the respondents.

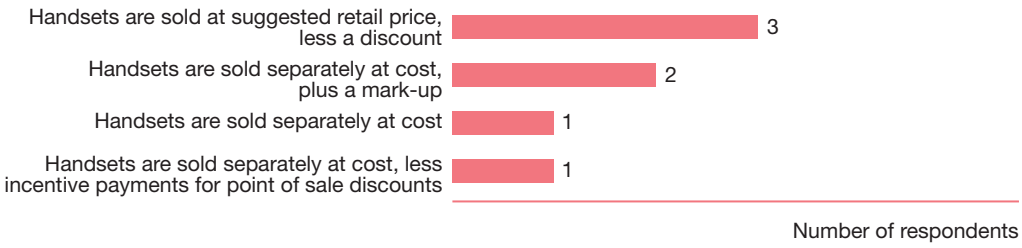
Eighty-six percent of the carriers offer a discount on postpaid monthly service to subscribers that bring their own devices with the discount ranging from either $15-$25 per month or from 10 percent to 20 percent off depending on the rate plan.

Five of the respondents offer some type of device financing to postpaid customers and four of those carriers responded that they track the financing through an in-house financing structure as of December 31, 2013. The average postpaid activations during fiscal 2013 related to device financing plans was two percent. The carriers all recognize revenue upon delivery of the device to the customer.

Six of the carriers offer a device upgrade program for postpaid subscribers, and one additional carrier has plans to begin offering one within the next 12 months. Of those carriers that do offer a device upgrade program, all but one manages the program using in-house resources with one utilizing a third party. Sixty percent of respondents indicated that they charge a fee to participate in the upgrade program.

Companies were asked to indicate how they treat sales of handsets if they use resellers and/or indirect agents. The results are described in Figure 2.39.

Figure 2.39: Treatment of postpaid handset sales related to resellers and/or indirect agents



Prepaid revenue

The following pages cover wireless company practices related to prepaid revenue. As volatility continued in the economic situation in 2013, 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 services
Prepaid active subscribers
Prepaid cards
Retention
Activation channels
Payment channels
Payment methods
Smartphones
Tablets
Devices
Disconnection and zero balance accounts
Prepaid data services
Megabytes
Prepaid handset sales

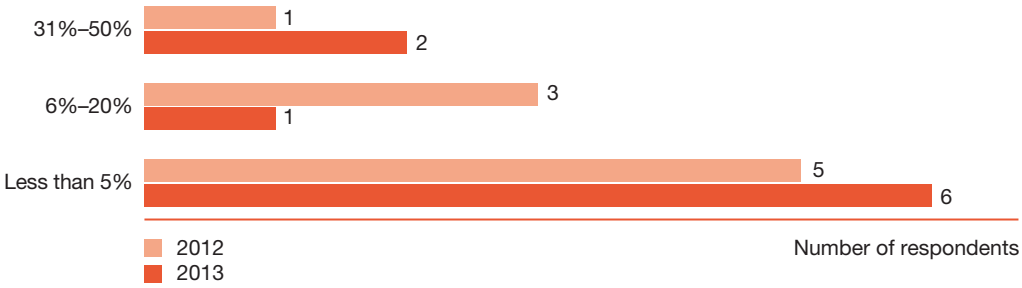
Prepaid services

Prepaid is defined as a type of mobile phone account that requires its owner to pay for a service period or purchase call credits before services can be used. The purchased credit is used to pay for services at the point the service is accessed or used. Users are able to top-up their credit at any time, using a variety of payment mechanisms. These subscribers are typically not on a contract.

All 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, who requires at least one minute of use. Of the nine carriers with prepaid subscribers, only one offers family plans to those prepaid subscribers.

Figure 3.1 depicts prepaid revenue as a percentage of total service revenue as of December 31, 2013 and December 31, 2012.

Figure 3.1: Prepaid revenue as a percentage of total service revenue as of December 31

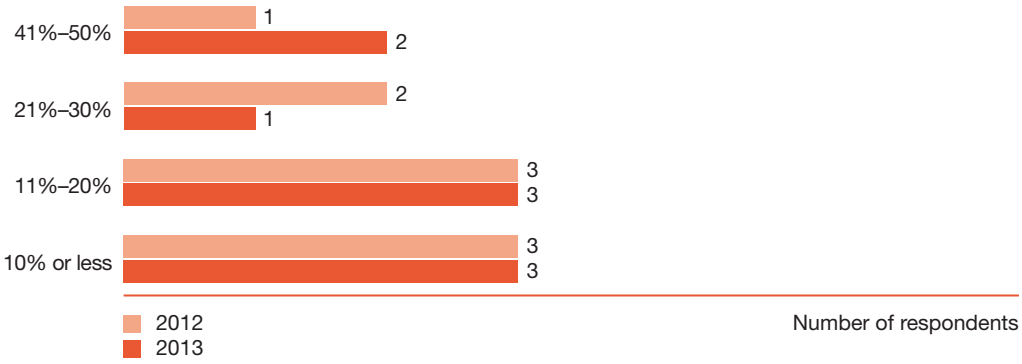


No responses were received in the 21%–30% and 51%–100% categories.

Notably for this year's survey, continued consolidation in the industry has resulted in no more purely prepaid companies. Prepaid revenue as a percentage of total service revenue ranged from 2 percent to 33 percent in 2013. The average percentage for all respondents was 9.2 percent as of December 31, 2013, which is a slight decrease from 10.9 percent as of December 31, 2012.

The percentage of the responding companies' total subscribers who were prepaid subscribers as of December 31, 2013 and December 31, 2012, is illustrated on Figure 3.2. Among all companies, the average prepaid subscriber percentage remained relatively consistent with the previous year, at 19 percent in both 2013 and 2012.

Figure 3.2: Percentage of prepaid subscribers as of December 31



No responses were received in the 31%–40% category.

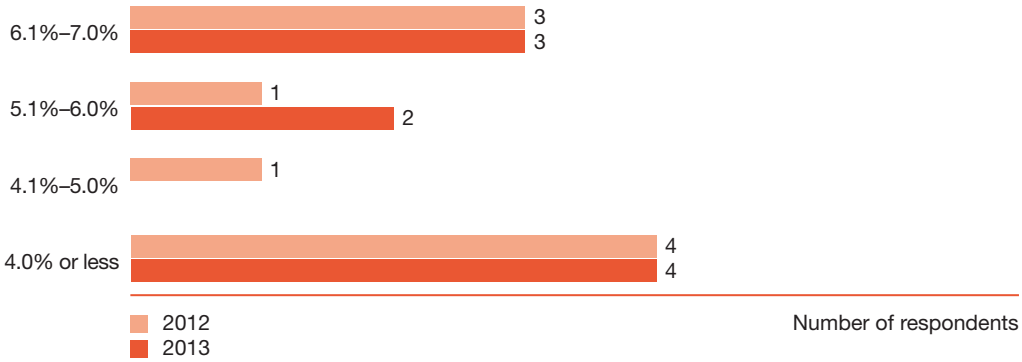
We believe that the lack of growth in the prepaid subscriber base is attributable to the combination of a maturing market, mobile subscriber penetration exceeding 100 percent, and rebounding recessionary consumer purchasing behaviors, which have previously evolved toward mobile services that allow more careful control of spending.

Of the responding companies, only one included wholesale and mobile virtual network operator (MVNO) revenue in prepaid revenue that is tracked by subscribers.

For the carriers that report prepaid churn externally (56 percent of survey participants), the numerator is net deactivations for the period, except for one carrier that uses gross deactivations for the period. 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 "buyer's remorse") for prepaid subscribers. Four of five respondents indicated they define net deactivations as gross deactivations during the period less subscribers who disconnect within the first 30 days of subscriber activations and one respondent indicated that net deactivations are defined as the net number of subscribers who disconnect, less reactivations of subscribers during the same period.

The average churn for prepaid subscribers as of December 31, 2013, for all carriers was 5.1 percent, up from 4.9 percent the previous year. Figure 3.3 shows the average monthly churn for prepaid subscribers as of December 31, 2013 and December 31, 2012.

Figure 3.3: Churn for prepaid subscribers as of December 31



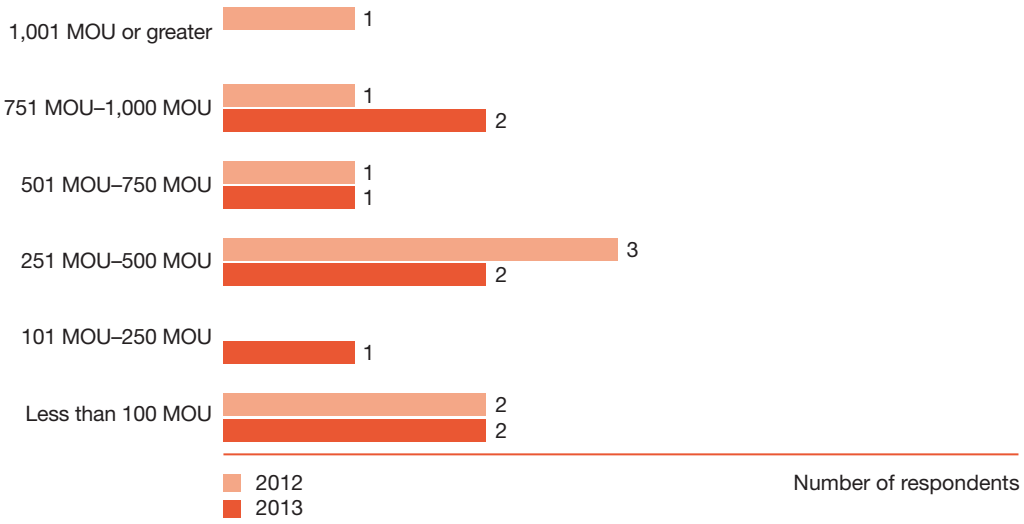
No responses were received in 2013 for the 4.1%–5.0% category.

The average prepaid subscriber life for responding companies was 23 months as of December 31, 2013, compared with 24 months as of December 31, 2012.

As prepaid subscriber churn increased, prepaid subscriber life decreased across the carriers. This may be due to the convergence of postpaid and prepaid segments, which are witnessing increasing similarity in terms of plan offerings and handsets. Carriers today are aggressively working to offer not only low-priced, unlimited prepaid plans to their customers, but also the value-added services and smartphones that were earlier associated with only postpaid plans.

The average MOU for prepaid subscribers as of December 31, 2013 and December 31, 2012, is shown in Figure 3.4.

Figure 3.4: Average monthly minutes of use for prepaid subscribers as of December 31



No responses were received in the 101–250 MOU category for 2012 or the 1,001 MOU or greater category in 2013.

Figure 3.5 shows the average prepaid MOU as of December 31, 2013 and December 31, 2012. On an overall basis, minutes of use slightly decreased, which is consistent with postpaid MOUs.

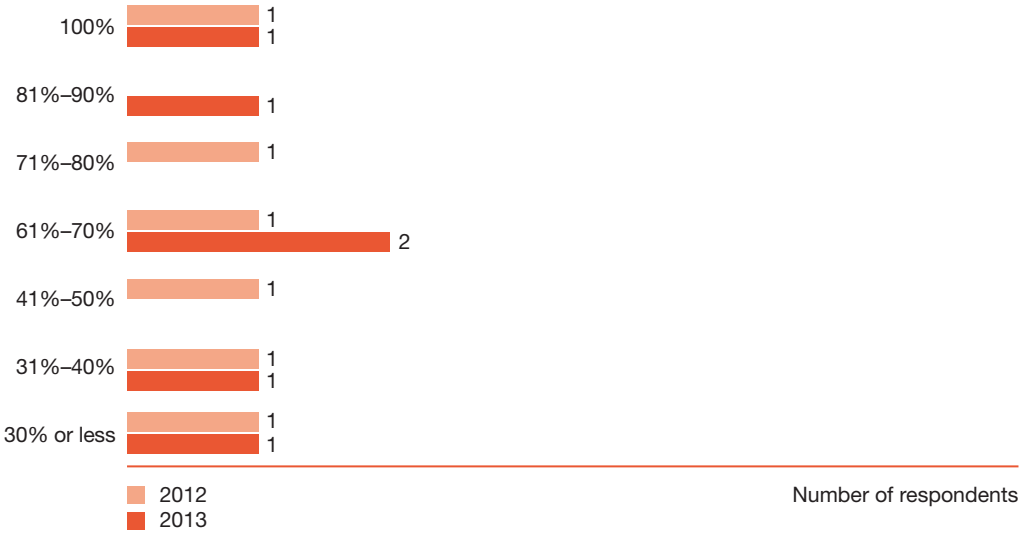
Figure 3.5: Prepaid minutes of use as of December 31

The decline in MOU could be attributed to the increase in smartphone usage by prepaid subscribers, who are using more data applications to communicate and as prepaid handsets continue to be more advanced.

The percentage of prepaid subscribers on unlimited voice plans has increased across all carriers, which may be due to the unwillingness of the cost-conscious subscriber to spend on additional voice minutes. Eight of the responding companies offer unlimited voice prepaid plans to their customers. Consistent with the previous year's survey, when unlimited prepaid plans are offered to customers, the rate of subscribers enrolled in such plans is high: as of December 31, 2013, an average of 61 percent of subscribers at these carriers were on unlimited prepaid plans, compared with 58 percent in 2012.

Figure 3.6 depicts the percentage of prepaid subscribers that participate in respondents' unlimited voice plans as of December 31, 2013 and December 31, 2012.

Figure 3.6: Percentage of prepaid subscribers participating in unlimited voice plans as of December 31

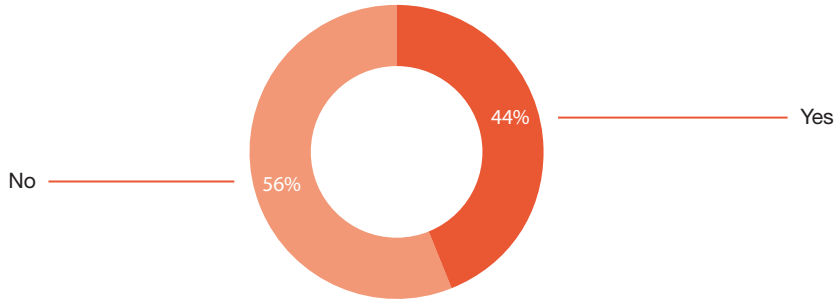


No responses were received in the 41%–50% and 71%–80% categories for 2013 or in the 81%–90% category for 2012.

For customers on unlimited prepaid plans, the average monthly MOU per prepaid subscriber increased from 756 minutes as of December 31, 2012, to 867 minutes as of December 31, 2013.

Certain respondents also indicated that they offer prepaid plans with unlimited data. Figure 3.7 shows the split of respondents that offer unlimited data plans as of December 31, 2013.

Figure 3.7: Carriers that offer unlimited data plans as of December 31, 2013



Of the respondents that currently offer an unlimited data plan, all indicated that they plan to continue offering an unlimited data plan.

The average fee charged for an unlimited voice prepaid plan as of December 31, 2013, is $40 per month, and ranged from approximately $23 per month to $57 per month.

Average revenue per user for all responding carriers was essentially unchanged as of December 31, 2013, at $23.58, compared with $23.15 in 2013. Figure 3.8 shows the average revenue per user per month for prepaid subscribers as of December 31, 2013 and December 31, 2012.

Figure 3.8: Average revenue per user for prepaid subscribers as of December 31

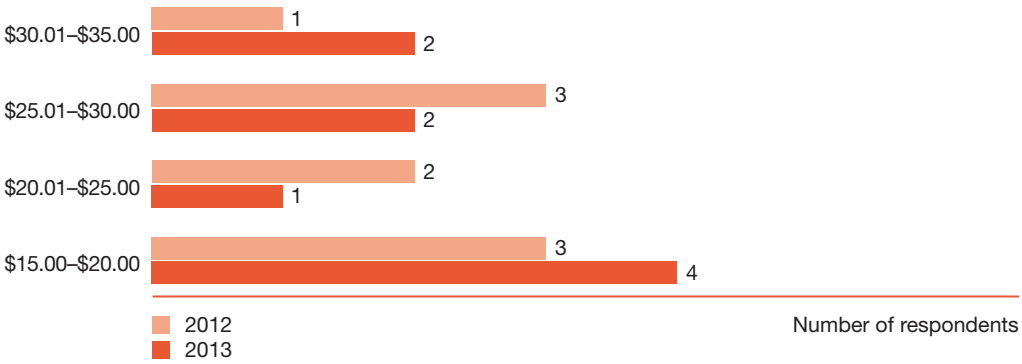
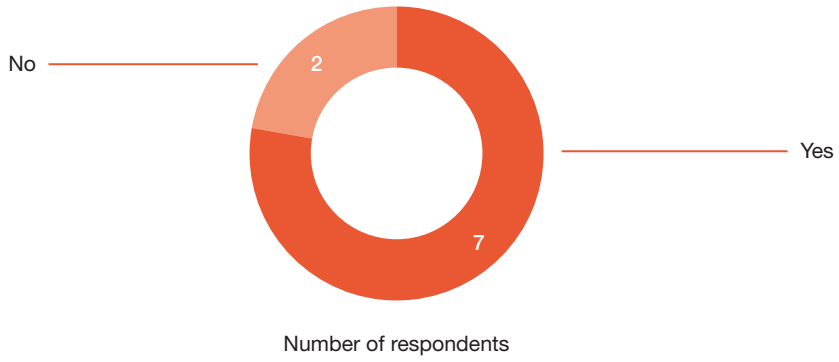


Figure 3.9 indicates the number of responding companies that include any revenue in the prepaid ARPU calculation that is not driven directly by services provided to and driven by the subscriber base (i.e., roaming revenue, wholesale revenues, advertising revenues).

Figure 3.9: Carriers who include other revenue in prepaid ARPU



Of the seven respondents who do include other revenue in ARPU, they include various categories of revenue in the calculation. Figure 3.10 shows those types of revenue.

Figure 3.10: Categories of other revenue included in prepaid ARPU

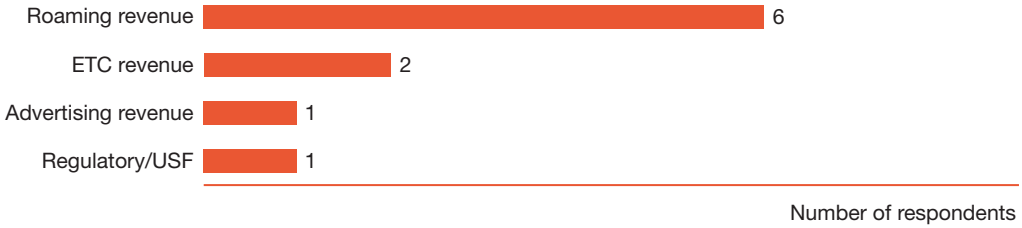


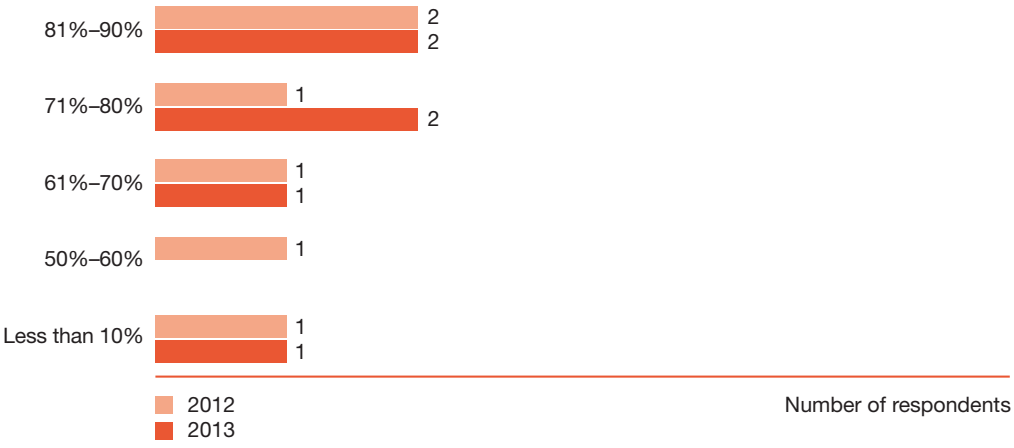
Chart totals greater than the number of responding companies because multiple responses were allowed.

Prepaid active subscribers

The prepaid active subscriber base continues to increase across the carriers. Active subscribers are defined as those that have used service within the month. In the second quarter of 2012, the US prepaid segment surpassed 100 million subscribers for the first time. The growth has been attributable to slow economic conditions and the availability of smartphones and affordable data services under the prepaid segment. Despite the rise in the prepaid active subscriber base, however, the ARPU of this segment declined across carriers.

The percentage of responding carriers' prepaid subscriber base that was active as of December 31, 2013 and December 31, 2012, is shown in Figure 3.11. An average of 64 percent of subscribers were active as of December 31, 2013, compared with 62 percent as of December 31, 2012.

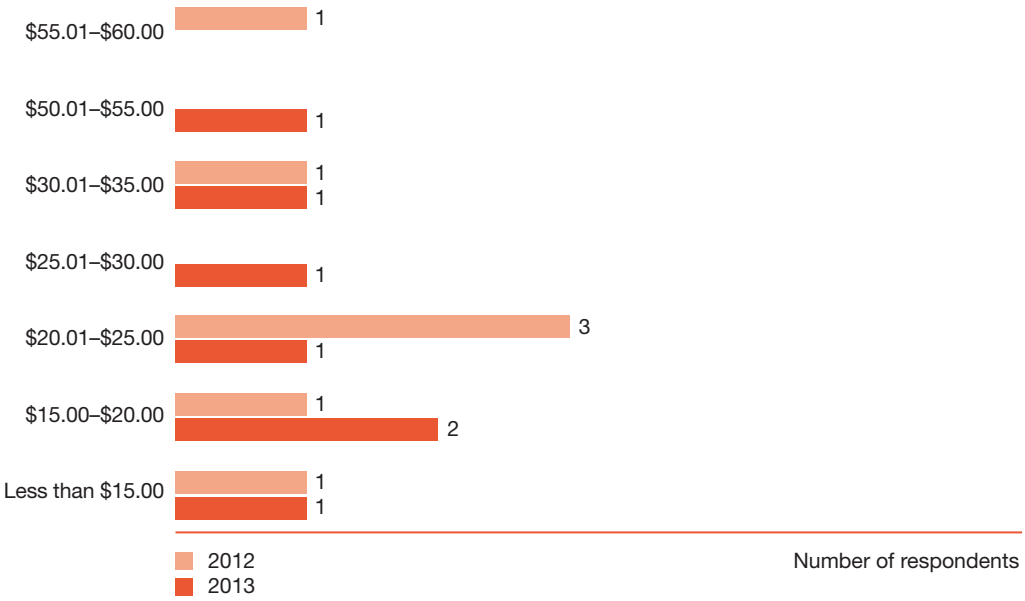
Figure 3.11: Prepaid active subscriber base as of December 31



No responses were received in the 50%-60% category in 2013 or in the 10%-49% categories in 2012 or 2013.

Figure 3.12 indicates the current monthly ARPU for total active prepaid subscribers as of December 31, 2013 and December 31, 2012. The average ARPU of active prepaid subscribers for all responding carriers was $25.74 in 2013, compared with $26.42 in 2012.

Figure 3.12: Prepaid ARPU for active subscribers as of December 31

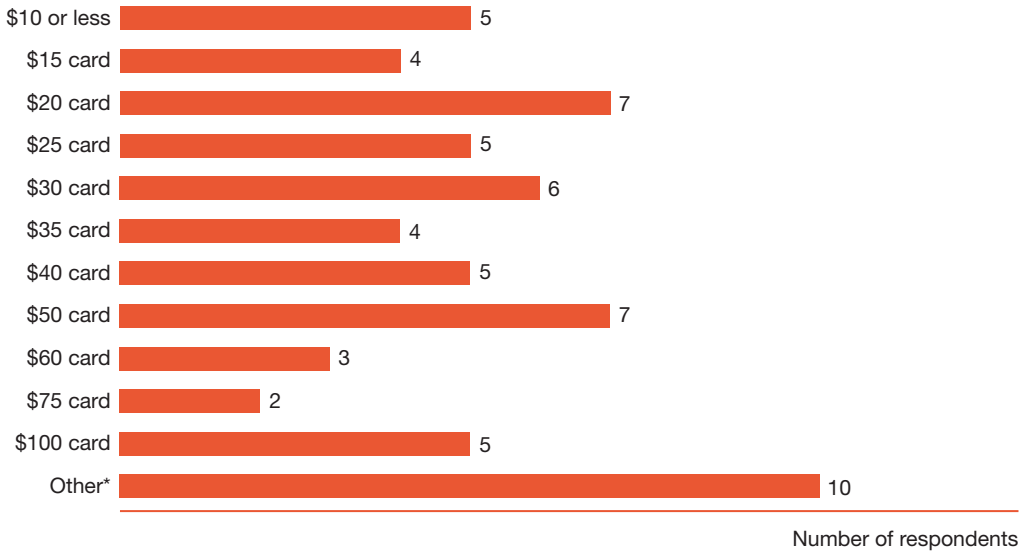


No responses were received in the $55.01–$60.00 category for 2013, the $25.01–$30.00 and $50.01–$55.00 categories for 2012, or the $35.01-$50.00 categories for 2012 or 2013.

Prepaid cards

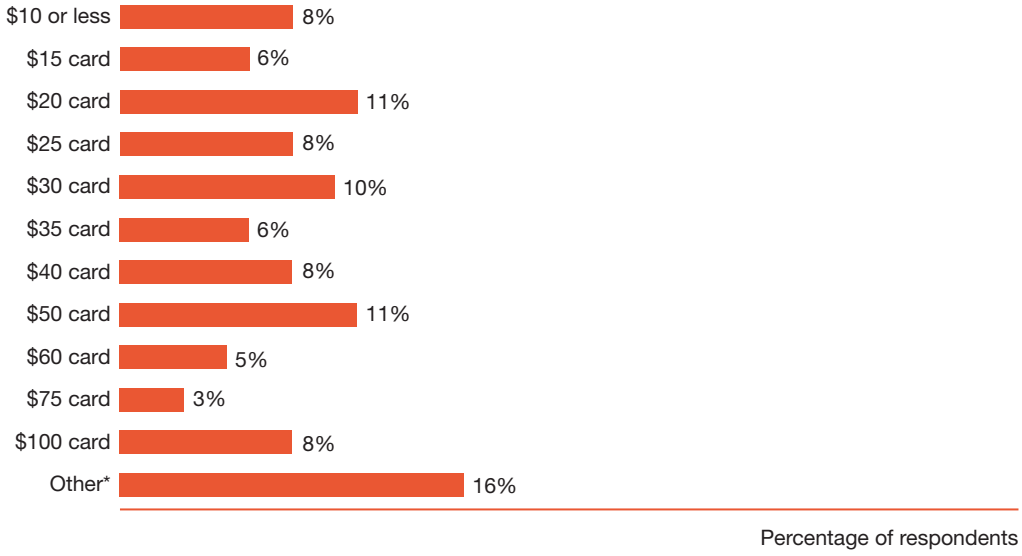
Figures 3.13 and 3.14 indicate the number of responding companies that sell prepaid cards (both physical cards and those sold online) with face values in each value category and the average percentage of monthly cards sold in each value category.

Figure 3.13: Face value of prepaid cards sold



*Other includes cards with face values ranging from $5 to $80, including open values within the range.
Chart totals greater than the number of responding companies because multiple responses were allowed.

Figure 3.14: Percentage of total monthly prepaid cards sold by value category

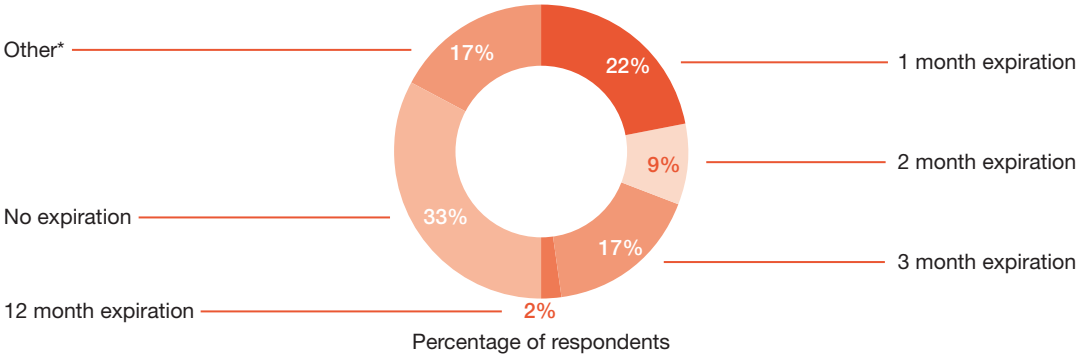


*Other includes cards with face values ranging from $5 to $80, including open values within the range.

Carriers were asked if the value of prepaid cards offered affected the expiration period. Of the responding carriers, five indicated that the expiration period is affected by the value of the card. Additionally, only one carrier indicated that it has an expiration period for non-activated cards.

Figure 3.15 illustrates the average expiration periods for prepaid cards/service usage that have been activated for the responding companies.

Figure 3.15: Expiration period for activated prepaid cards



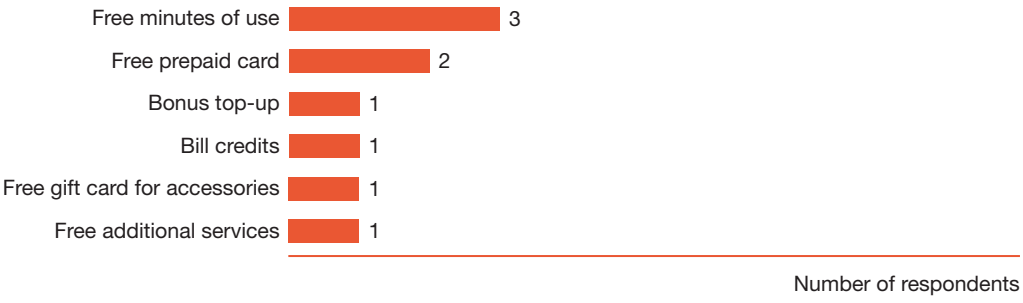
No responses were received in the 4 month through 11 month categories.
*Other includes 5 month and 18 month expiration periods.

Retention

Companies continue to focus on retaining current customers as penetration levels have increased. Six of the eight respondents indicated that they offer incentives to customers with inactive or expired prepaid accounts in order to retain them.

Figure 3.16 depicts the typical incentives offered to prepaid subscribers when accounts are inactive or expired to keep the subscriber active.

Figure 3.16: Incentives offered to prepaid subscribers with interactive or expired accounts



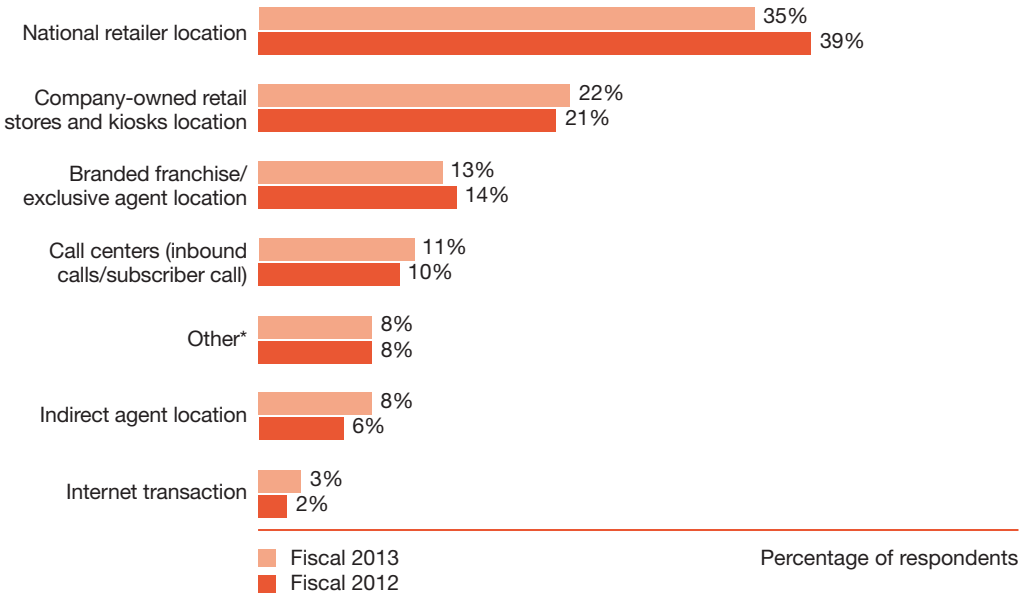
Six of the carriers surveyed offer retention credits to inactive or expired accounts 18 to 120 days after the accounts have become inactive or expired. The remaining carriers do not offer retention credits to inactive accounts.

We asked carriers to indicate whether they offer a re-activation incentive to an inactive or expired subscriber before the account would be included as terminated/disconnected for purposes of calculating churn (the company resets, at the point of the accepted offer, the time period before the subscriber's inactive activity, not counting that subscriber as terminated/disconnected, and thus increasing the life of the subscriber). Of the responding carriers, only four indicated they use this type of program.

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 for fiscal 2013 and fiscal 2012. Their responses are illustrated in Figure 3.17.

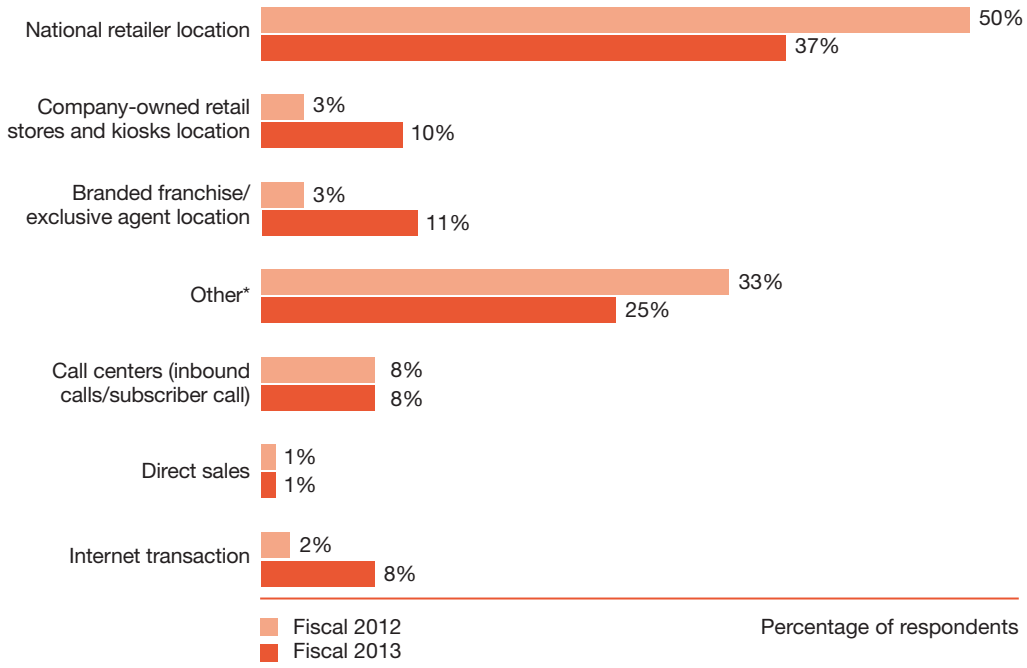
Figure 3.17: Prepaid sales activation channels



*Other includes direct mail and self-activation.

The percentage of subscriber replenishments made through the various channels in fiscal 2013 and fiscal 2012 is shown in Figure 3.18.

Figure 3.18: Prepaid subscriber replenishment channels

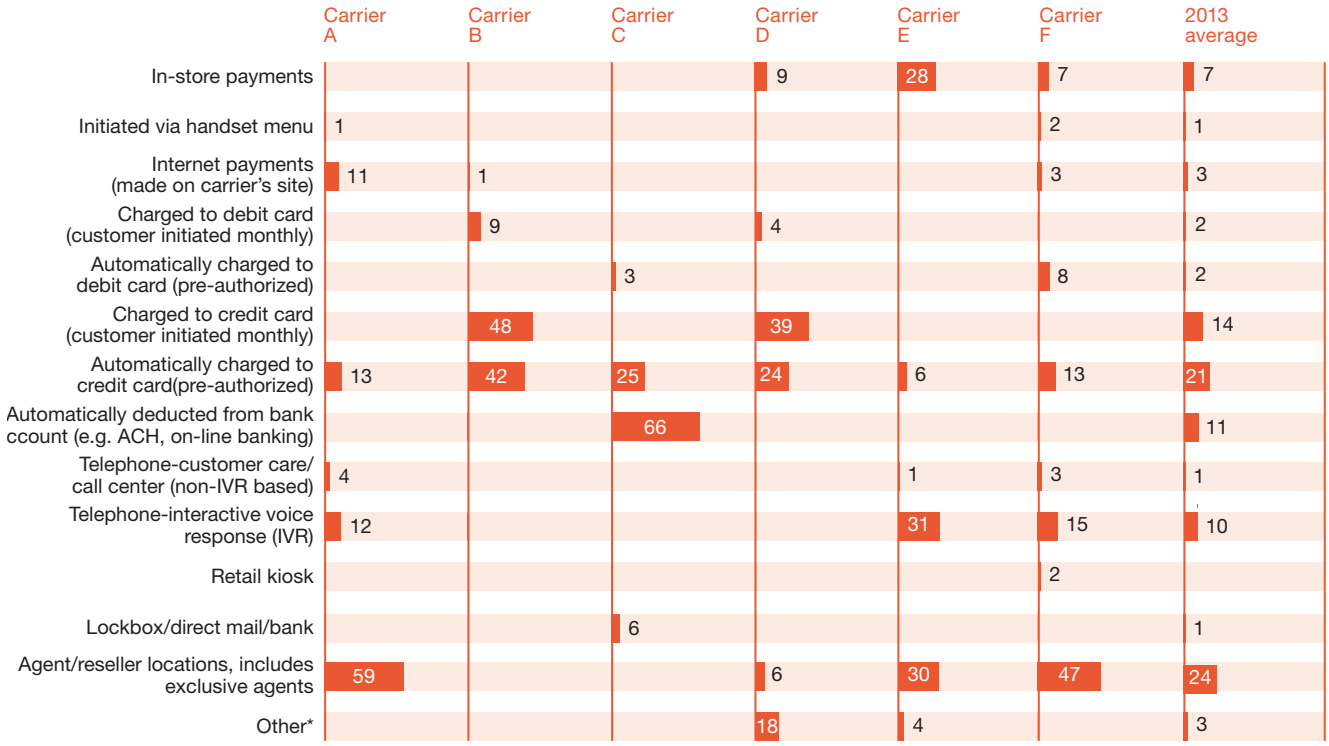


*Other includes auto-replenishment and airtime cards.

Payment channels

Carriers offer multiple ways for subscribers to pay for their prepaid services. Figure 3.19 shows the percentage of payments received through the various payment channels. Consistent with previous years, the agent/reseller channel continues to be the largest method of payment, totaling approximately 24 percent of all payments made. The payment channels have remained relatively consistent with the 2012 survey results. Automatic charges to a credit card remain the next largest method of payment.

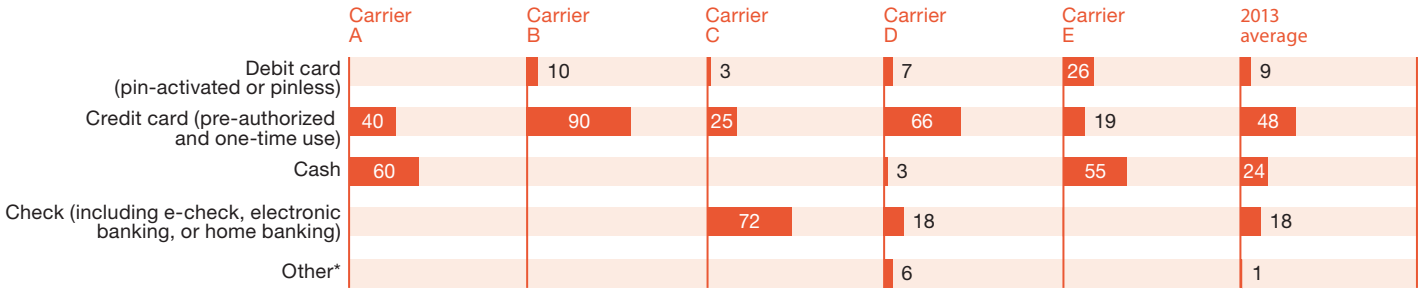
Figure 3.19: Prepaid subscribers' payment channels



Payment methods

Figure 3.20 shows the various payment methods used by carriers' prepaid subscribers, regardless of payment location. Credit cards are the preferred method, with an average of approximately 48 percent. Cash also remains popular with customers choosing this method at least 24 percent of the time.

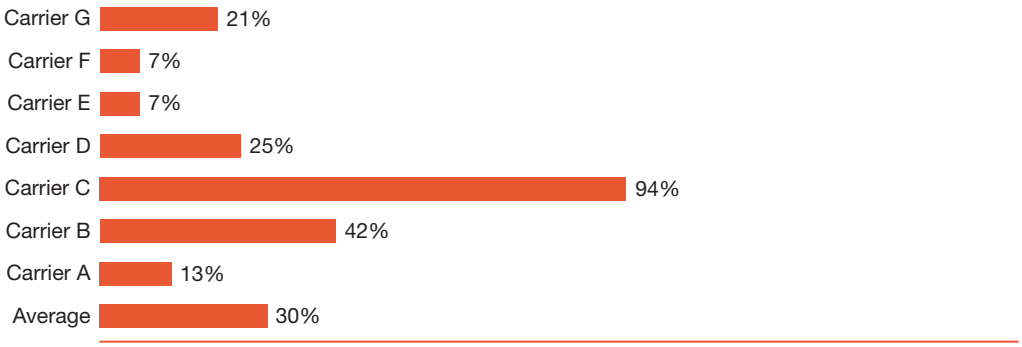
Figure 3.20: Methods of prepaid customer payments



*Other includes EFTs

Based on survey result, the carriers have an average of 30 percent of customers on auto payment. However, as noted in Figure 3.21, there are significant variances between the carriers.

Figure 3.21: Percentage of prepaid customer renewals by auto payment

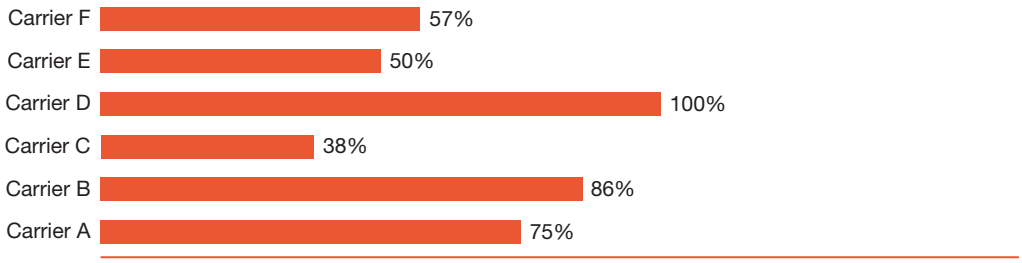


Smartphones

Smartphone handsets are becoming more and more popular; however, prepaid subscribers generally lag behind postpaid subscribers in adopting newer technology. Prepaid wireless providers are quickly adapting to widespread consumer demand for smartphones and wireless data. Until now, premium services and advanced handsets were primarily associated with the postpaid segment, while the prepaid service providers concentrated on aggressive and affordable pricing and basic services. But the trend is changing at a fast pace as more prepaid service providers are actively working to blur the line between the two segments. With more prepaid service providers now offering unlimited data plans, the shift of prepaid subscribers to smartphones is inevitable. This shift is evident from the survey results, which show that the prepaid smartphone subscriber base increased across carriers.

As of December 31, 2013, and consistent with the 2012 survey, all responding carriers offered smartphones to their prepaid subscribers. In 2013, smartphones also represented a significant portion of the phones offered to prepaid subscribers as depicted in Figure 3.22.

Figure 3.22: Percentage of prepaid phones offered that are smartphones

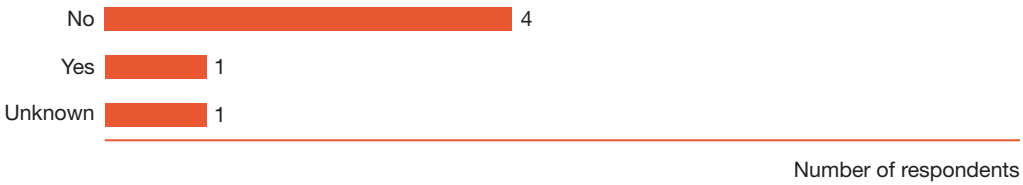


An average of 35 percent of the prepaid subscriber base utilized a smartphone as of December 31, 2013, compared with 17 percent as of December 31, 2012. These subscribers contributed, on average, $34 to ARPU as of December 31, 2013, compared with $39 as of December 31, 2012.

Smartphones are also increasingly becoming a more significant part of prepaid phones sales with smartphones averaging 38 percent of prepaid phones sales for the fiscal year ended December 31, 2013, as compared with 27 percent for the year ended December 31, 2012. This trend is also seen in the percentage of upgrade prepaid phone sales that are smartphones, which increased to 43 percent in the most recent fiscal year (2013) from 29 percent in the previous fiscal year (2012).

Smartphone subsidies currently are and are expected to continue to exist for prepaid smartphone subscribers. We asked carriers to indicate whether they expect to eliminate subsidies on sales of smartphones to prepaid customers. Figure 3.23 shows their responses.

Figure 3.23: Carriers that plan to reduce/eliminate prepaid smartphone subsidies

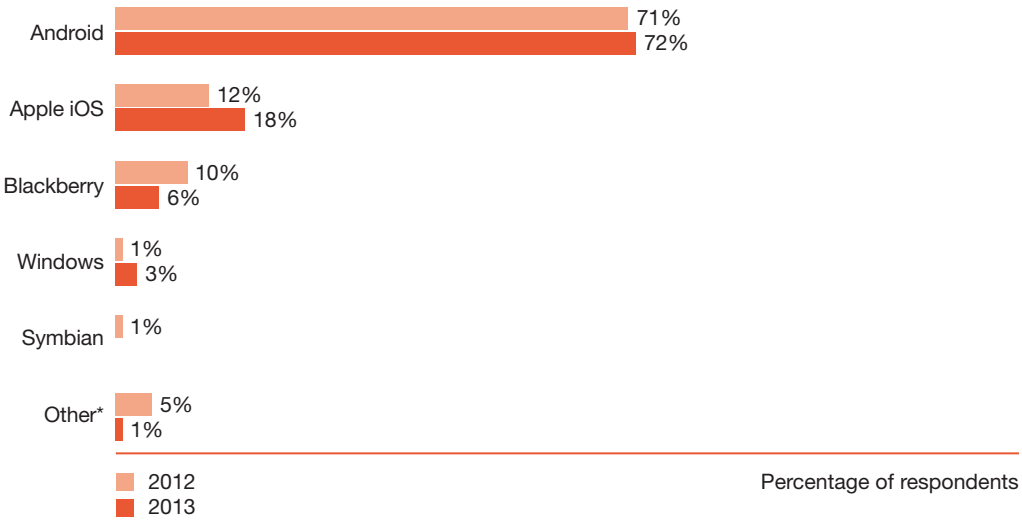


4G/LTE-enabled smartphones are also becoming more prevalent for prepaid smartphone subscribers. Of the respondents, an average of 11 percent of prepaid subscribers that use a smartphone were utilizing 4G/LTE technology for the fiscal year ended December 31, 2013, as compared with just two percent for the year ended December 31, 2012.

The expansion in smartphones and 4G/LTE technology is also driving higher data usage with the average megabytes (MBs) per subscriber increasing to 492 MBs as of December 31, 2013, compared with 414 MBs in the 2012 survey. Average monthly smartphone data usage varied significantly between the companies, ranging from 78 MBs to 1,166MBs per user as of December 31, 2013.

The responding companies indicated their prepaid wireless subscribers use various operating systems. Figure 3.24 indicates the percentage of prepaid smartphone subscribers operating on the available operating systems as of December 31, 2013 and 2012.

Figure 3.24: Operating systems used for prepaid smartphones as of December 31



*Other includes other smartphones and open platforms. No responses were received in the Symbian categories for 2013.

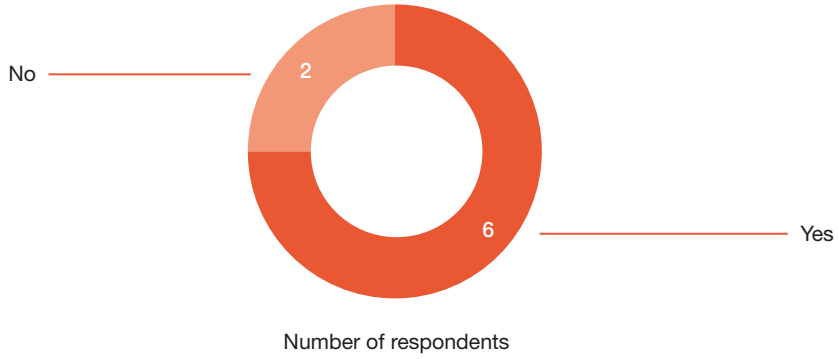
Android, Apple iOS, and Windows all saw overall net increases in the operating systems for prepaid smartphones compared to the other systems utilized during 2013. This increase could be attributed to the number of phones offered and the changes in the systems on an annual basis.

Tablets

Most carriers offer prepaid data tablet services. Tablet users tend to consume large amounts of data and typically have higher monthly data bills, which prepaid subscribers historically have not supported.

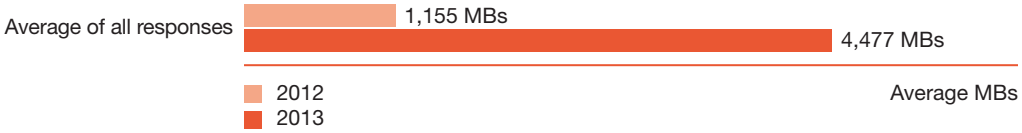
The number of respondents who offer a prepaid data tablet and related service as of December 31, 2013, is shown in Figure 3.25.

Figure 3.25: Carriers that offer a prepaid tablet and related data service as of December 31



The six respondents who do offer a prepaid data tablet and related data service to prepaid subscribers offer between two and 15 tablet options. The average ARPU for prepaid tablet subscribers as of December 31, 2013, was $15.63. Total tablet subscribers within the prepaid subscriber base ranged from 1,000 to 750,000 as of December 31, 2013. Figure 3.26 shows the average MBs per prepaid "mobile broadband" subscriber as of December 31, 2013 and December 31, 2012.

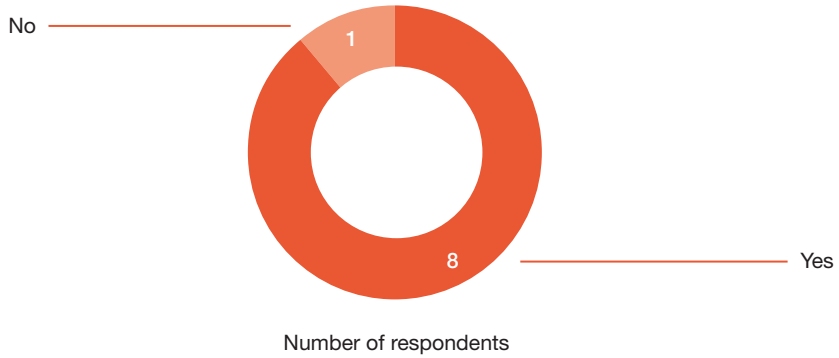
Figure 3.26: Average MBs per mobile broadband prepaid subscriber as of December 31



Devices

With most carriers offering minimal to no subsidy on prepaid handsets purchased through them, most carriers allow their subscribers to use their own devices on the carrier's network. The number of responding carriers who allow a prepaid customer to use their own device for service on the carrier's network (i.e., customers who bring their own device) is indicated in Figure 3.27.

Figure 3.27: Carriers that allow prepaid subscribers to bring their own device

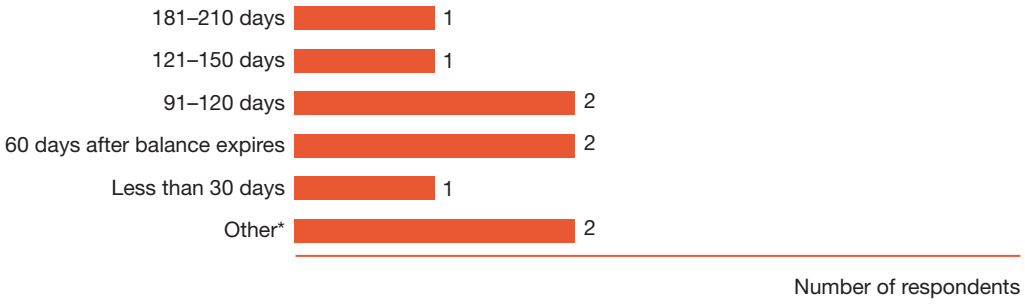


Carriers were asked what percentage of their subscriber base as of December 31, 2013, had service on their network through a device that was not purchased from them. Five carriers responded, indicating that the average percentage is 11 percent. Additionally, carriers were asked if pricing discounts were available to subscribers who bring their own device with five carriers responding that no discount is offered.

Disconnection and zero balance accounts

We asked companies how long they wait before disconnecting service if a prepaid customer account has no activity. Figure 3.28 depicts the average waiting period before disconnecting inactive accounts for prepaid subscribers.

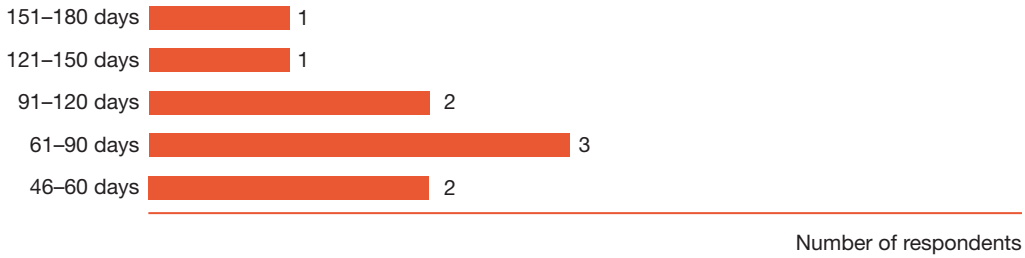
Figure 3.28: Waiting period before disconnecting inactive accounts



No responses were received in the 31–60, 61–90, or 151–180 days categories.
*Other includes a waiting period depending on the type of plan (i.e., unlimited plans) that can go from 60–150 days.

The time during which customers can have a zero balance in their prepaid account before the service will be disconnected is illustrated in Figure 3.29.

Figure 3.29: Days to disconnect accounts with zero balance

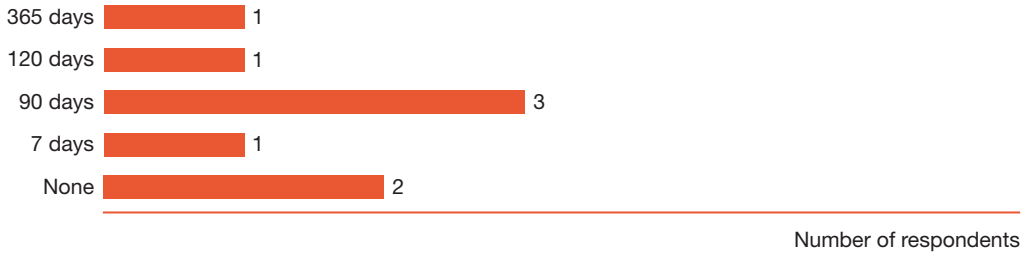


No responses were received in the 45 days or less category.

Seven of the eight responding carriers indicated that after they disconnect service, the subscribers forfeit any remaining balance and revenue is recognized.

We asked companies if they offer a grace period to subscribers to reactivate an account with the same phone number. Six companies indicated that they do offer a grace period. Figure 3.30 indicates the length of the grace period offered for subscribers to reactivate an account with the same phone number.

Figure 3.30: Grace period



We asked companies if they factor in any breakage (prepaid minutes sold but never redeemed by the subscriber) for inactivated/expired cards upon sale and recognize revenue immediately. Seven of the responding carriers do not factor in any breakage for inactivated/expired cards. Two companies do factor in breakage and with one using 1.3 percent and the other using 0.8 percent.

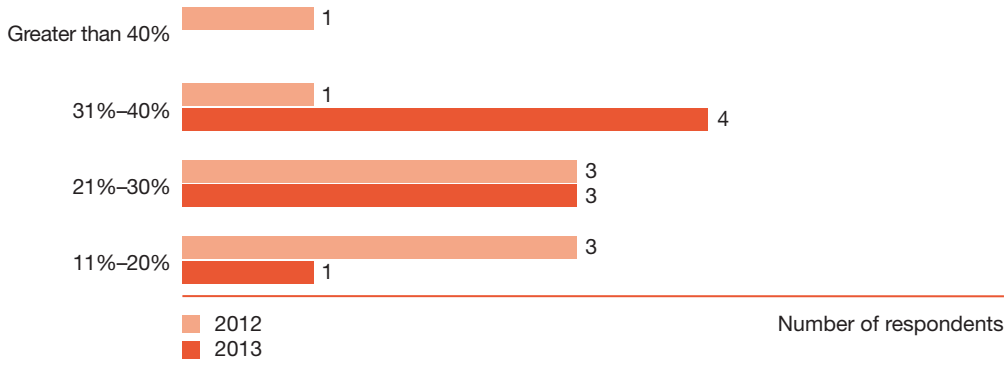
The responding carriers recognize breakage in a variety of ways, ranging from recognizing revenue after a period of time to escheating the revenue based on the applicable laws in each state. For respondents that recognize revenue over time, that period ranged from one to 24 months. Also, the period of time over which the revenue is recognized depends upon the expiration date of the prepaid card for several carriers.

We asked companies how they account for activated but unassociated cards (cards not associated with an account or device). For carriers that have cards that have not been associated with an account or device, six of the responding carriers recognize the revenue after a period of time. This period of time varies from 12 to 60 months and can depend upon the expiration date associated with the card.

Prepaid data services

We asked companies if they offer prepaid data services to their customers and if that revenue is tracked separately. All of the companies surveyed offer data services to their prepaid subscribers, eight of which track the data revenue separately and one that does not. Data services have been growing over the last several years but stabilized between December 31, 2012 and December 31, 2013, for prepaid. For all respondents, the average of total prepaid service revenue generated by data services was 29 percent as of December 31, 2013, up slightly from the 26 percent as of December 31, 2012. Figure 3.31 shows the percentage of prepaid revenue that carriers have generated from data services in the past two years as of December 31.

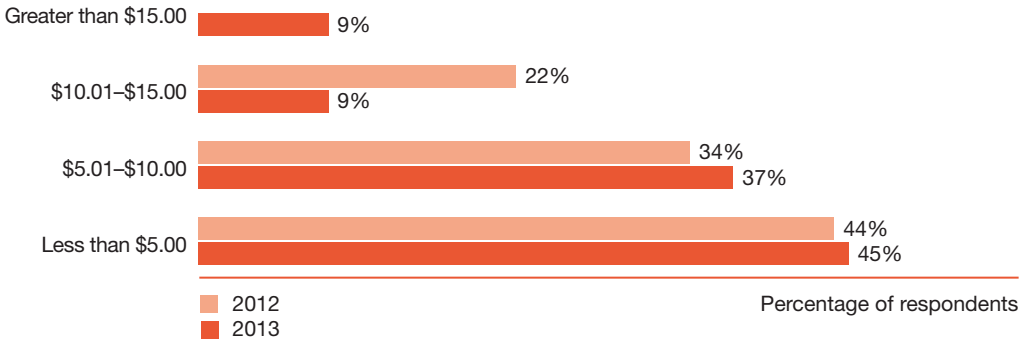
Figure 3.31: Percentage of prepaid service revenue generated by data services as of December 31



No responses were received in the greater than 40% category for 2013.

In dollar terms, prepaid data services are contributing slightly more to overall prepaid ARPU in 2013, compared with 2012, with an average of $8.03 as of December 31, 2013, compared with $7.17 at December 31, 2012. Figure 3.32 shows that 55 percent of respondents indicated data services contribute greater than $5 to overall prepaid ARPU in 2013, compared with 56 percent in 2012. In comparison, for postpaid subscribers, all but one of the responding carriers indicated that monthly data ARPU now exceeds $17 per user as of December 31, 2013.

Figure 3.32: Average monthly contribution to prepaid ARPU by each prepaid data services user as of December 31



No responses were received in the greater than $15.00 category for 2012.

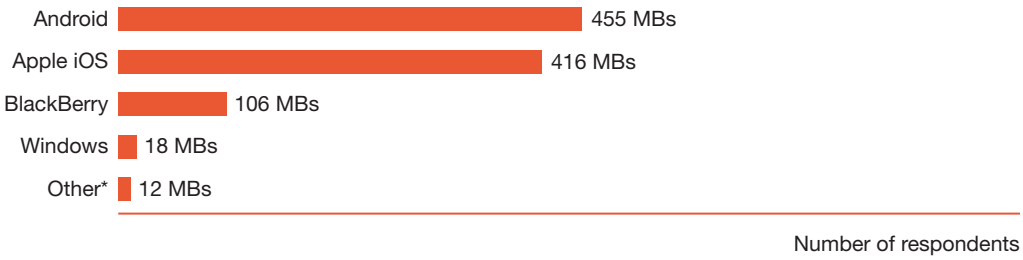
Megabytes

Prepaid average megabytes increased significantly across carriers, in line with the industry trend of growing data consumption. The growth has been facilitated by availability of more affordable smartphones and data plans under the prepaid segment.

Participating carriers provided responses on average megabytes per prepaid subscriber per month as of December 31, 2013 and December 31, 2012 (including smartphones, mobile broadband, tablets, etc.). The data usage continues to increase for all responding carriers and grew by 76 percent on a year over year basis from 548 MBs as of December 31, 2012, to 966 MBs as of December 31, 2013.

Figure 3.33 shows the average MBs per prepaid subscriber across the various operating systems.

Figure 3.33: Average MBs per prepaid subscriber by operating systems as of December 31, 2013

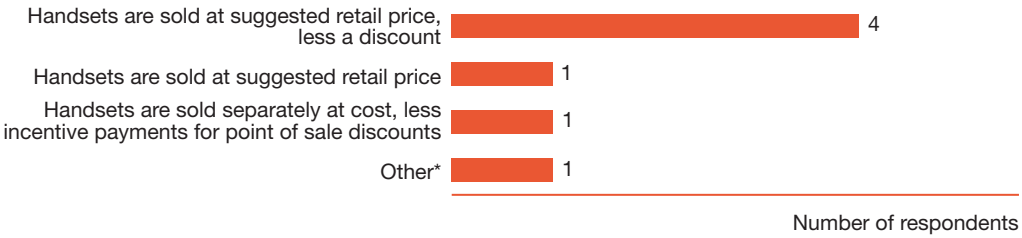


*Other includes non-smartphones or smartphones not under the operating systems noted above.

Prepaid handset sales

All carriers responded that they use indirect/exclusive agents for the sale of handsets and service to prepaid subscribers. However, carriers differ in how they account for the prepaid handset sale. The differing methods by which carriers account for the sale of prepaid handsets to indirect agents is shown in Figure 3.34.

Figure 3.34: Method of accounting for prepaid handset sales



*Other includes a combination of all options depending on the agent as well as at cost.

Similarly, there is also diversity in practice in the accounting for prepaid card sales. Figure 3.35 shows the various methods of accounting for prepaid card sales.

Figure 3.35: Method of accounting for prepaid card sales

In the past few years, device financing has become more and more popular. Of the carriers surveyed, none currently offer device financing to prepaid customers though one carrier indicated that it intends to within the next 12 months. Additionally, none of the carriers offer upgrade programs to prepaid subscribers.

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Performance measures

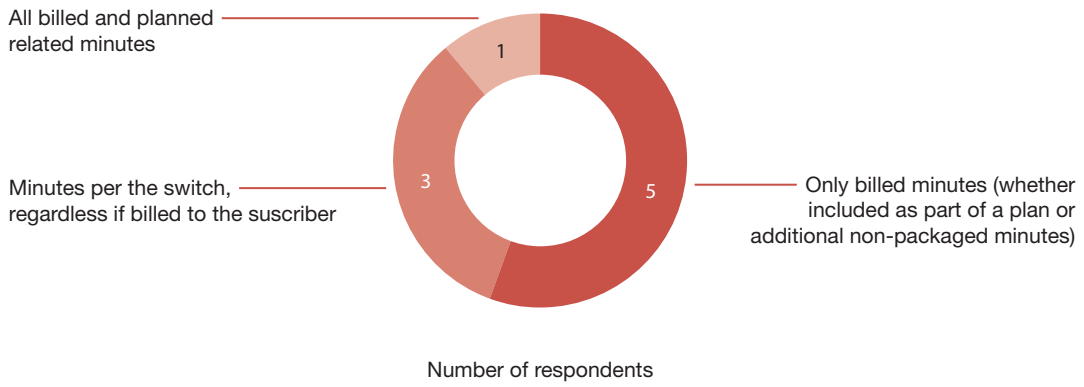
The following pages cover performance measures for evaluating wireless company results.

Customer metrics
Subscriber costs
Customer retention and rebates
Mobile advertising
Network costs
Billing
Credit and collections
Data and revenue assurance

Customer metrics

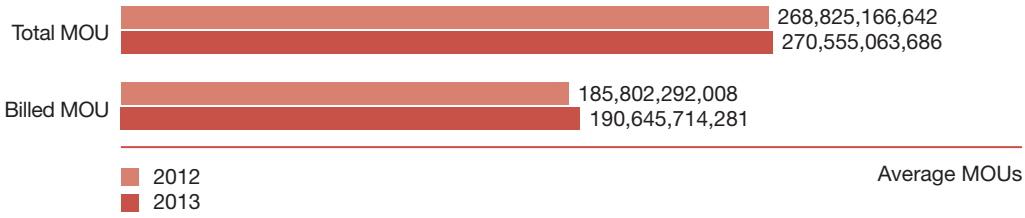
We asked companies how they define minutes of use (MOU). While the industry has moved away from billing customers by the minute, Figure 4.1 shows the responding carriers methods related to MOU.

Figure 4.1: Definition of minutes of use



Eighty percent of responding companies round seconds used to the nearest minute of use. In addition, all the companies indicated that zero-rated MOU (minutes for which no billing is associated because it is included within a plan or unlimited plans) are counted in the total MOUs and any minute reporting. As voice minutes decline and consumers spend more and more time on data-intensive applications (such as video, gaming, and mobile applications) carriers will continue to redefine the metrics used for evaluation and the definition of such metrics. Figure 4.2 shows the change in total and billed MOU as of December 31, 2013 and 2012. Billed MOU increased three percent while total MOU increased one percent as of December 31, 2013, compared to December 31, 2012.

Figure 4.2: Billed MOU versus total MOU as of December 31



We asked the responding companies whether they charge for incoming calls and text messages. Four of the nine respondents indicated that they charge for incoming calls and text messages, while one carrier charges for incoming calls for certain plans and three carriers charge for certain text plans.

We asked companies what percentage of their total service revenue was a result of roaming. The average roaming revenue from the respondents was 4.5 percent as of December 31, 2013, compared with 4.9 percent as of December 31, 2012. A rise in Wi-Fi locations, hot spots and carriers continuing to build/expand their networks is leading to lower roaming revenue as a percentage of total service revenue, also coupled with higher total service revenue as data usage continues to drive increased revenue.

We also asked companies their percentages of bad debt expense to total service revenue. The year over year decrease is likely an impact of the overall economic improvement in recent periods. Figure 4.3 compares bad debt expense as a percentage of total service revenue as of December 31, 2013 and 2012.

Figure 4.3: Bad debt expenses as a percentage of total service revenue as of December 31

Figures 4.4, 4.5, and 4.6 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 as a percentage of total service revenue as of December 31, 2013 and 2012. Operating expenses (excluding sales and marketing) as a percentage of total service revenue have been consistent across all carriers, except for one carrier that is driving the change in the average between periods. While EBITDA has generally been consistent period to period for the carriers, it has been offset, at least in part, by more conservative spending on sales and marketing as the wireless industry has matured and total subscriber growth has slowed.

Figure 4.4: Operating expense (excluding sales and marketing) as a percentage of total service revenue as of December 31

Figure 4.5: Sales and marketing expense as a percentage of total service revenue as of December 31

Figure 4.6: EBITDA margin as a percentage of total service revenue as of December 31

Improvement in EBITDA margins can be attributed to a rise in data ARPU, driven by growing demand for mobile data services. Emphasis on value-added services, such as mobile applications and m-commerce, has also helped the carriers in improving their bottom line.

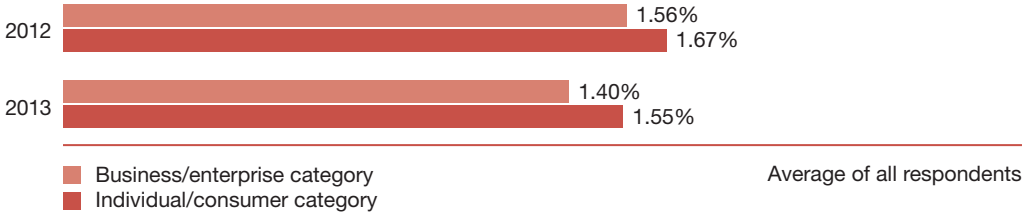
As the nature of network traffic and the revenue models diversify, carriers will need to rethink how they track their customer base to make operational business decisions to drive revenue growth. We asked carriers if they track business/enterprise and individual/consumer subscribers separately for internal reporting purposes. Eight of the nine respondents track business/enterprise separately from individual/consumer accounts. The customer base of respondents consists of 79 percent individual/consumer accounts on average as of December 31, 2013, which is essentially flat with 2012 of 78 percent.

The ARPU by customer category is illustrated in Figure 4.7

Figure 4.7: ARPU by customer category as of December 31

The average churn by customer category is illustrated in Figure 4.8.

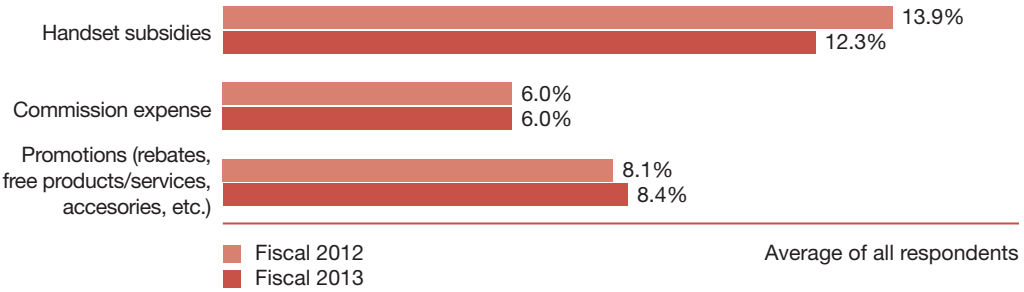
Figure 4.8: Average churn by customer category as of December 31



Subscriber costs

Costs to obtain a new subscriber as well as maintain existing subscribers are significant in the industry. Figure 4.9 shows promotion expense (includes rebates, free products/services, accessories, etc.) as a percentage of total service revenue; commission expense as a percentage of total service revenue; and handset subsidies as a percentage of total service revenue for the responding companies for fiscal 2013 and 2012.

Figure 4.9: Customer acquisition and retention expenses as a percentage of total service revenue

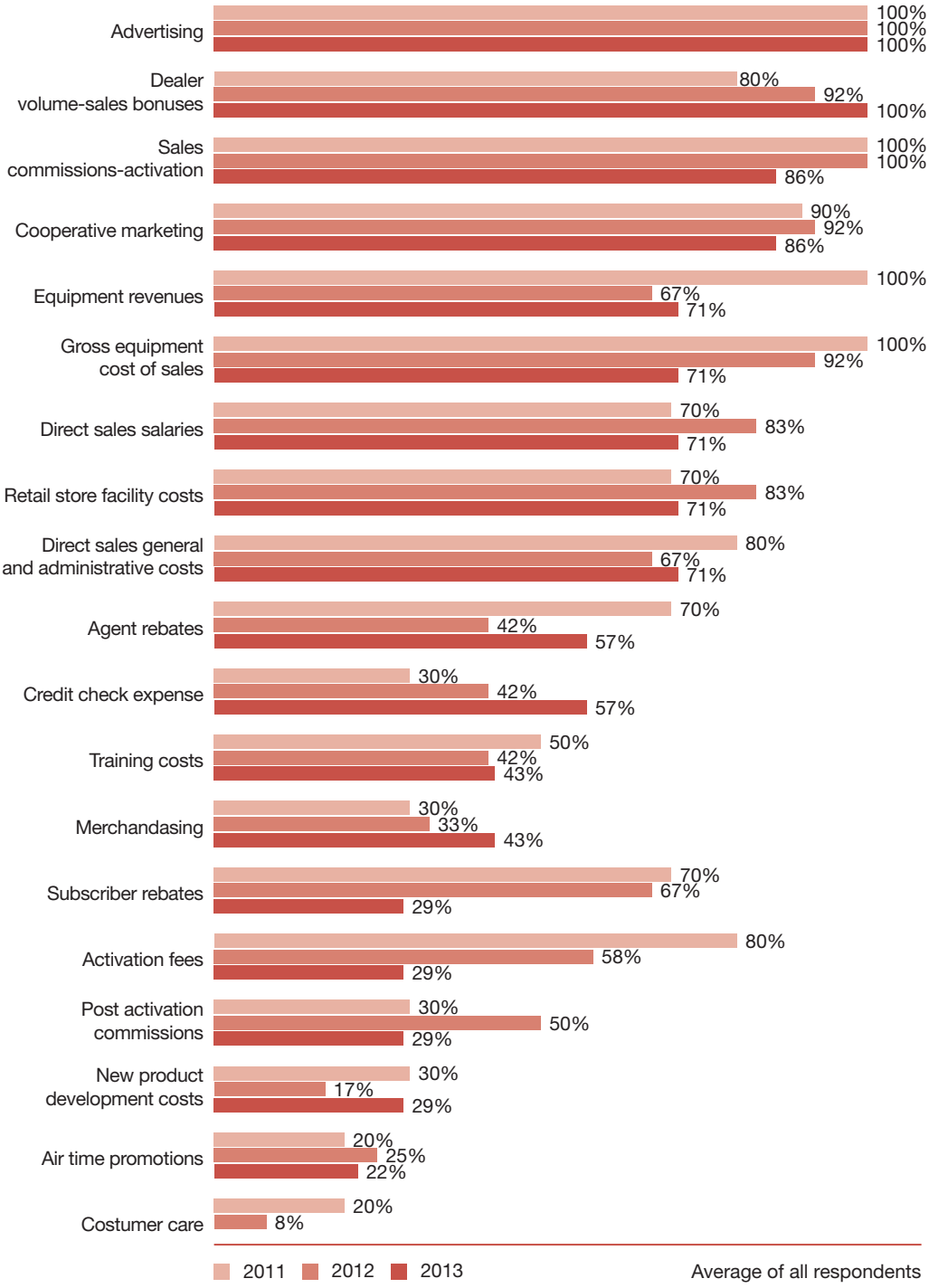


Promotion expense as a percentage of total revenue changed marginally for almost all the survey respondents. With more than 100 percent subscriber penetration, the wireless market is now highly saturated, making it difficult for carriers to add new subscribers and forcing them to spend more to attract them.

Handset subsidies as a percentage of total revenue decreased on a year-over-year basis driven by the introduction of equipment installment plans in late 2012 and 2013 that provide carriers with the ability to recover more of the equipment cost and therefore reduce the subsidies offered to subscribers.

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. Figure 4.10 shows the elements used in the numerator for the calculation for the past three years.

Figure 4.10: Costs included in numerator of cost per gross addition

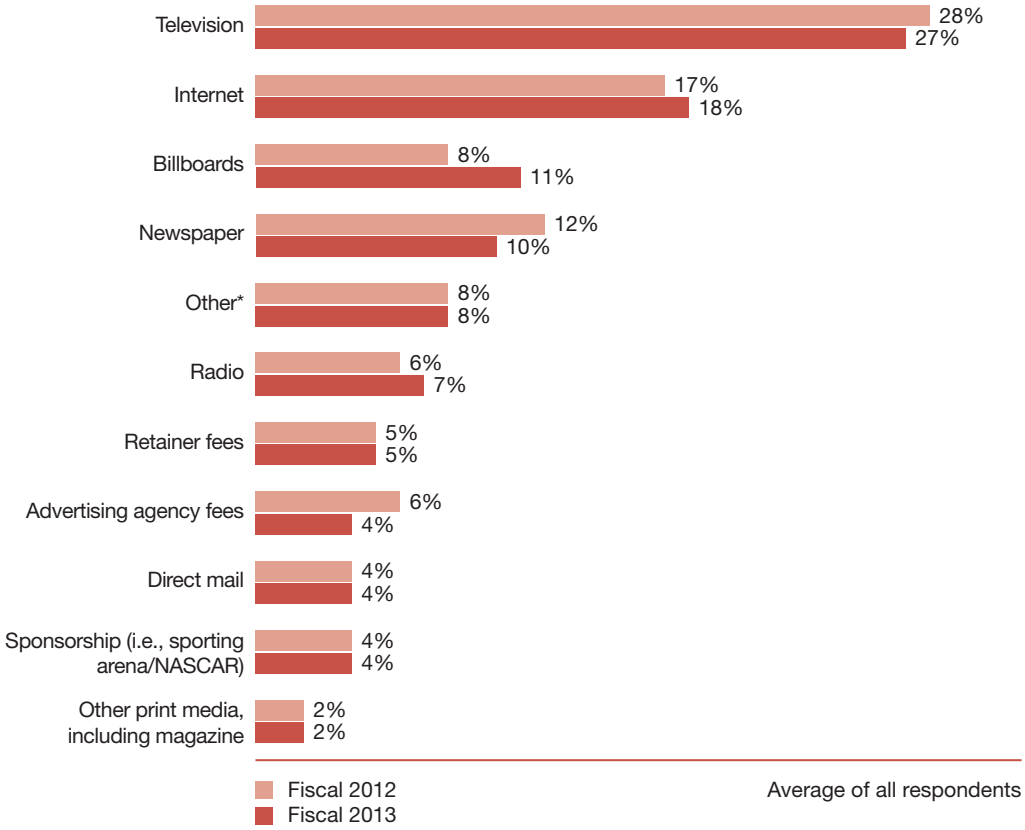


No responses were received in the customer care category in 2013.

Chart totals greater than 100 percent because multiple responses were allowed.

The carriers were also asked which media outlet they used for advertising services. Figure 4.11 illustrates the average response by type of advertising for fiscal years 2013 and 2012.

Figure 4.11: Advertising medium by year



*Other includes event sponsorship, other sponsorships, cinema, promotion, and magazine.

Customer retention and rebates

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, all classify these receipts as contra-expense, and the companies are evenly split on which line they use, either marketing expense or cost of sales. Figure 4.12 illustrates the incentives and services offered as customer subsidies by the respondents.

Figure 4.12: New customer incentives and services offered

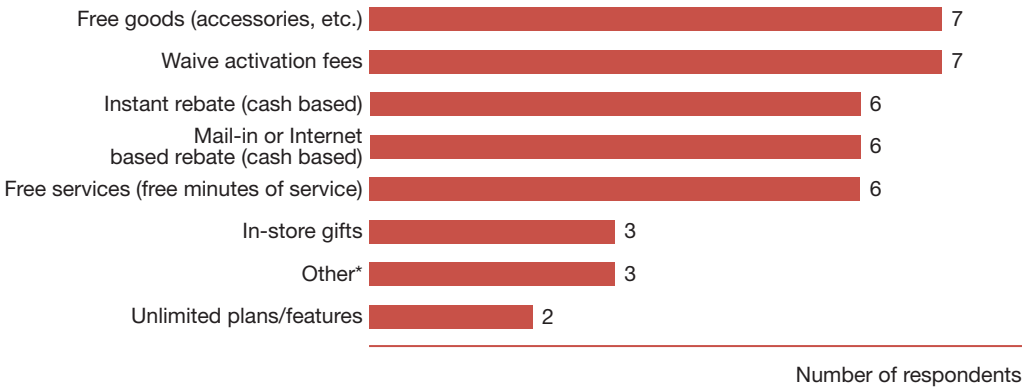


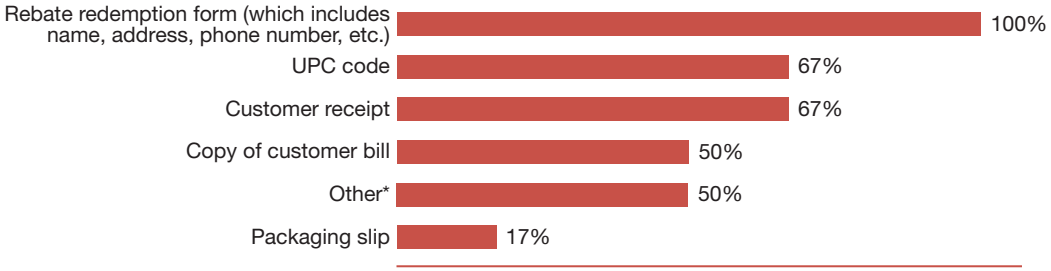
Chart totals greater than the number of responding companies because multiple responses were allowed. However, one carrier noted they did not offer any of these incentives to new customers.

*Other includes specific gross add offers (i.e., port-in credits), gift cards, and waive upgrade fees.

Many companies use mail-in rebates as a way of attracting new customers to buy their handsets. Of the eight responding companies, 63 percent offer mail-in rebates to their postpaid customers. All respondents that offer mail-in rebates indicated that they use third-party providers to process mail-in rebate programs, except one that uses a combination of internal resources and third-party providers.

Rebate requirements vary widely among the responding companies; the chart in figure 4.13 shows the rebate requirements among the responding carriers. Eighty-six percent of respondents offer an option for online redemption of mail-in rebates.

Figure 4.13: Rebate requirements



*Other includes signed service agreement, phone number, and activation for 30 days.

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

Of the responding companies, 71 percent recognize a liability associated with mail-in rebates at activation and 29 percent recognize at the time of sale of the rebate eligible unit (not activation of the unit).

The different dollar value of instant rebates offered is illustrated in Figure 4.14.

Figure 4.14: Dollar value of instant rebates offered

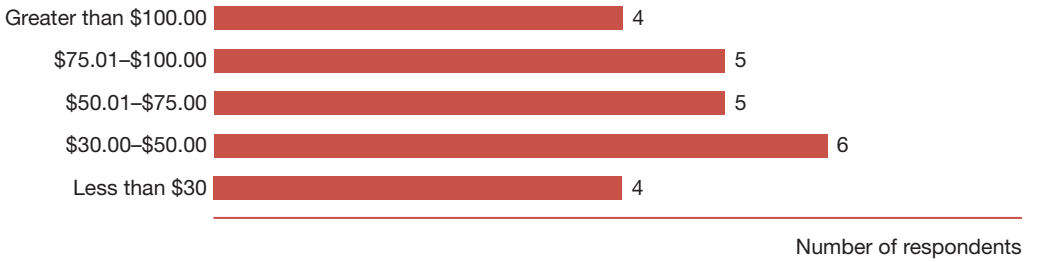


Chart totals greater than the number of responding companies because multiple responses were allowed.

Many companies team with their handset and accessory vendors to provide joint rebates to subscribers who purchase handsets or accessories. Often, these rebates are sponsored by the manufacturer, such that the manufacturer reimburses the carrier for the specified amount of redemptions under the program, or administers the program directly.

Mobile advertising

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 with 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.

Of the responding companies, 67 percent recorded revenue related to mobile advertising. Forty percent of those respondents indicated they recognize mobile advertising revenue by using the net method (record the net impact only for the revenue and associated cost), and the remaining 60 percent indicated they use the gross method (recognize gross revenue and gross costs).

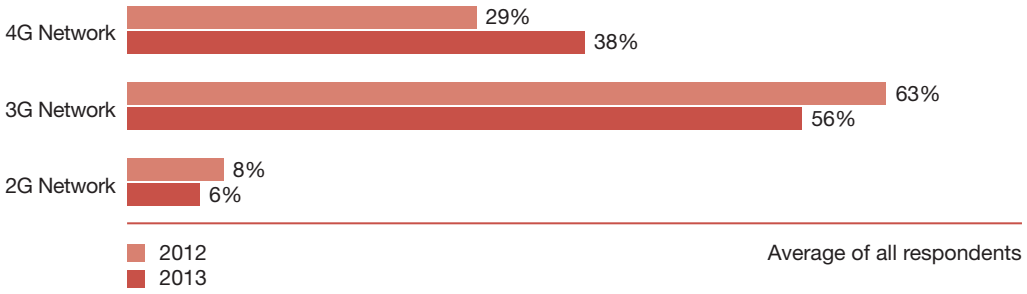
Network costs

Companies are continuing to experience heavier network traffic as the demands of consumers increase and the availability of advanced data services expands. We asked companies about the increase in their network traffic between December 31, 2012 and December 31, 2013, and between December 31, 2011 and December 31, 2012; the results are included in Figure 4.15. Notably, overall traffic growth has continued to slow from the rapid rate of increase seen in recent years, with operators reporting as much as a 34 percent reduction in their rate of traffic growth. While it is still too early to tell if this slowdown is an indication of a maturing industry and a reduction in subscriber demands, it offers some potential relief to rapidly escalating network capital requirements and deployment challenges.

Figure 4.15: Percentage increase in network traffic

Figure 4.16 illustrates the percentage of network traffic generated on the different network types as of December 31.

Figure 4.16: Percentage of network traffic generated by network type



We asked companies which costs are included in network/system expense. The results are consistent with the 2012 survey. Their responses are illustrated in Figure 4.17.

Figure 4.17: Costs included in network/system expense

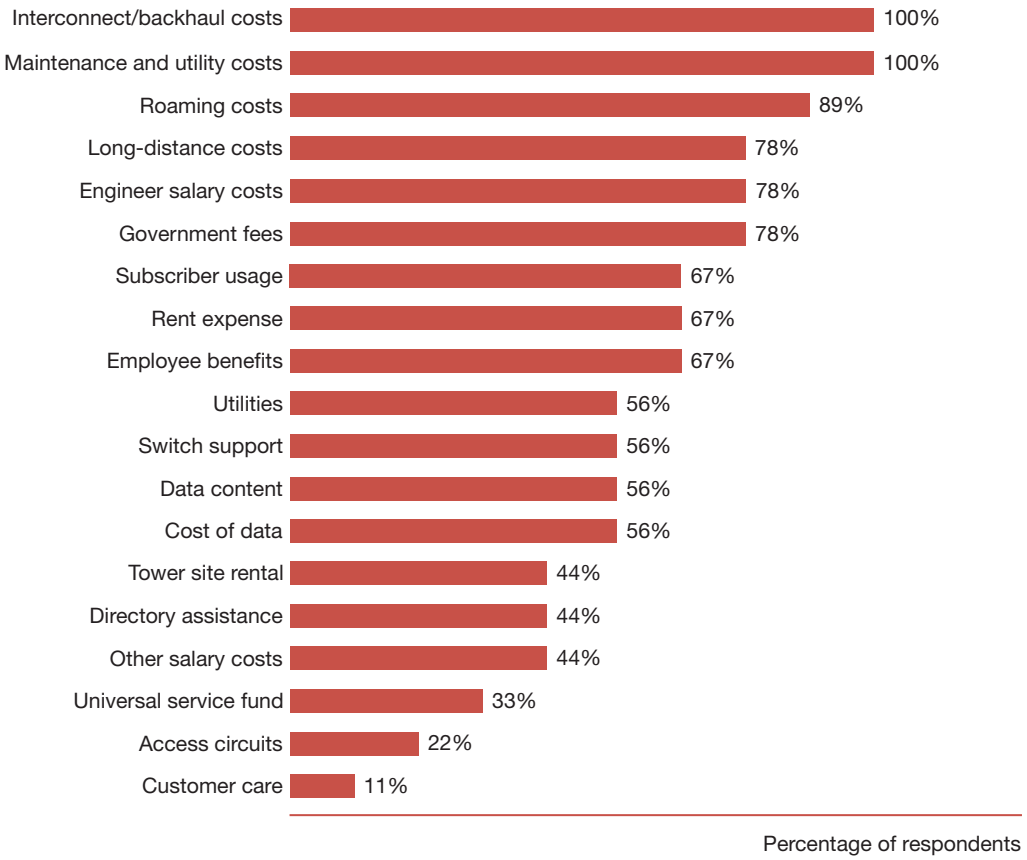
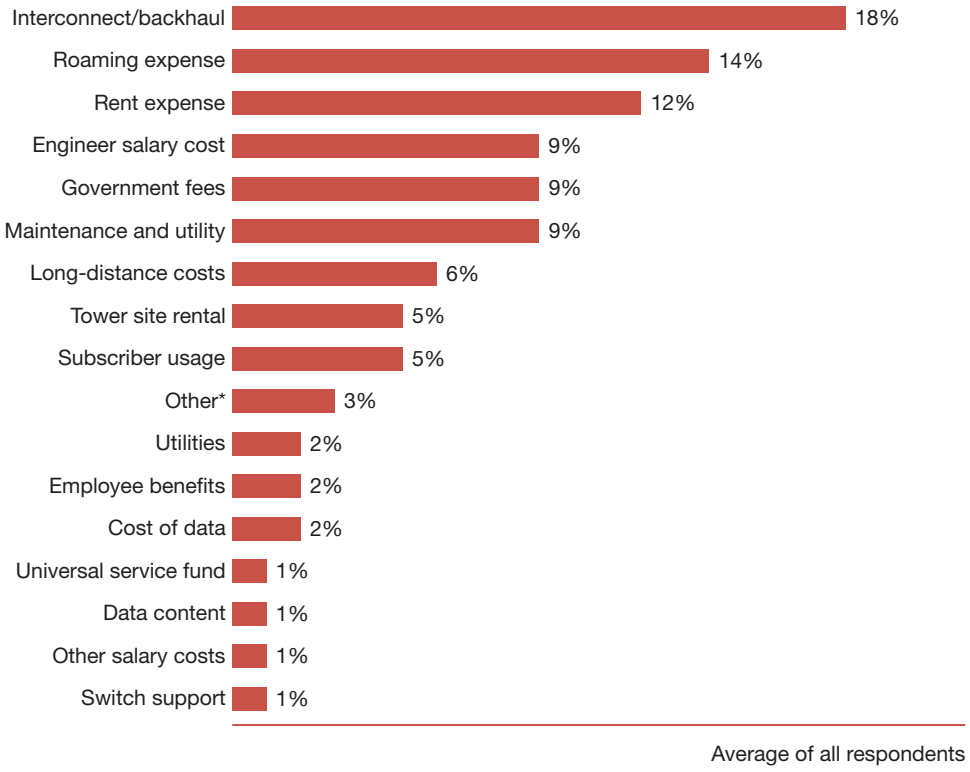


Chart sums to greater than 100 percent because multiple responses were allowed.

We asked companies what percent of the total network/system expense each component represents; their average responses are illustrated in Figure 4.18.

Figure 4.18: Components of network/system expense



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

Divestment of tower assets has been one of the key trends in the wireless industry as carriers try to focus on their core communication business. Many carriers are struggling from high investments in network advancement and are looking to infrastructure flexibility, network infrastructure sharing, and outsourcing as an effective way to cut down average costs. We asked companies what percentage of their cell sites they lease rather than own. Responding companies lease an average of 87 percent of their cell sites as of December 31, 2013, slightly increased from the 84 percent as of December 31, 2012. Figure 4.19 shows the percentage ownership of cell sites based on the size of the company.

Figure 4.19: Cell site ownership

Seventy-eight percent of the responding companies indicated they use circuit inventory tracking systems to account for system expenses. Fourteen percent of respondents that use tracking systems utilize an external service provider to track the circuit inventory. The remaining companies perform the circuit tracking internally via internally developed systems or purchased software. The companies performing circuit tracking internally do so primarily by operating market and on a channel-by-channel basis. Seven of eight responding carriers perform bill verification for long distance and all eight respondents perform bill verification for interconnect expenses, consistent with the 2012 survey. Eighty-eight percent of respondents said they perform bill verification internally, also consistent with the 2012 survey. Of the respondents that perform bill verification internally, the most common internal departments performing bill verification were finance and accounting and engineering.

Billing

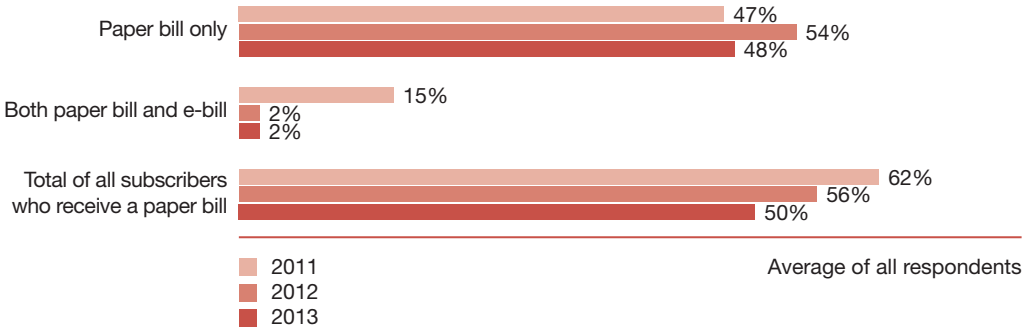
We asked companies to identify the method whereby their postpaid subscribers receive monthly invoices as of December 31, 2013. The responses are shown in Figure 4.20 compared to 2012.

Figure 4.20: Monthly invoice delivery method as of December 31

Reducing the cost and promotion of environmentally friendly policies are major reasons for carriers to promote e-bills. E-bills are also gaining in popularity because more and more subscribers are using the Internet, especially on their smartphones, to pay their bills.

The average percentage of subscribers receiving paper invoices overall has continued to trend downward in the current year, as illustrated in Figure 4.21.

Figure 4.21: Percentage of subscribers receiving a paper bill as of December 31



We asked the companies if they charge subscribers for paper bills. Fifty percent of the respondents charge subscribers for paper bills, consistent with the 2012 survey. The average charge was $2.44 per month, compared with $2.07 in the 2012 survey. The average cost per subscriber for a monthly paper bill (from print to mail) was $0.81 and ranged from $0.38 to $1.17. In contrast, the respondents' average cost per subscriber for monthly e-bills was $0.19 and ranged from $0.09 to $0.38.

We also asked the companies if they charge subscribers for detailed billing (billing that includes all call detail information). Sixty-three percent of the respondents charge subscribers to obtain detailed billing; the average charge was $2.17 per month, but most respondents charge $1.99 per month.

Converged billing is often available to customers if they obtain more than one service from a company. For example, if a customer receives wireless, wireline/landline, and cable service from a company, they could possibly receive a single bill for all services. Sixty-three percent of respondents offer more than one service to their customers. Eighty percent of carriers that offer more than one service provide converged bills.

Credit and collections

We asked the companies if they complete credit checks on all new subscribers. Six of nine respondents indicated they do. When a credit check is completed for a new customer, the average time for a credit decision is five seconds.

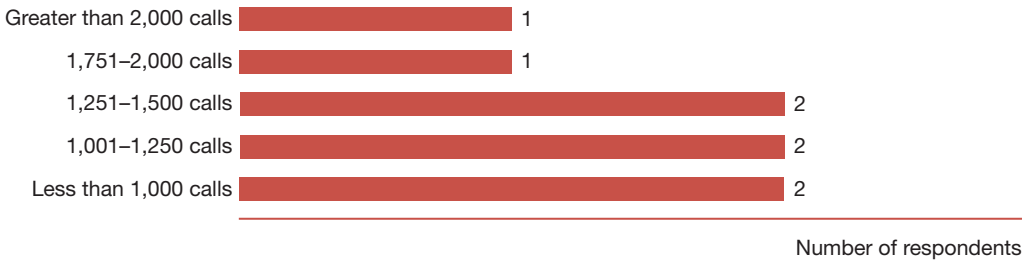
The average number of days after the bill due date for which an account is canceled for non-payment is 89 days, within a range of 50 to 142 days.

All respondents (100 percent) indicated that they use an automatic dialer to call accounts that are past due. The time period when the automatic dialer begins to call past-due accounts ranged from zero to 20 days. The companies were also asked if they charge late payment fees and how many reminder SMS/e-mails are sent to customers/subscribers before the due date. All respondents charge a late payment fee. Two respondents said they send one to three SMS reminders, and six respondents do not send reminders to customers.

We asked the companies how many employees in their collections department focus solely on past-due, late, or suspended accounts. Average employees in the collections department that are focused solely on past-due, late, or suspended accounts averaged 720. The range was 44 employees to 1,512 employees.

We also asked how many calls are handled by each call collector on a monthly basis. The average number of calls was 1,485, and responses ranged from 893 calls to 2,925 calls. Figure 4.22 depicts the number of calls handled by respondents.

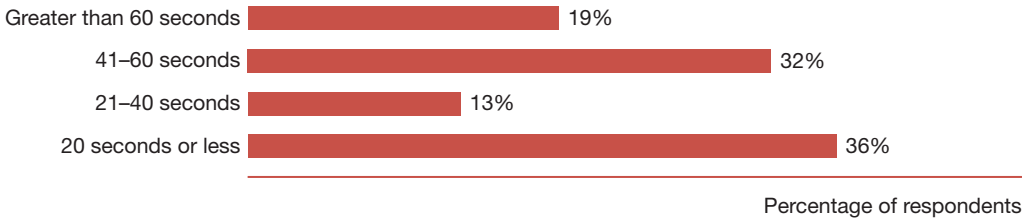
Figure 4.22: Number of calls handled per month by each collector



No responses were received in the 1,501–1,750 category.

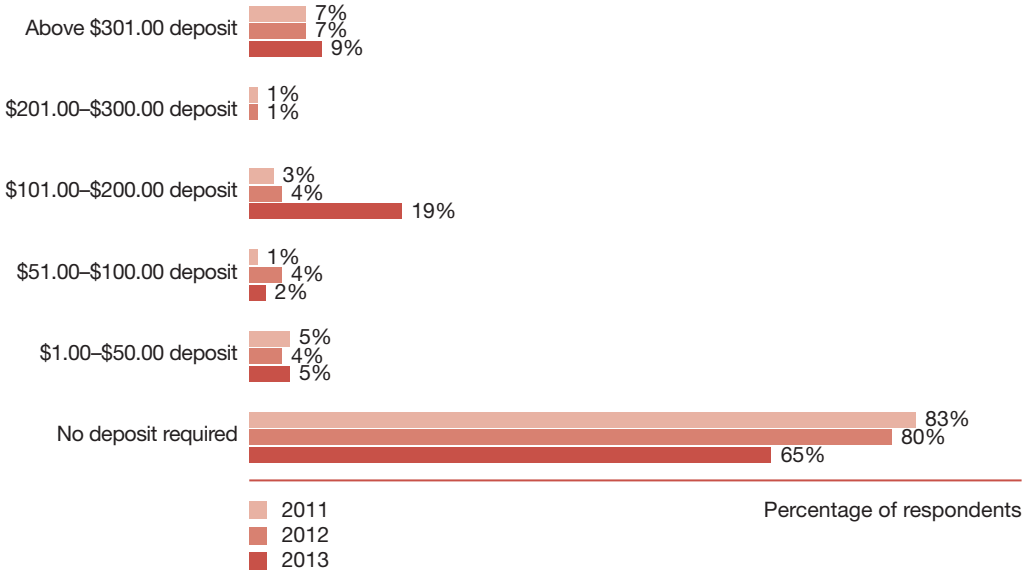
Figure 4.23 illustrates the average time frames in which customer calls are answered by customer service representatives. On average, customer calls were answered in less than 60 seconds 81 percent of the time, compared with 85 percent in the 2012 survey.

Figure 4.23: Customer calls answered within each time frame



We also 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, Figure 4.24 represents the average percentage of deposits associated with each dollar level for the current year or the percentage of subscribers who are not charged a deposit, compared with the 2012 survey.

Figure 4.24: Deposits charged



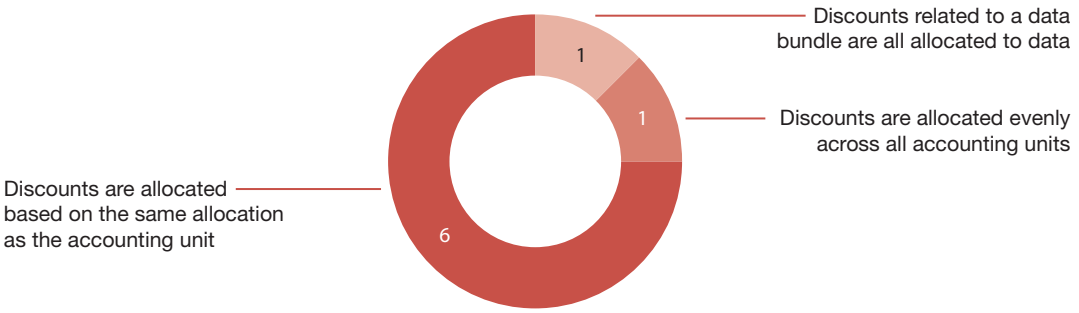
No responses were received in the $201.00–$300.00 deposit category in 2013.

Data and revenue assurance

Additionally, the bundling of voice and data services has become more prevalent in recent periods. Therefore we asked companies if they allocate bundled service revenue charges between data services and voice services for internal and/or external purposes. The attribution of some of the 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. Eight of the responding carriers allocate bundled revenue between voice and data and is largely determined based on the relative fair value of the stand-alone selling price of the bundled items to the total.

We also asked the responding carriers how they account for the discounts applied to the bundles. All eight responding companies that allocate bundled revenue indicated that the discount is also allocated. Figure 4.25 below shows the different allocation methods.

Figure 4.25: Method of discount allocation to service bundles



Fifty-seven percent of respondents answered that e-Wallet (making purchases through a wireless device) has not been implemented and, as such, they have not begun revenue assurance/fraud management activities in this area. The remaining 43 percent answered that e-Wallet has been implemented, but very minimal revenue or revenue assurance/fraud management opportunities have begun.

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Property, plant, and equipment

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

Licensed spectrum
Capital expenditure reporting
Technology usage
Capitalization policies
Capitalized labor
Asset impairments and fair value
Asset useful lives
Co-location
Decommissioning of network assets
Cell sites and asset retirement obligations

Licensed spectrum

The mobile data consumption continues to rise and the lack of adequate spectrum has become a major bottleneck. In the United States, the majority of low-range spectrum is held by TV broadcasters and government agencies, though most of it remains unused, and the absence of a large base of uninterrupted spectrum has resulted in efficiency challenges for carriers launching a 4G network. Mobile carriers are taking a number of steps to meet their capacity needs today, aside from aggressively seeking opportunities for mergers and acquisitions or network sharing; these steps include launching tiered data plans in an effort to partially control traffic loads and investing in a next-generation 4G network and backhaul technologies such as Wi-Fi and small cells. We are also seeing carriers selling femtocells to their end users as signal extenders or boosters, as well as exploring options such as spectrum refarming and even downsizing by decommissioning certain assets to optimize their networks. The recent completion of the AWS-3 spectrum auction in January 2015, known as auction 97, netted $44.899 billion in provisional winning bids also demonstrates the extreme need for spectrum.

The FCC is now working on a two-way "incentive auction" plan to buy spectrum from TV broadcasters for proceeds and allocate these airwaves to wireless carriers through forward-selling auctions. This process, however, is expected to be lengthy and is estimated to take another five to eight years with the recent delay in the start of the auction moving to early 2016. In the meantime, the FCC has partnered with the National Telecommunications & Information Administration (NTIA) to test spectrum sharing between commercial organizations and government in the 1695-1710 MHz and 1755-1780 MHz AWS-3 bands, which may enable the FCC to auction paired spectrum in the future. Ultimately, carriers will continue to address the lack of adequate spectrum primarily in three ways: 1) lobbying for the auctioning of additional spectrum, 2) working on more efficient use of their existing spectrum, and 3) adopting new technologies that will enable more seamless spectrum sharing between parties.

Carriers continue to own and use multiple spectrum band licenses with significant concentration in the personal communication services (PCS) (~1.9 GHz) and advanced wireless spectrum (AWS) (~2100 MHZ and 1700 MHZ) categories in North America. Figure 5.1 shows the number of respondents that own and/or use each of the reported license types.

Figure 5.1: Wireless license owned and used for active subscribers

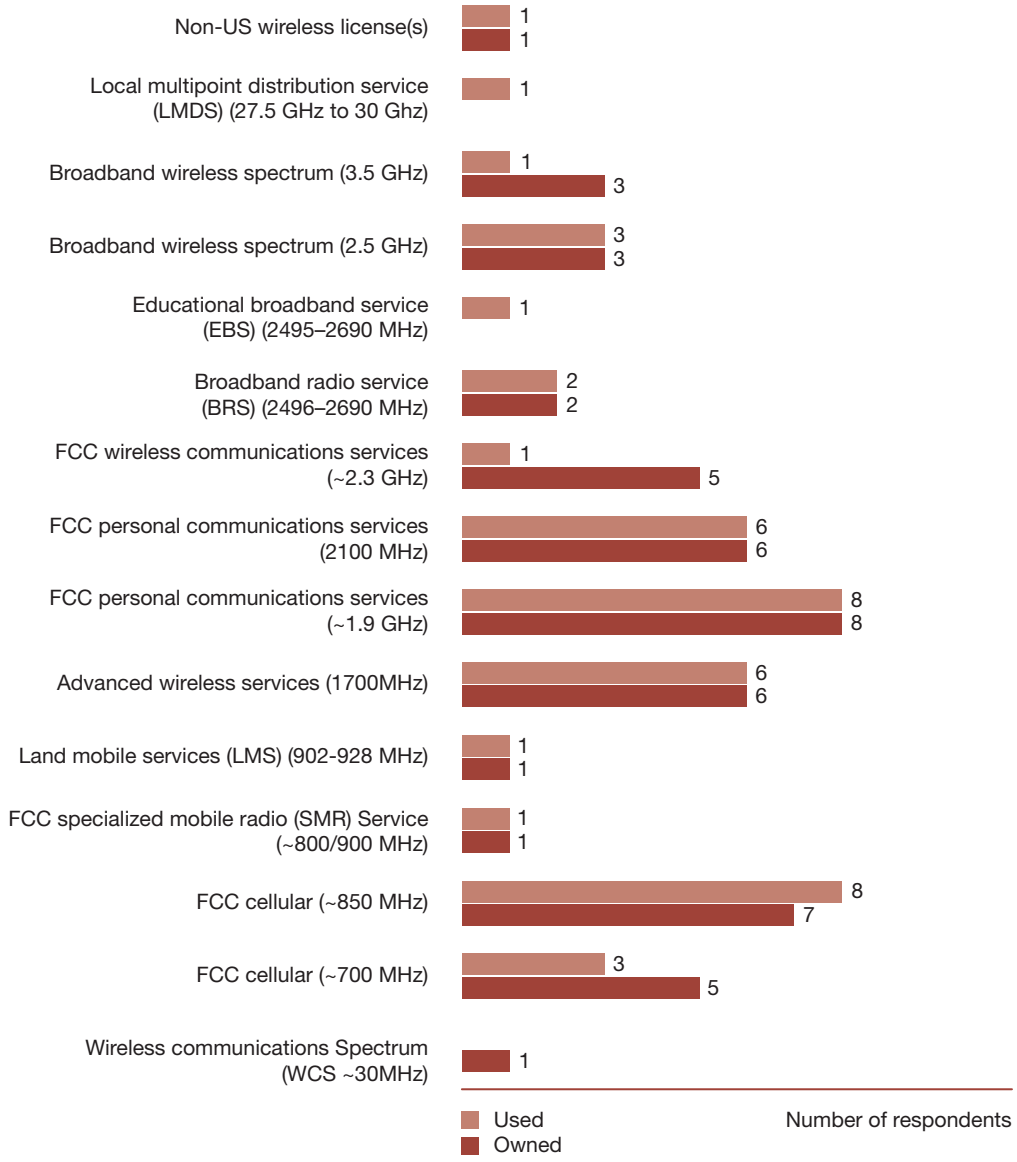
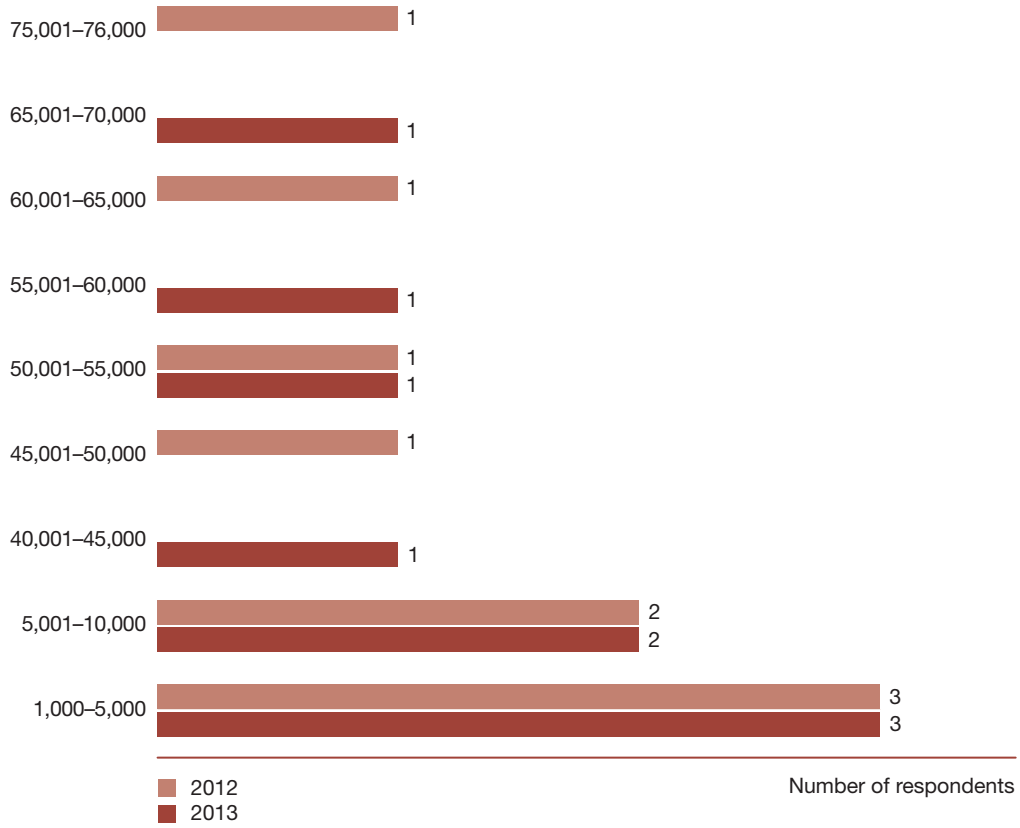


Chart sums to greater than the number of responding carriers as multiple responses were allowed.

2013 saw a number of carriers enter into agreements to sell and leaseback certain cell towers in their portfolio. While this did not hinder an overall increase in the average number of cell sites, respondents operated 27,167 cell sites as of December 31, 2012, to 29,254 as of December 31, 2013, it does indicate that operators are aware that near-term liquidity versus supporting an aging infrastructure subject to technological change may be preferable. The trend becomes even more relevant as carriers continue the deployment of small cells in densely populated areas.

Figure 5.2 indicates total cell sites as of December 31, 2013 and 2012, for each responding carrier.

Figure 5.2: Total cell sites as of December 31



No responses were received in the 40,001–45,000, 55,001–60,000, and 65,001–70,000 categories for 2013 and in the 45,001–50,000, 60,001-65,000 and 75,001–76,000 categories in 2012.

The proliferation of mobile devices has rapidly increased the network requirements for carriers. The increased demand has required carriers to continually invest in both the speed and coverage of its network as required by the 44 percent increase, on average, of MBs traffic per cell site in 2013 compared to 2012.

Capital expenditure reporting

According to the Telecommunications Industry Association, global telecommunications spending was nearly 5.17 trillion in 2013 with an estimated 4.8 compound annual growth rate between 2014-2017. Capital expenditures can be the most significant cash outflow for telecom operators who need to continuously invest in building next-generation networks and technologies, along with new services and applications. The major areas of investment continue to be 3G mobile network capacity expansion and deployment of 4G/LTE networks in developed markets.

Carriers responded that they expect to invest an average 15 percent of service revenues for network infrastructure in fiscal year 2014 ranging from eight to 25 percent. Figure 5.3 shows the investment areas that the respondents expect to spend capital on.

Figure 5.3: Key areas of investment

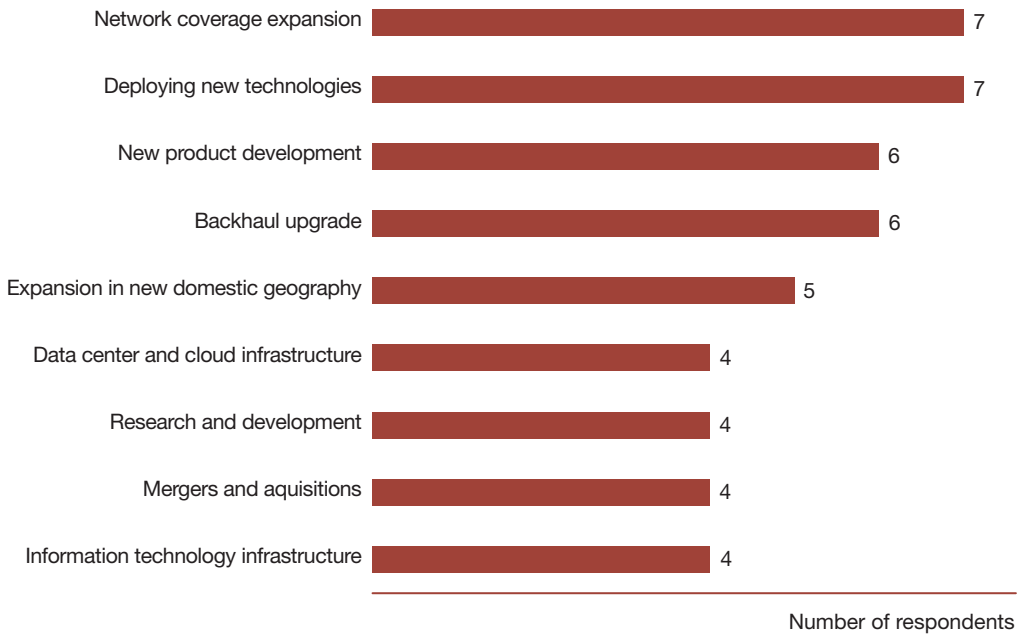


Chart sums to greater than the number of responding carriers as multiple responses were allowed.

We asked companies to report their capital expenditures as a percentage of service revenue, gross fixed assets, and net fixed assets for the fiscal years ended December 31, 2013 and 2012. The results are illustrated in Figure 5.4.

Figure 5.4: Capital expenditures as a percentage of net fixed assets, gross fixed assets, and service revenue

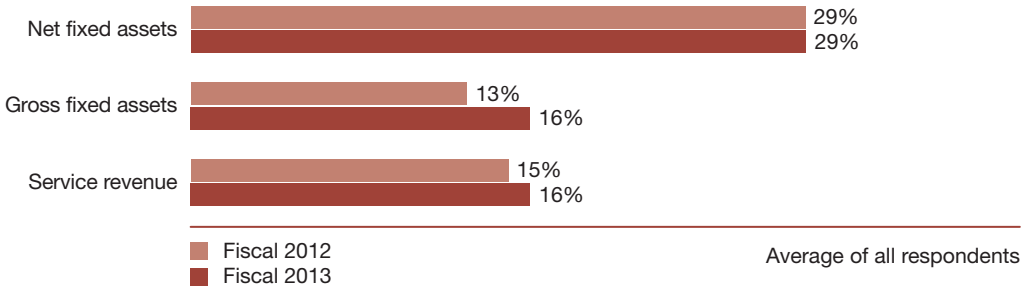
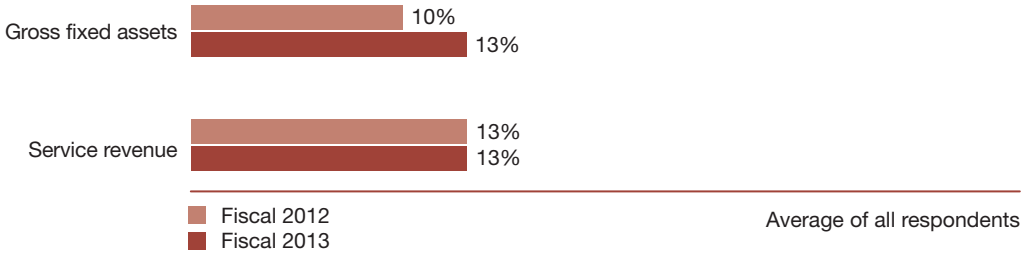


Figure 5.5 shows depreciation expense as a percentage of service revenue and gross fixed assets for fiscal years 2013 and 2012.

Figure 5.5: Depreciation expense as a percentage of service revenue and gross fixed assets



The following two charts compare capital expenditures per average market population (Figure 5.6) and per average subscriber (Figure 5.7) for fiscal years 2013 and 2012.

Figure 5.6: Capital expenditures per average population

Figure 5.7: Capital expenditures per average subscriber

Figure 5.8 shows that new technologies cost less per cell site among all carriers in 2013 compared with the previous fiscal year.

Figure 5.8: Capital expenditures per average new cell sites

Participants were asked to provide their depreciation expense per average population, per average subscriber, and per average cell site for fiscal years 2013 and 2012. The following three charts (Figure 5.9, 5.10, and 5.11, respectively) show the results compared with those for the previous fiscal year.

Figure 5.9: Depreciation expense per average population

Figure 5.10: Depreciation expense per average subscriber

Figure 5.11: Depreciation expense per average cell site

Technology usage

The growing adoption of smartphones, tablets, and other connected devices, coupled with the corresponding high consumption of data, including video, gaming, mobile commerce, and social networking, has left no choice for carriers but to adapt to the new technologies. But while carriers are trying to leverage these opportunities, their network capacities are struggling to meet the growth in data traffic, and their network upgrade initiatives have been hampered by the limited availability of spectrum. In addition, off-loading technologies such as femtocells, Wi-Fi, IP Ethernet, and network sharing are also seeing increased demand. However, it is not only a challenge for the wireless networks; the carriers themselves will need to change their business models to cater to the growing demand for mobility by consumers and enterprises. The rapid adoption of trends like social networking, bring-your-own-devices (BYOD), converged services, video conferencing, m-commerce, and location-based services will push operators to further invest in such technologies as cloud computing, virtualization, co-location and data centers, and near-field communication (NFC). The growing penetration of connected devices will also require mobile operators to collaborate with other sectors, including retail, automotive, healthcare, consumer electronics, and utilities, both on the business and the technological front.

Respondents were asked what percentages of their cell sites and subscriber base are covered by third generation technology as of December 31, 2013, and Figure 5.12 shows their responses. Respondents noted in 2013 a reduction in their percentage of cell sites devoted to 3G as compared to an average of 82 percent in 2013 (four percent decline). In regards to 4G rollout, on average, respondents noted a 159 percent increase in 4G cell sites from 2012 to 2013 with a plan to add an average of 32 4G cell sites in fiscal year 2014.

Figure 5.12: Percentage covered by 3G technology as of December 31, 2013

Figure 5.13 shows the responding carriers' average cost for implementing 3G technology at each new and existing cell site, and Figure 5.14 shows the cost for implementing 4G. As would be expected, the cost of a new site is considerably higher than upgrading a current network.

Figure 5.13: Average cost per cell site for 3G technology

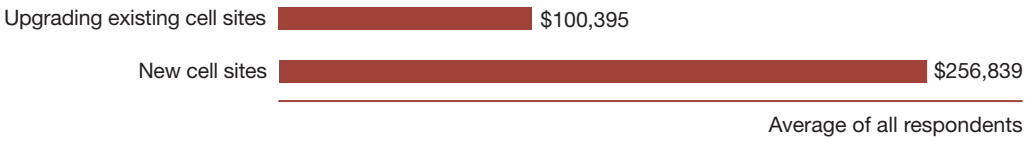
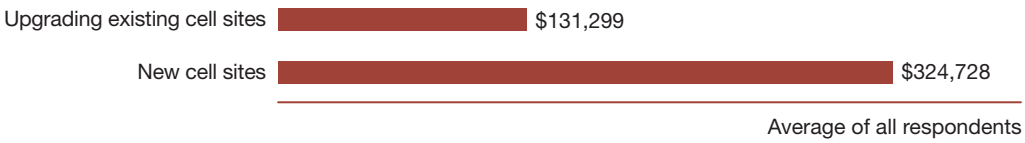


Figure 5.14: Average cost per cell site for 4G technology

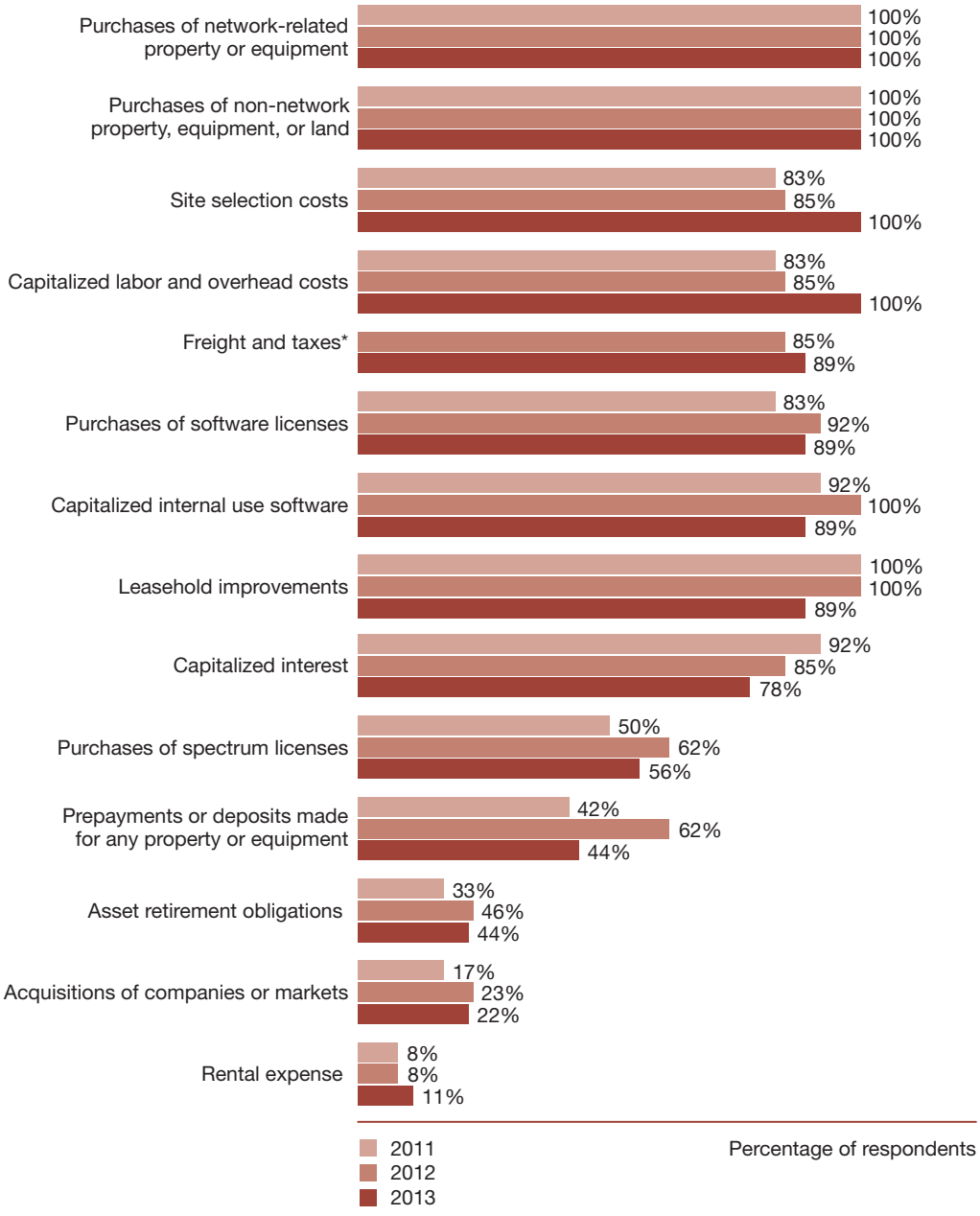


As of December 31, 2013, eight of the responding carriers had their own cell sites using 4G technology. Seven respondents indicated they owned the core network assets and spectrum used to provide 4G coverage to subscribers. The 2013 survey also shows that, on average, 69 percent of carriers' cell sites used 4G technologies and 83 percent of the subscriber base was covered by 4G technologies.

Capitalization policies

Capitalization policies for spectrum licenses, asset retirement obligations (AROs), and prepayments/deposits continue to be varied among our respondents. Figure 5.15 illustrates the percentage of respondents that include each category of expenditures in their externally reported capital expenditures. Only one carrier made any changes to the type of costs capitalized, which was to exclude ARO expenses from externally reported capital expenditures.

Figure 5.15: Types of capital expenditures

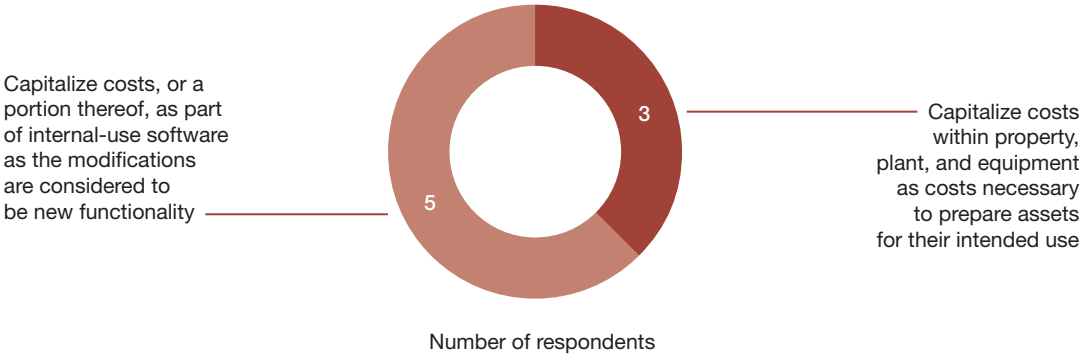


*Freight and taxes became a separate category in 2012, therefore no comparative data exists.

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

The movement to LTE technology requires companies to analyze their treatments of costs associated with internal-use software. Carriers were asked how they account for required changes to internal-use software, driven by the movement toward LTE technology. The results are shown in Figure 5.16 below.

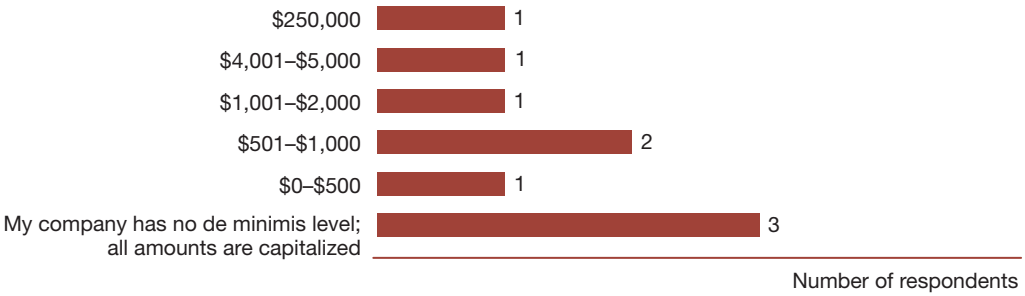
Figure 5.16: Accounting for changes to internal-use software driven by movement toward LTE



Carriers 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). Eighty-nine percent of the responding carriers in the current year indicate that they capitalize costs, or a portion thereof, as part of internal-use software, as the modifications are considered to add new functionality; remaining carrier expenses as incurred.

Figure 5.17 shows respondents' de minimis levels for the capitalization of internal-use software. Compared with the responding carriers' policies for non-network equipment in Figure 5.20, we see that several utilize a higher threshold for internal-use software when determining capitalization. One out of eight respondents indicated they changed their de minimis level for internal-use software in the past two years due to a split between network software and general software de minimis.

Figure 5.17: De minimis level for capitalization of internal-use software



No responses were received in the $2,001–$4,000 and $5,001–$249,999 categories.

Figure 5.18 illustrates the types of costs associated with fixed assets capitalized by responding carriers and compares this year's responses with those from the 2012 and 2011 surveys. Respondents indicated they have not made changes to the types of costs associated with capitalized assets in the past two years.

Figure 5.18: Fixed asset costs capitalized

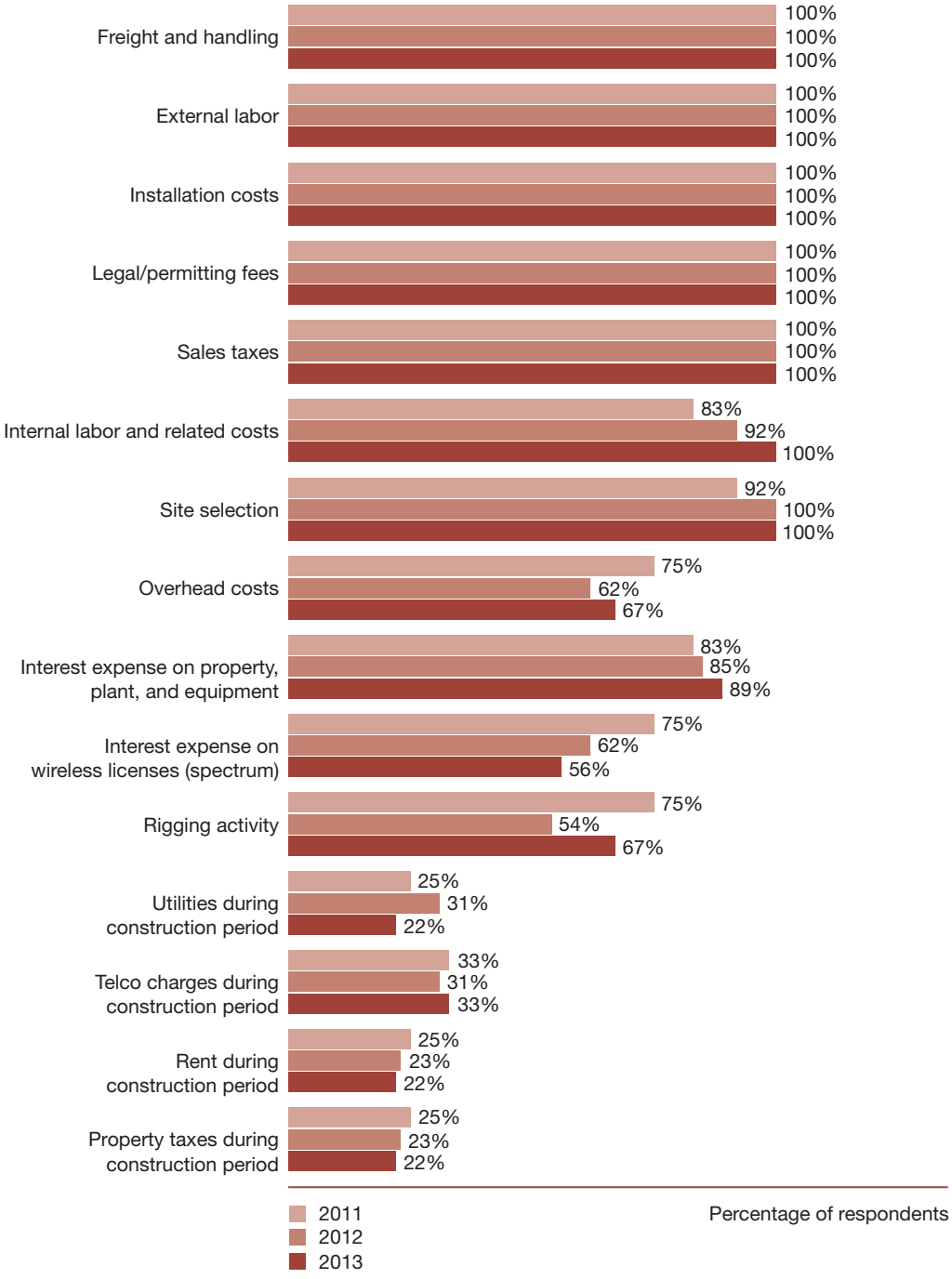
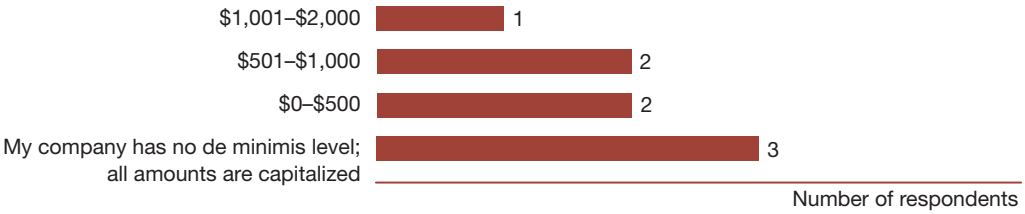


Chart sums to greater than 100 percent because multiple responses were allowed.

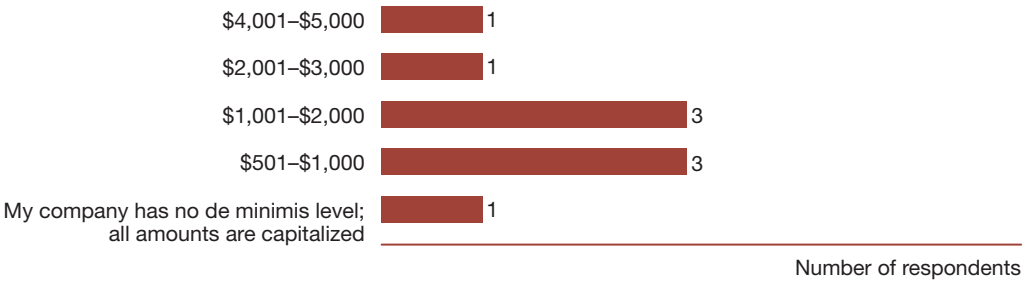
Figure 5.19 shows respondents' de minimis levels for the capitalization of property, plant, and equipment. Respondents stated they have made no changes to de minimis levels over the past two years.

Figure 5.19: Minimum capitalization thresholds for property, plant, and equipment for network



Compared with the responding carriers' policies for network equipment, several utilize a higher threshold for non-network equipment when determining capitalization, as shown in Figure 5.20.

Figure 5.20: De minimis level for non-network equipment capitalization



No responses were received in the $3,001-$4,000 category.

Carriers were asked whether they receive rebates from their equipment vendors based on a specified level of fixed asset purchases or other commitments. All respondents indicated they receive these types of rebates from equipment vendors. Thirty-three percent reduce the cost basis of equipment at the time of purchase based on an estimate of the rebates to be received, and 67 percent reduce the cost basis only at the time the rebate has been earned (such as when a specified level of purchases has been met), both of which are consistent with prior year responses.

Capitalized labor

Network expansion and modernization can be a very labor-intensive process. Responding carriers were asked to provide the percentage of total labor costs, and specifically engineering labor costs, capitalized as part of property, plant, and equipment as of December 31, 2013 and 2012. The results are shown in Figure 5.21 and 5.22, respectively.

Figure 5.21: Percentage of total labor costs capitalized as part of PPE as of December 31

Figure 5.22: Percentage of engineering labor costs capitalized as part of PPE as of December 31

Responding carriers were asked how they determine or quantify their internal capitalized labor amounts for capitalization. All of the responding carriers indicated they use the indirect method.

Of the nine respondents that use the indirect method, 67 percent of responding carriers indicated an annual study, compared to 22 percent and 11 percent that perform the study quarterly and semi-annually, respectively.

For the nine respondents using the indirect method, Figure 5.23 below indicates the approach used by management to obtain the cost study information.

Figure 5.23: Basis for costs studies

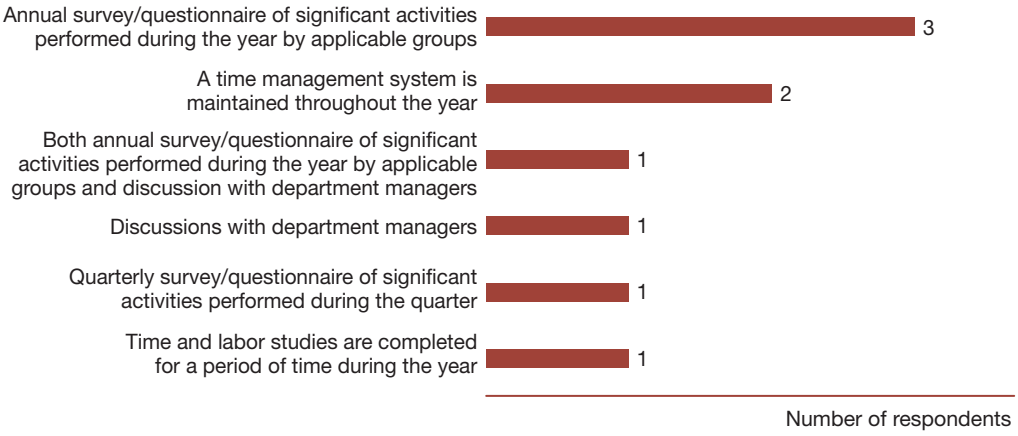
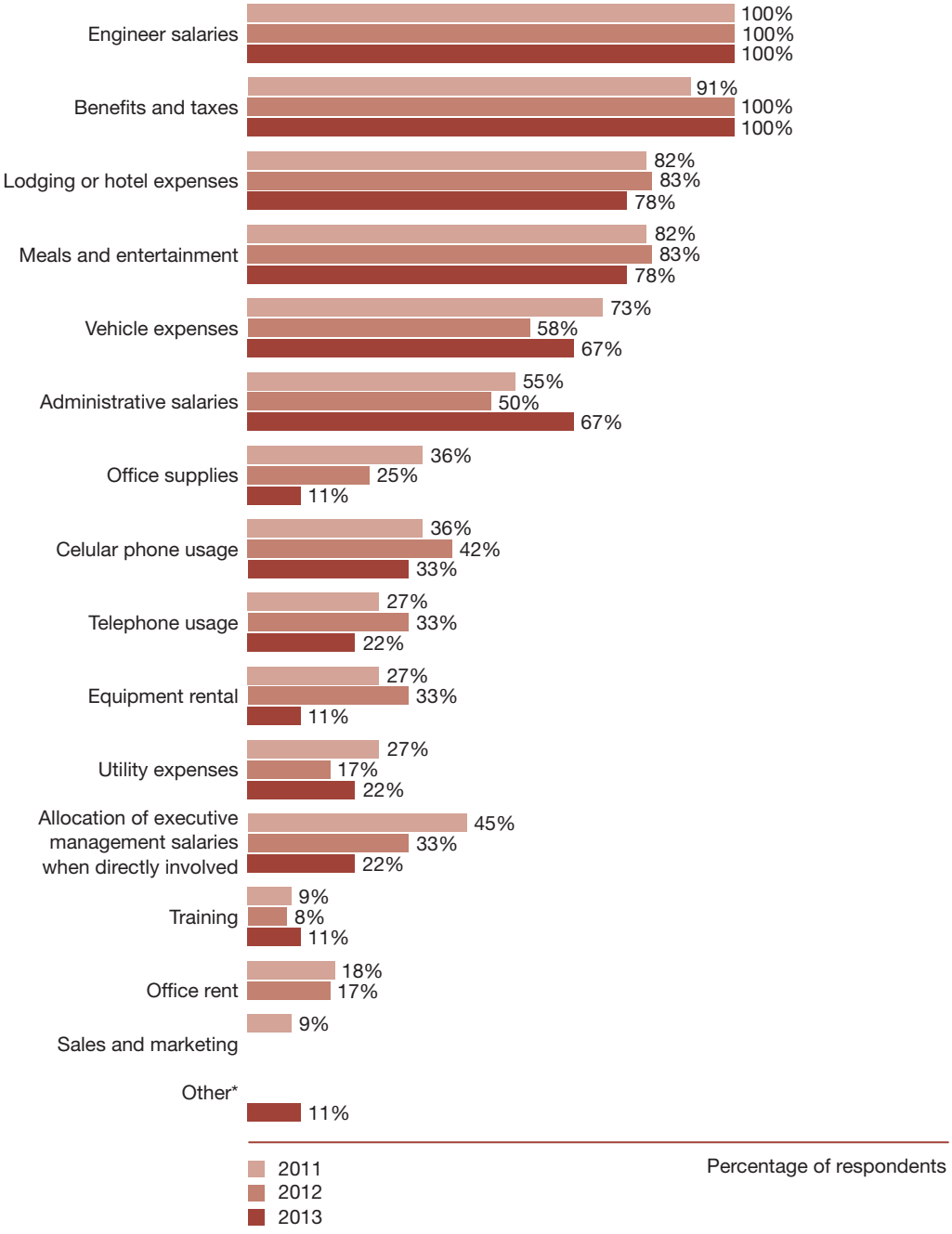


Figure 5.24 illustrates the types of expenses respondents say they include in their internal capitalized labor costs. Respondents indicated that 25 percent of capital expenditures were performed by internal resources in 2013 compared to 24 percent in 2012. None of the carriers changed the types of internal costs capitalized in the current year.

Figure 5.24: Types of internal capitalized costs



*Other includes warehouse rent.

No responses were received in the Other category in 2011 and 2012, Office rent category for 2013, and Sales and marketing category for 2012 and 2013.

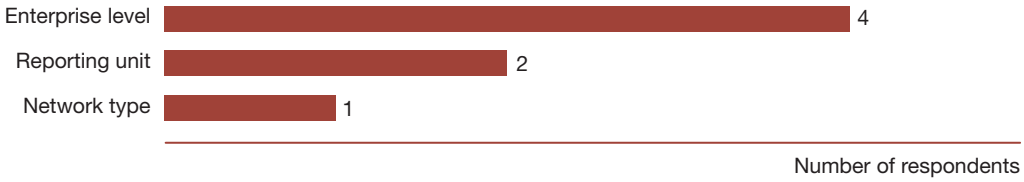
Chart sums to greater than 100 percent because multiple responses were allowed.

Asset impairments and fair value

All respondents indicated they exclude asset impairment charges from their earnings before interest, taxes, depreciation, and amortization calculations, which is higher than the 85 percent in the previous year's survey.

Figure 5.25 shows how respondents define the lowest level of cash flows for purposes of asset impairment testing under applicable accounting standards. Similar to the results of the previous four surveys, the majority of respondents define the enterprise level to be the lowest.

Figure 5.25: Lowest level of cash flows for asset impairment testing



Responding carriers offered their definition of the lowest level of cash flows or cash generating units under applicable accounting standards, as shown in Figure 5.26 below. The results are consistent with those of the previous year, in which 69 percent of responding carriers indicated that the lowest level is generally consistent with segment reporting.

Figure 5.26: Lowest level of cash flows or cash generating units

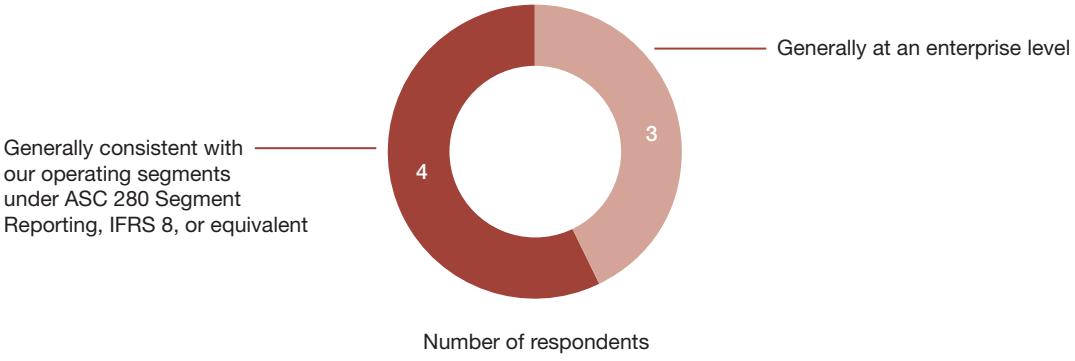
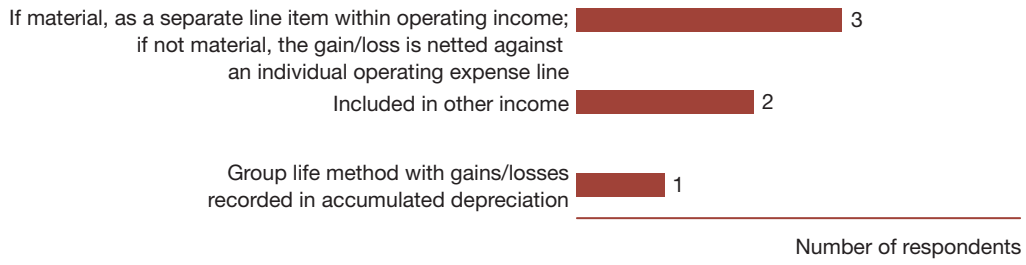


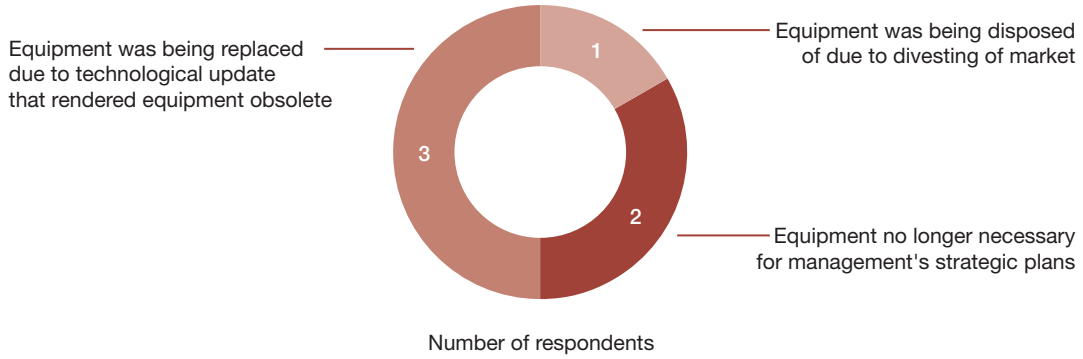
Figure 5.27 shows the financial statement line item on which responding carriers record a resulting gain or loss upon the sale of a long-lived asset or group of assets. The results are largely consistent with those in the 2012 survey.

Figure 5.27: Recording gain/loss from sale of long-lived assets



Respondents continue the trend of recording impairment charges or accelerating depreciation on their fixed assets with 86 percent of responding carriers reporting a charge. Figure 5.28 shows the primary drivers of those charges.

Figure 5.28: Primary driver of impairment or accelerated depreciation charges



We expect carriers to continue to write off portions of their network as 4G and LTE expansion render some legacy equipment obsolete.

Asset useful lives

Figure 5.29 shows fixed asset components that are tracked and depreciated separately within the respondents' fixed asset systems. It should be noted as data through an omnichannel strategy becomes of greater focus, 83 percent of the respondents track those capitalized costs separately in fiscal 2013 as compared to 64 percent in fiscal 2012.

Figure 5.29: Separately tracked and depreciated fixed asset components

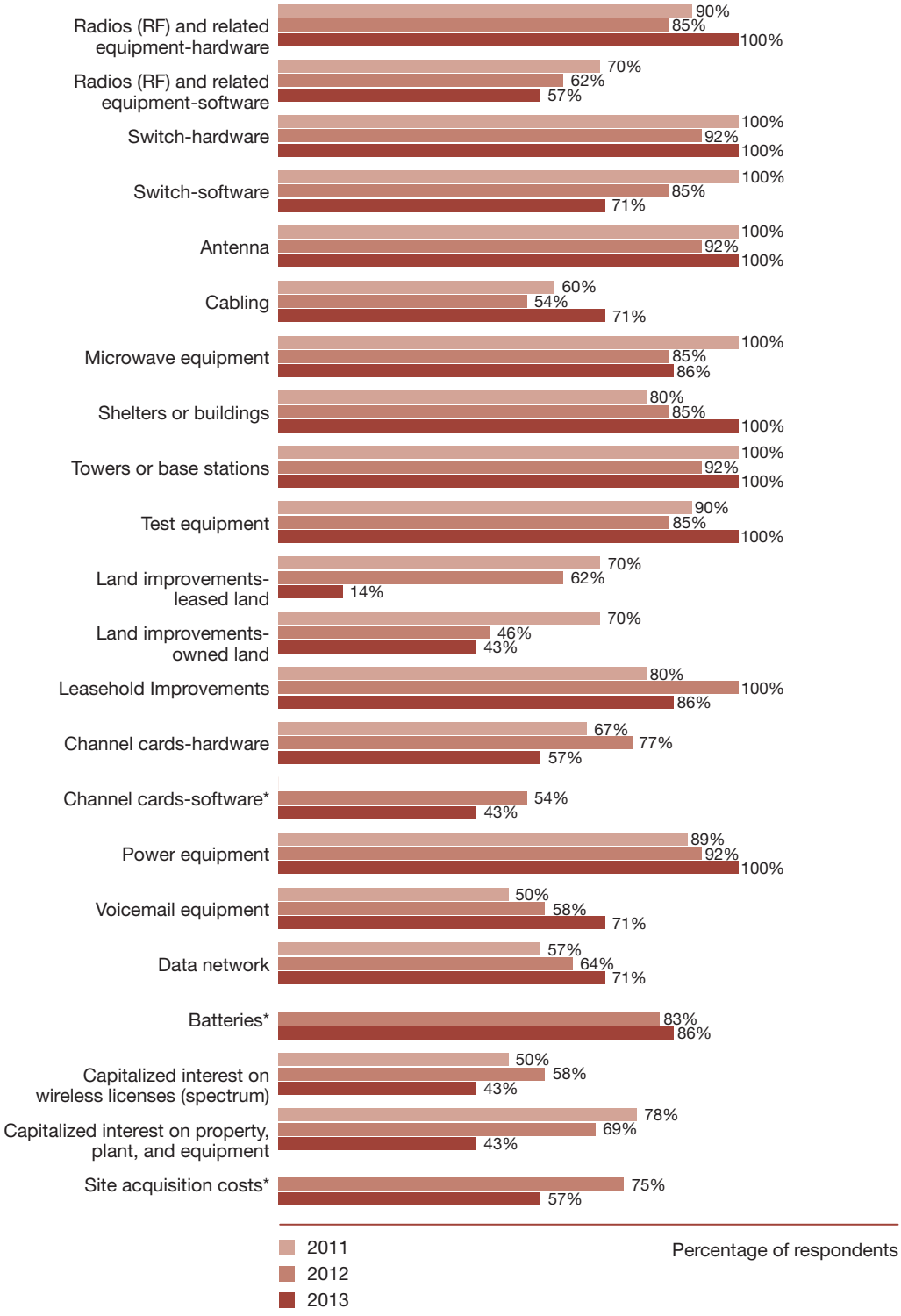
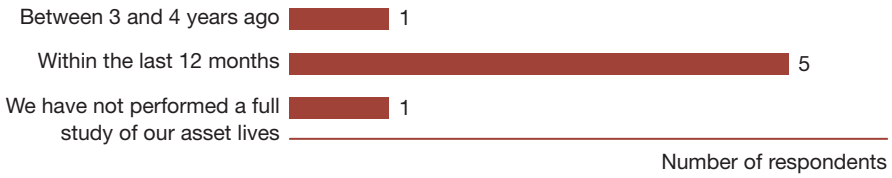


Chart sums to greater than 100 percent because multiple responses were allowed.
*These categories were new in the 2012 survey; therefore no responses are shown for previous year.

Carriers were asked whether they changed any of their fixed asset useful lives during the previous year. Forty-three percent of the seven respondents had changes in the useful lives of their fixed assets. All three respondents that had changes in the current survey indicated the changes generally decreased depreciation expense. The main reason the respondents cited for changing their fixed asset useful lives was due to an in-depth study of useful lives.

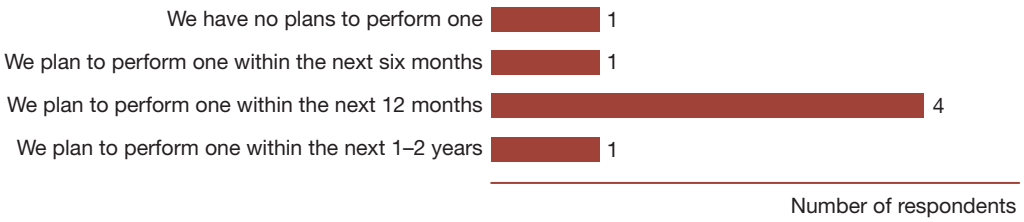
Figure 5.30 shows the last time the respondents performed full studies of their fixed assets useful lives.

Figure 5.30: Most recent fixed asset useful life study



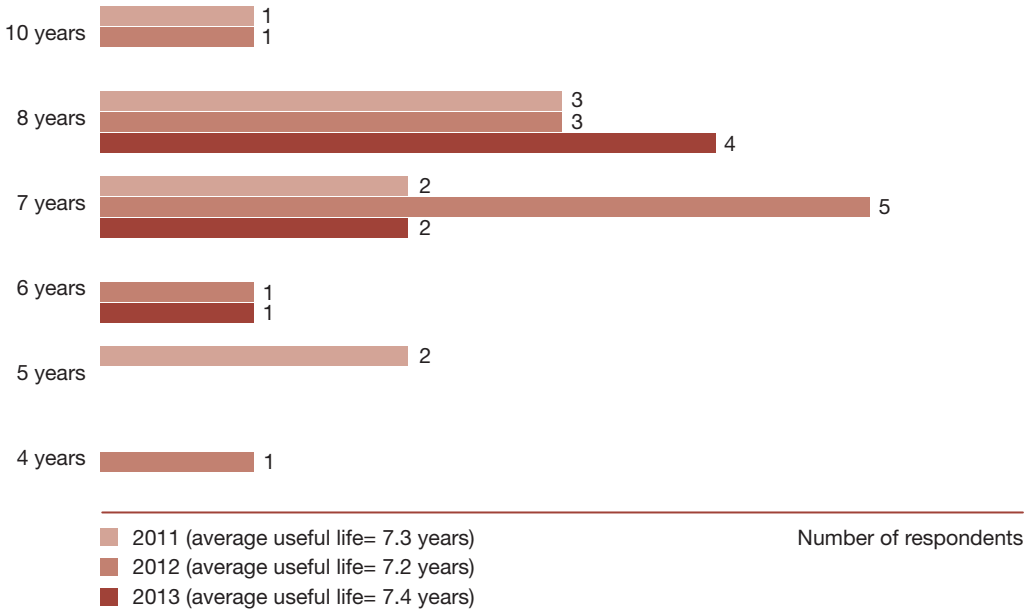
Carriers were also asked to indicate when they plan to perform their next studies of fixed asset useful lives; Figure 5.31 shows their responses. Five of the seven respondents indicated they use only internal resources when conducting analyses of asset lives, while one respondent indicated that they utilize third-party resources to assist with these studies and one respondent indicated they do not perform a study.

Figure 5.31: Next planned fixed asset useful life study



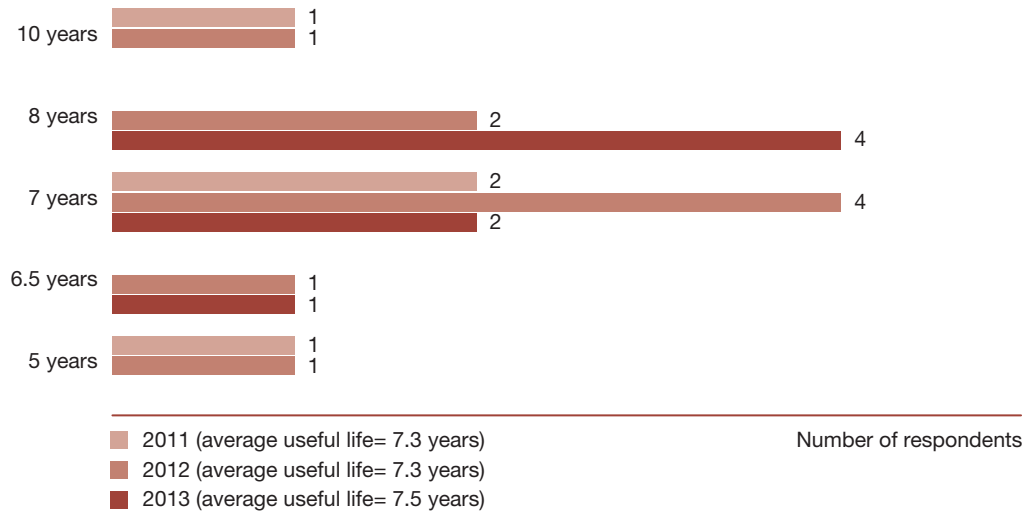
The following charts (Figures 5.32-5.75) illustrate the depreciation lives for the fixed asset components that are tracked and depreciated separately. The charts are separated into the depreciation lives for 3G and 4G for each fixed asset component.

Figure 5.32: Radios (RF) and related equipment—hardware 3G



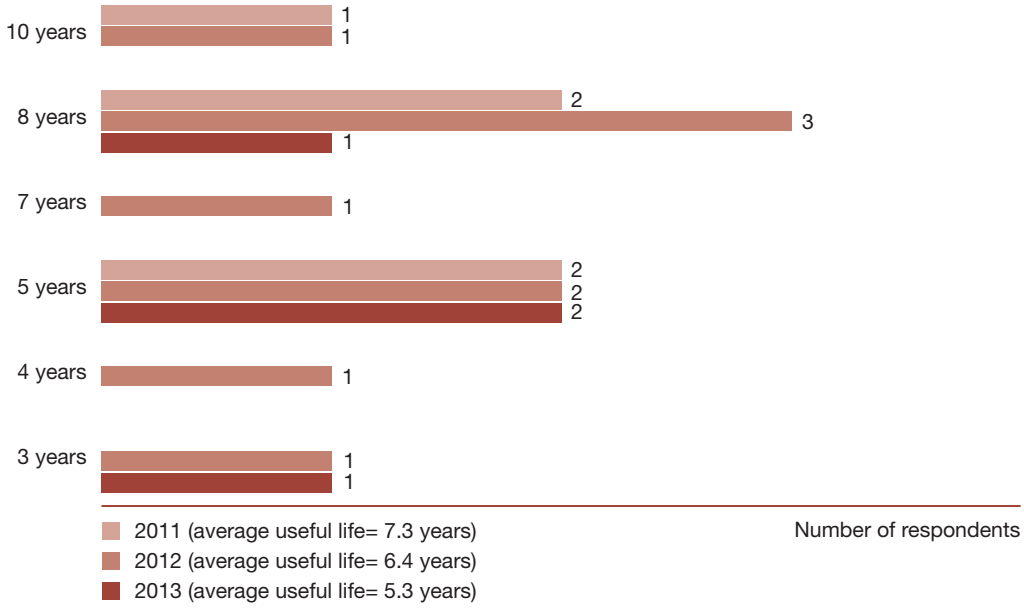
No responses were received in the 4 years category for 2011 and 2013, the 5 years category for 2012 and 2013, the 6 years category for 2011, or the 10 years category for 2013.

Figure 5.33: Radios (RF) and related equipment—hardware 4G



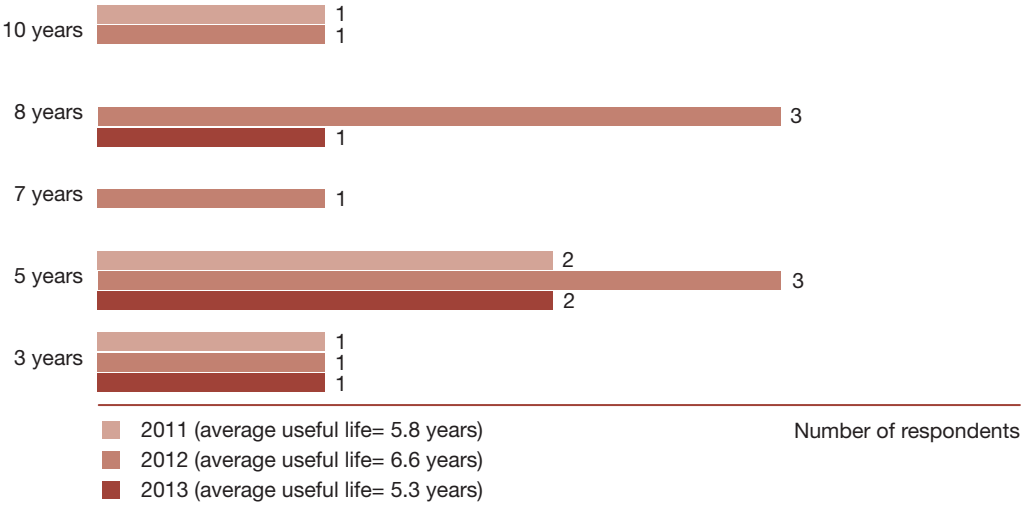
No responses were received in the 5 or 10 years category for 2013, or the 6.5 or 8 years categories for 2011.

Figure 5.34: Radios (RF) and related equipment—software 3G



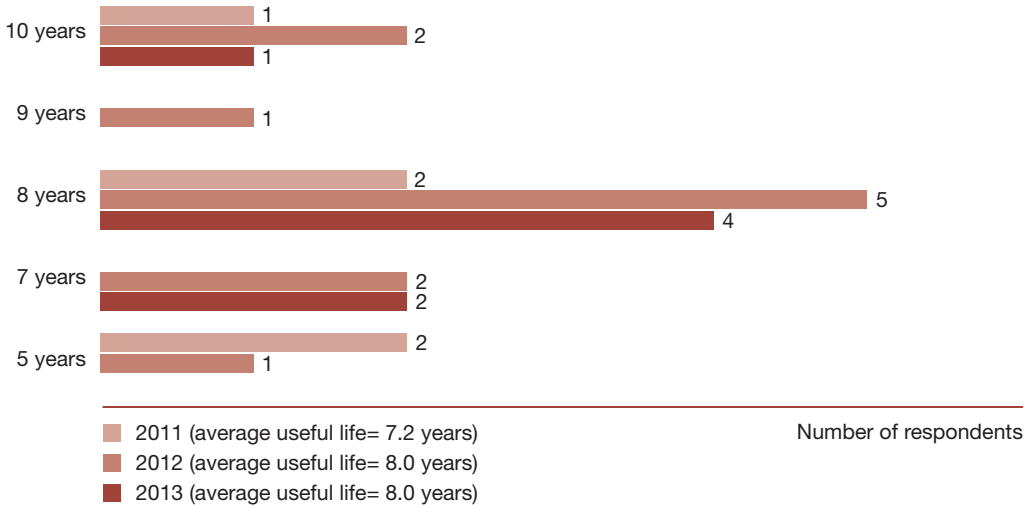
No responses were received in the 3 years category for 2011, the 4 or 7 years categories for 2011 and 2013, or the 10 years category for 2013.

Figure 5.35: Radios (RF) and related equipment—software 4G



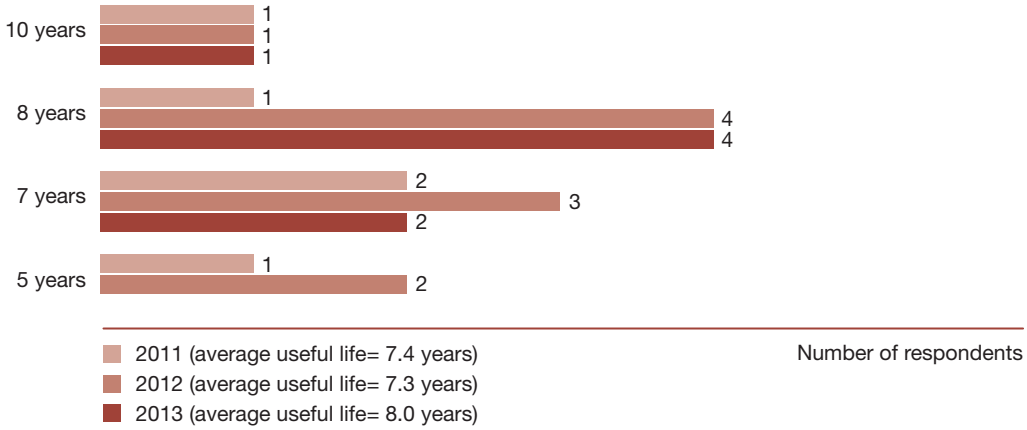
No responses were received in the 7 years category for 2011 and 2013, the 8 years category for 2011, or the 10 years category for 2013.

Figure 5.36: Switch—hardware 3G



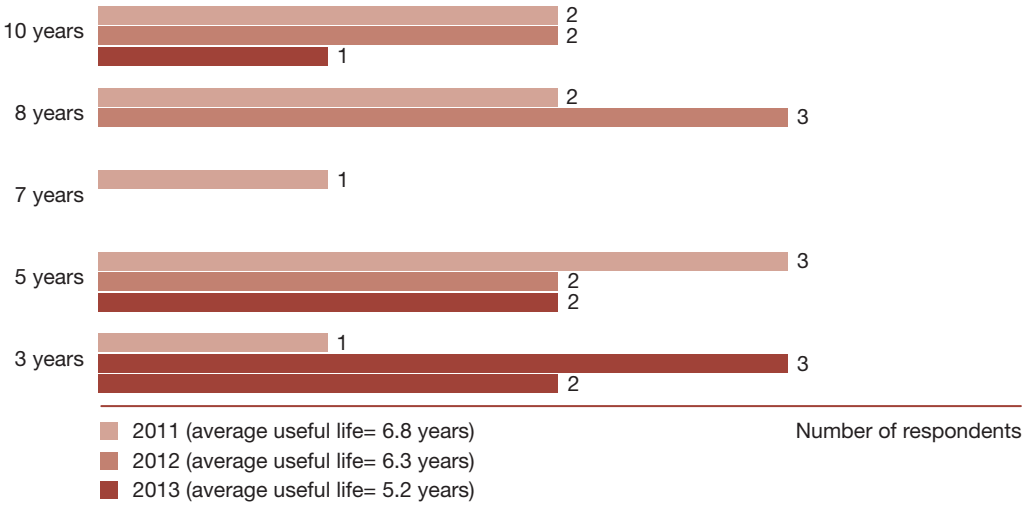
No responses were received in the 5 years category for 2013, the 7 years category for 2011, or the 9 years category for 2011 and 2013.

Figure 5.37: Switch—hardware 4G



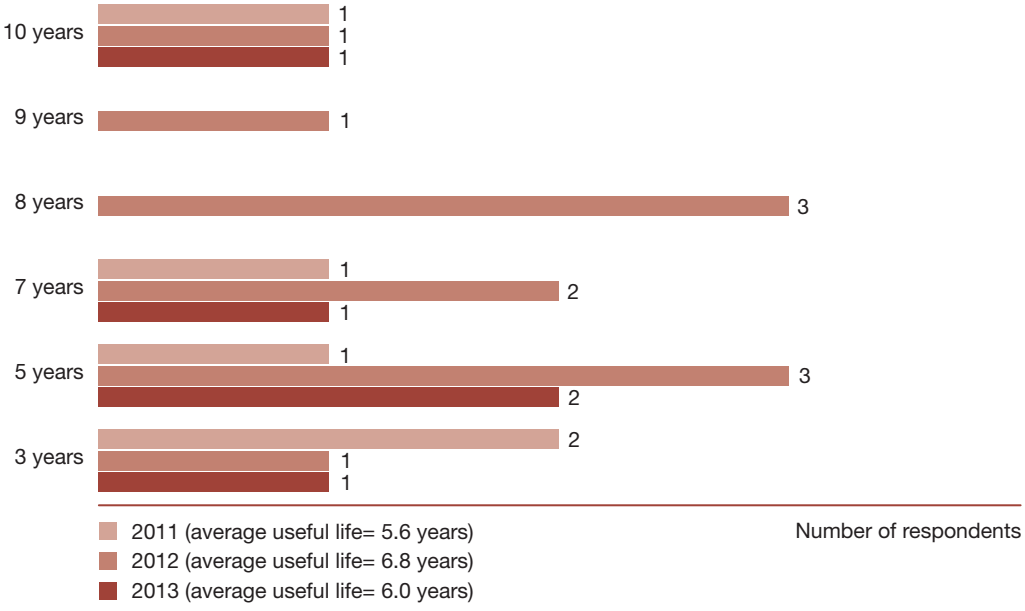
No responses were received in the 5 years category for 2013.

Figure 5.38: Switch—software 3G



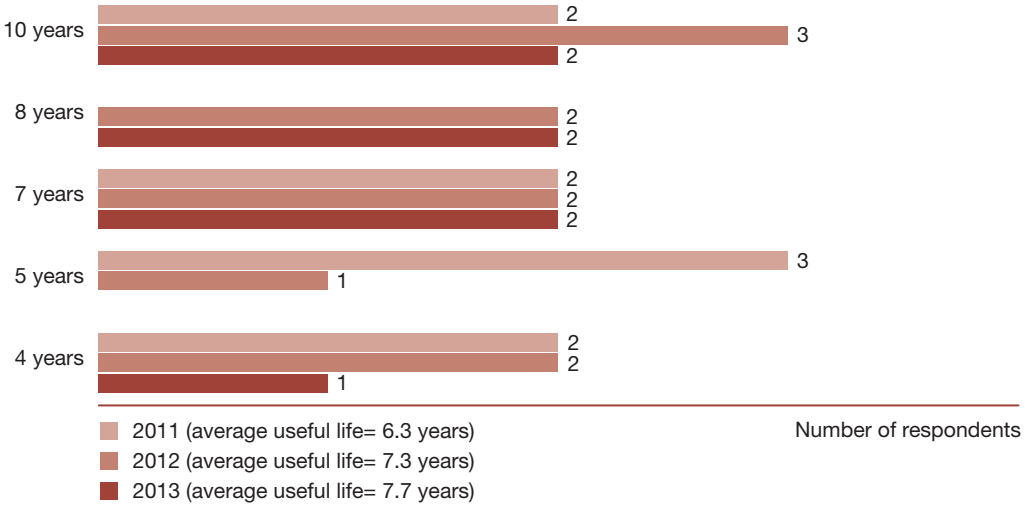
No responses were received in the 7 years category for 2012 and 2013, or the 8 years category for 2013.

Figure 5.39: Switch—software 4G



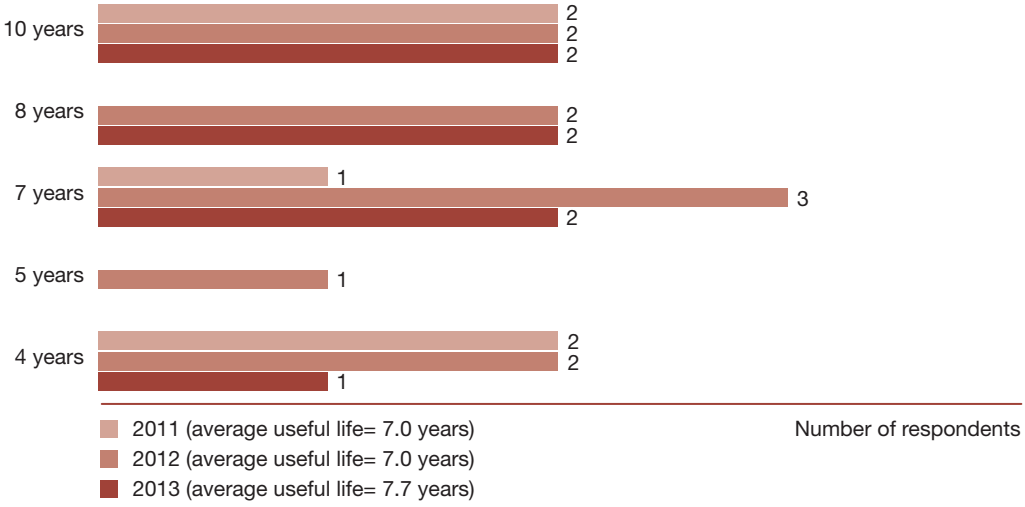
No responses were received in the 8 or 9 years categories for 2011 and 2013.

Figure 5.40: Antenna 3G



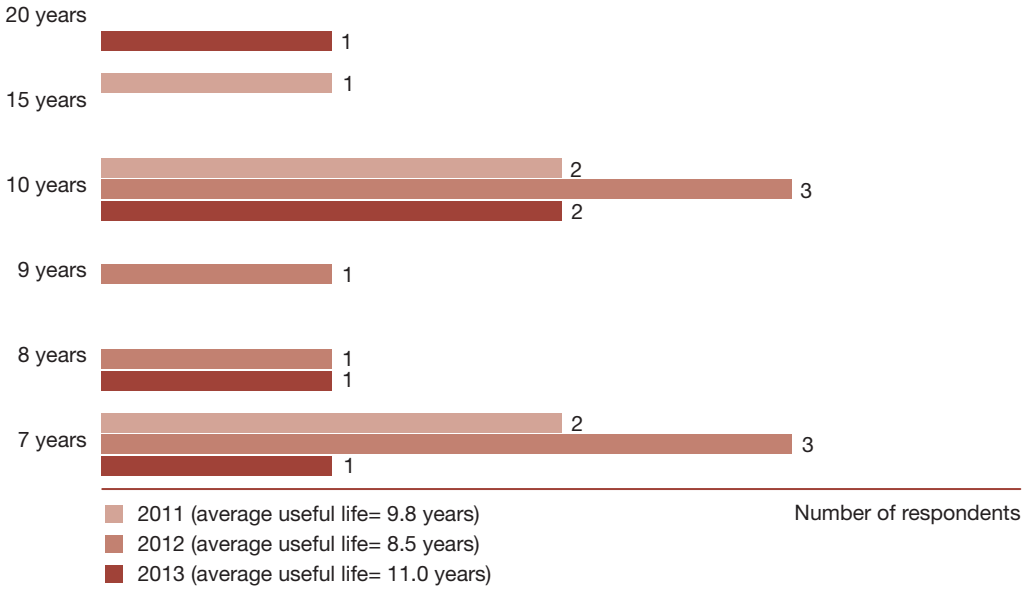
No responses were received in the 5 years category for 2013 or in the 8 years category for 2011.

Figure 5.41: Antenna 4G



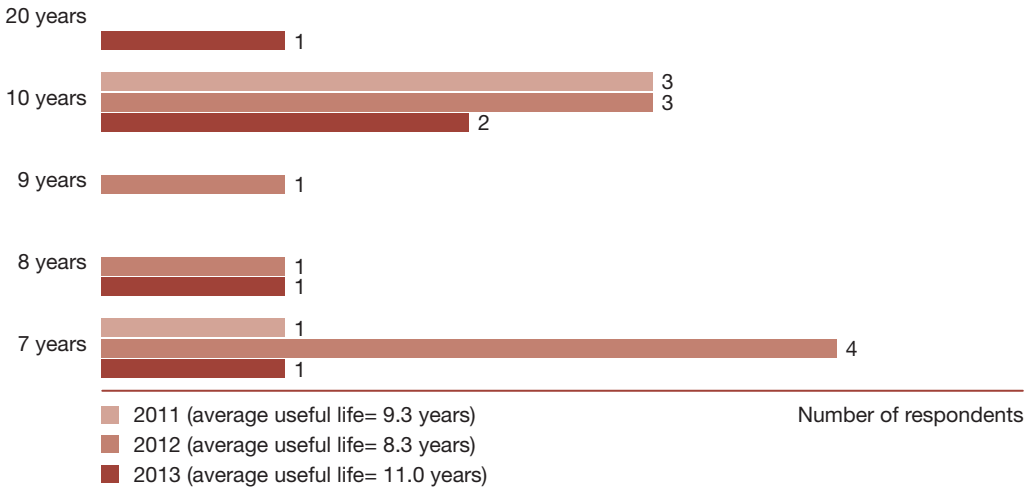
No responses were received in the 5 years category for 2011 and 2013 or the 8 years category for 2011.

Figure 5.42: Cabling 3G



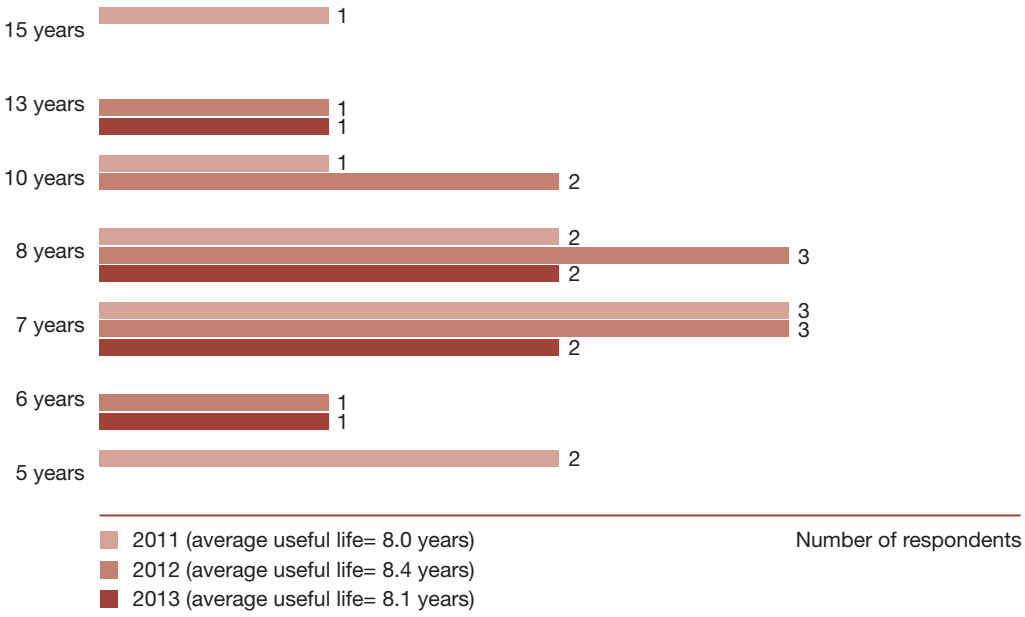
No responses were received in the 8 years category for 2011, the 9 years category for 2011 and 2013, the 15 years category for 2012 and 2013, or the 20 years category for 2011 and 2012.

Figure 5.43: Cabling 4G



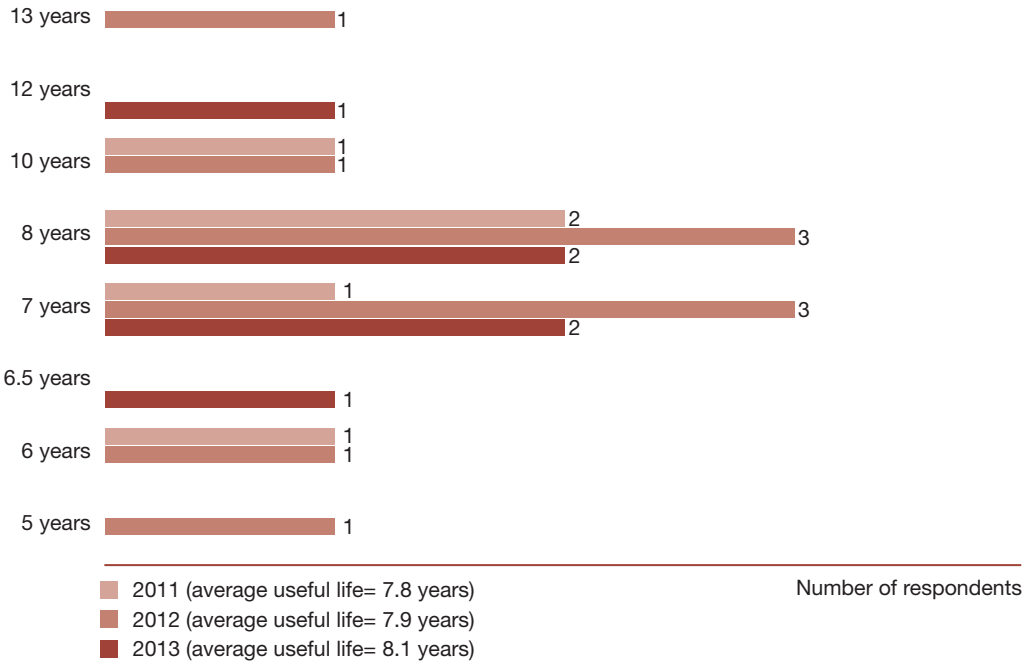
No responses were received in the 8 years category for 2011, the 9 years category for 2011 and 2013, or the 20 years category for 2011 and 2012.

Figure 5.44: Microwave equipment 3G



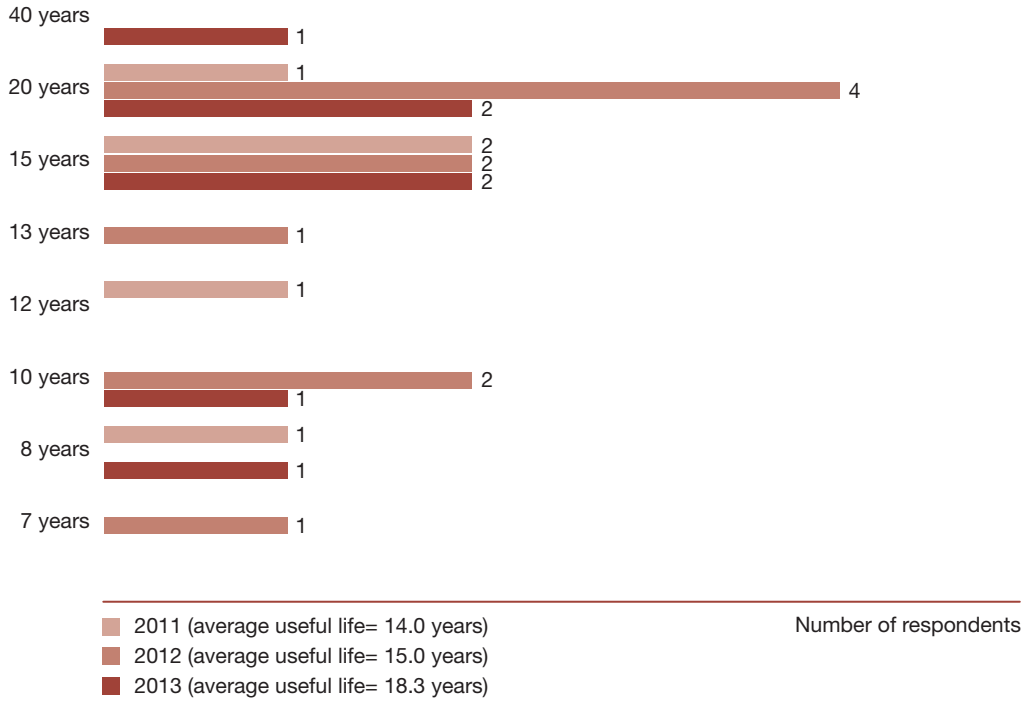
No responses were received in the 5 years category for 2012 and 2013, the 6 years category for 2011, the 10 years category for 2013, the 13 years category for 2011, or the 15 years category for 2012 and 2013.

Figure 5.45: Microwave equipment 4G



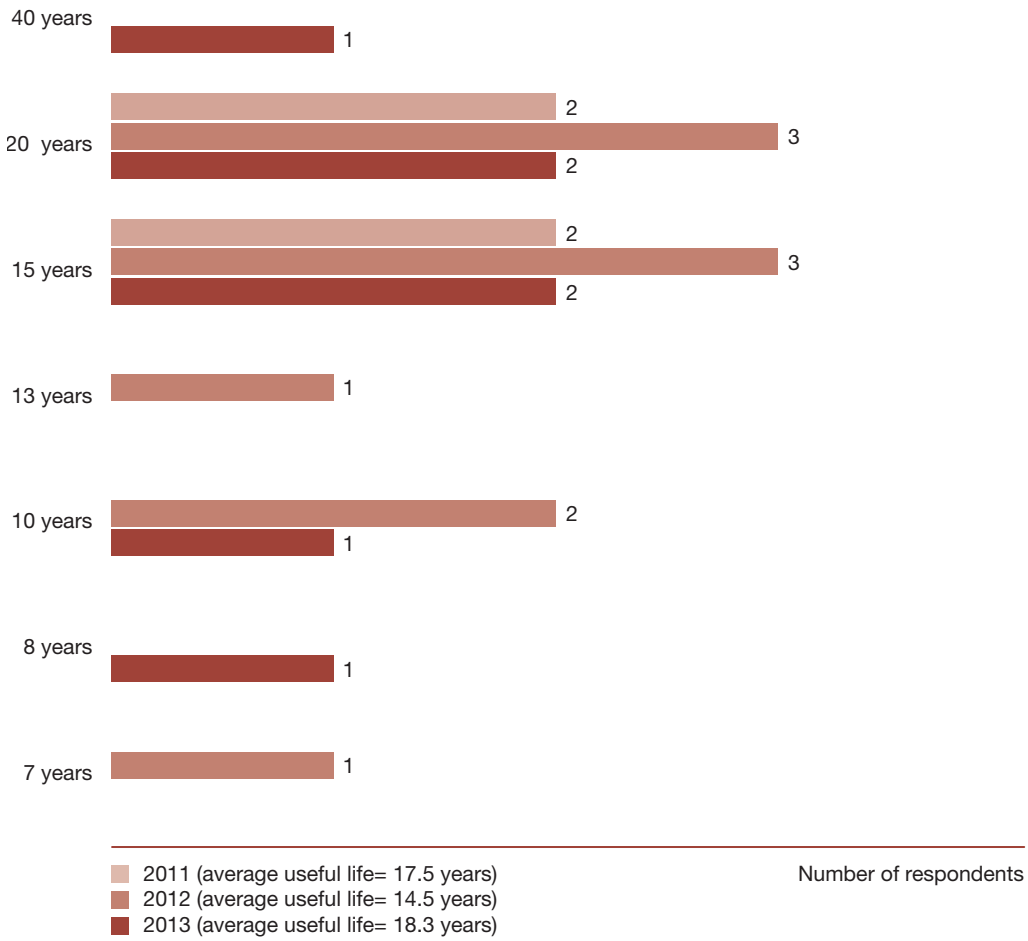
No responses were received in the 5 or 13 years categories for 2011 and 2013, the 6 years category for 2013, the 6.5 or 12 years category for 2011 and 2012, or the 10 years category for 2013.

Figure 5.46: Shelters or buildings 3G



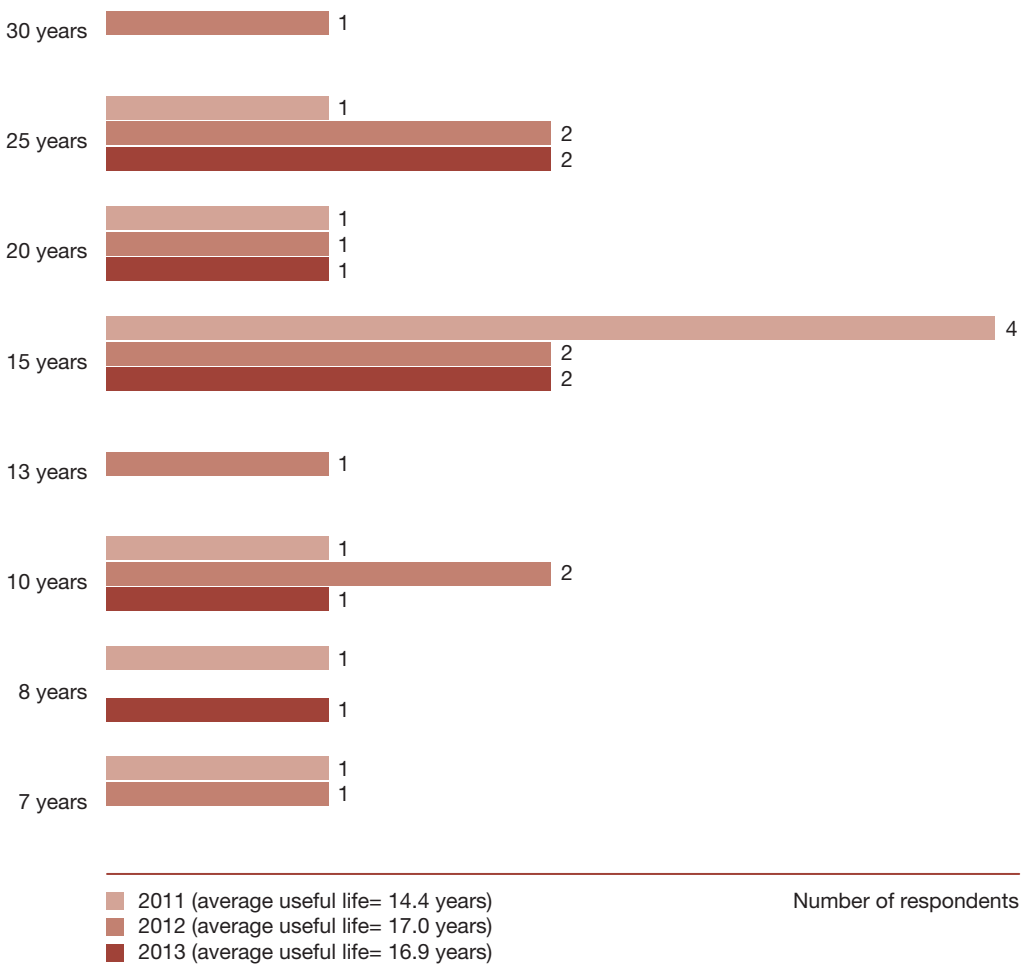
No responses were received in the 7 or 13 years categories for 2011 and 2013, the 8 years category for 2012, the 10 years category for 2011, the 12 years category for 2012 and 2013, or the 40 years category for 2011 and 2012.

Figure 5.47: Shelters or buildings 4G



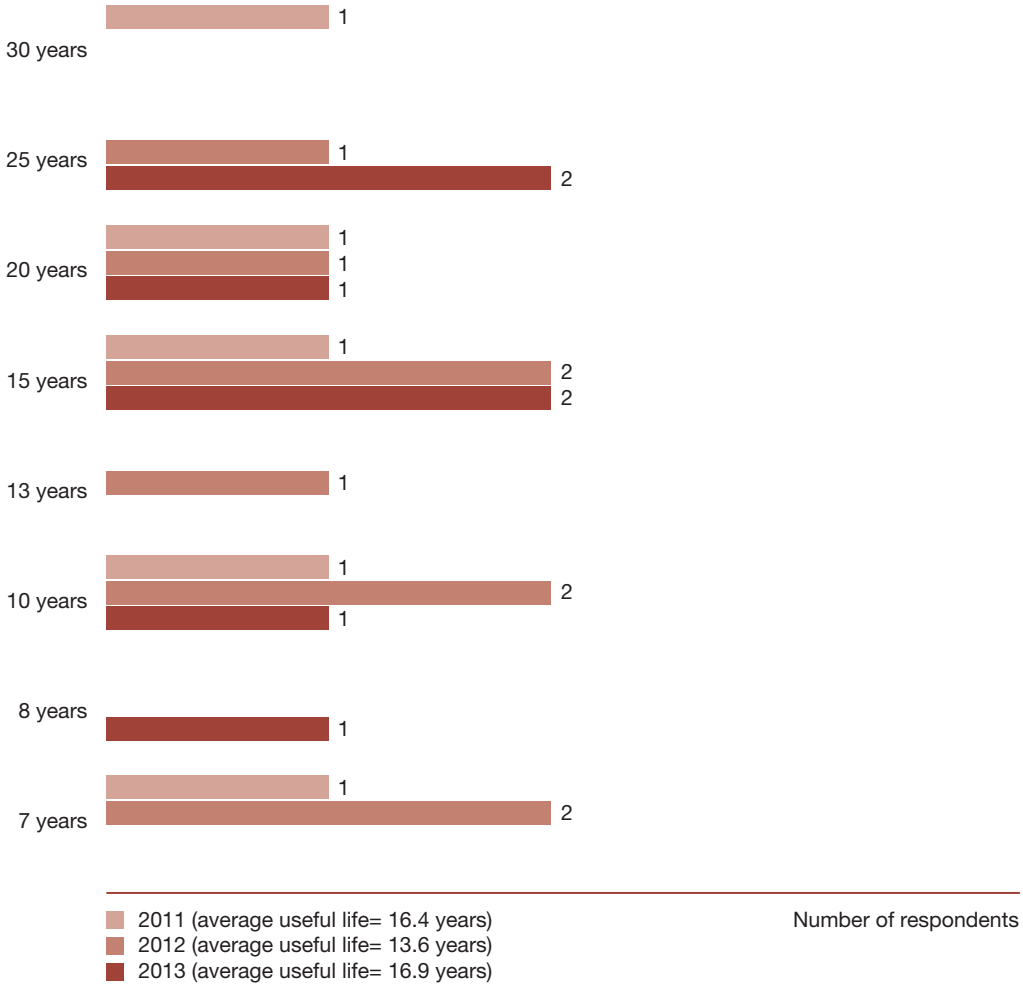
No responses were received in the 7 or 13 years categories for 2011 and 2013, the 8 years or 40 years categories for 2011 and 2012, or the 10 years category for 2011.

Figure 5.48: Towers or base stations 3G



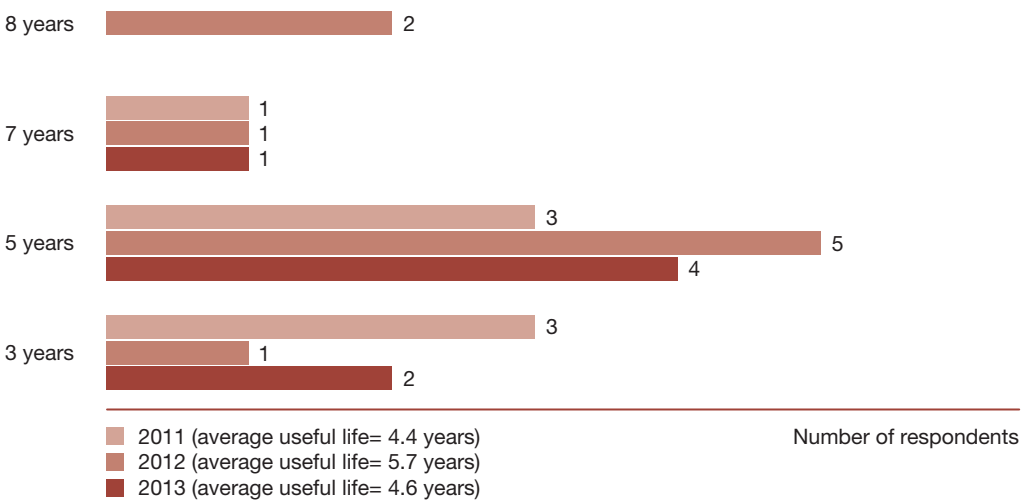
No responses were received in the 7 years category for 2013, the 8 years category for 2012, or the 13 or 30 years categories for 2011 and 2013.

Figure 5.49: Towers or base stations 4G



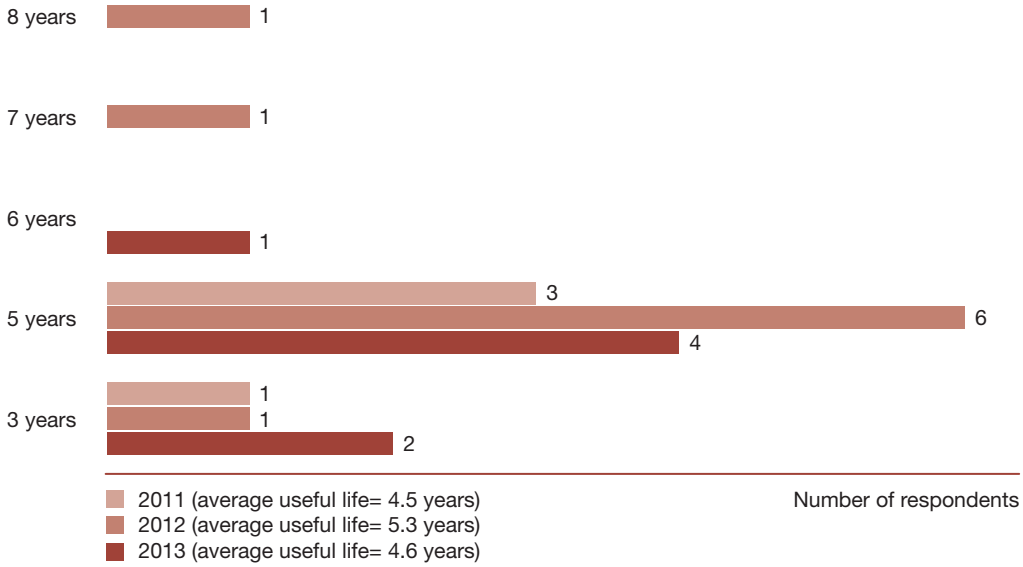
No responses were received in the 8, 13 or 25 years categories for 2011, the 8 or 30 years categories for 2012, or the 7, 13 or 30 years categories for 2013.

Figure 5.50: Test equipment 3G



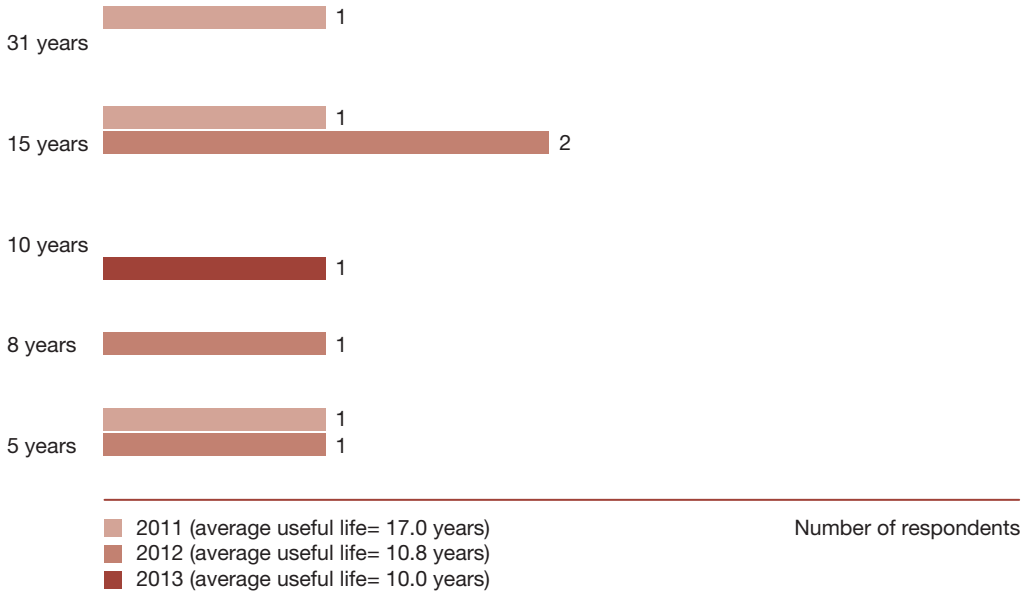
No responses were received in the 8 years category for 2011 and 2013.

Figure 5.51: Test equipment 4G



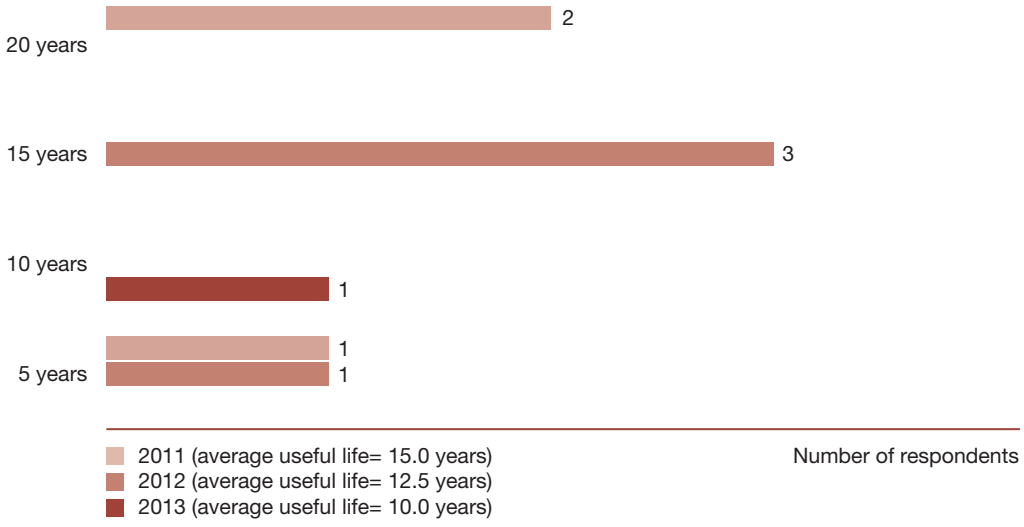
No responses were received in the 6 years category for 2011 and 2012 or in the 7 or 8 years categories for 2011 and 2013.

Figure 5.52: Land improvements—leased land 3G



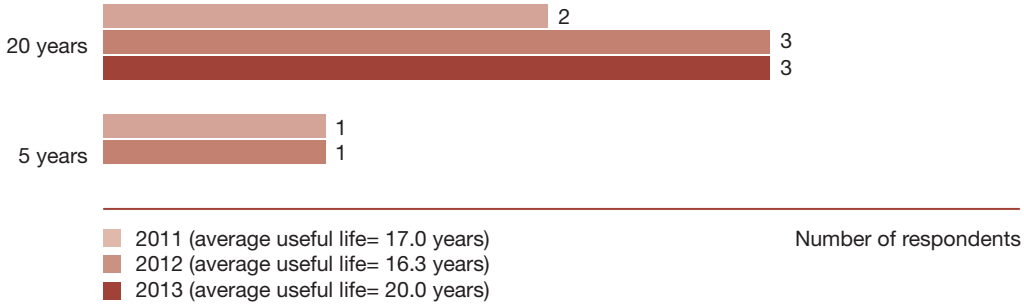
No responses were received in the 5 or 15 years categories for 2013, the 8 years category for 2011 and 2013, the 10 years category for 2011 and 2012, or the 31 years category for 2012 and 2013.

Figure 5.53: Land improvements—leased land 4G



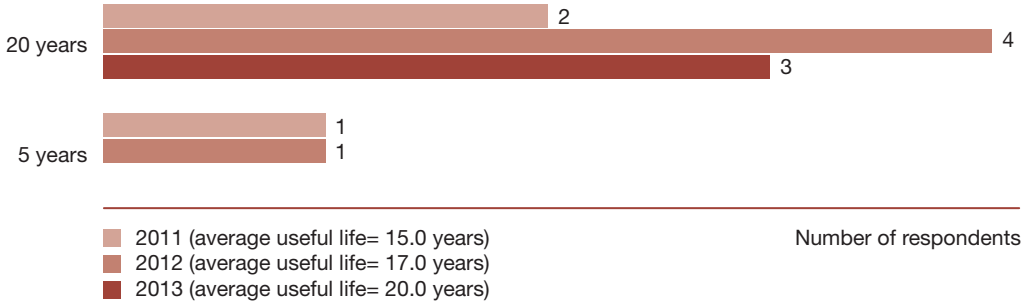
No responses were received in the 5 years category for 2013, the 10 years category for 2011 and 2012, the 15 years category for 2011 and 2013, or the 20 years category for 2012 and 2013.

Figure 5.54: Land improvements—owned land 3G



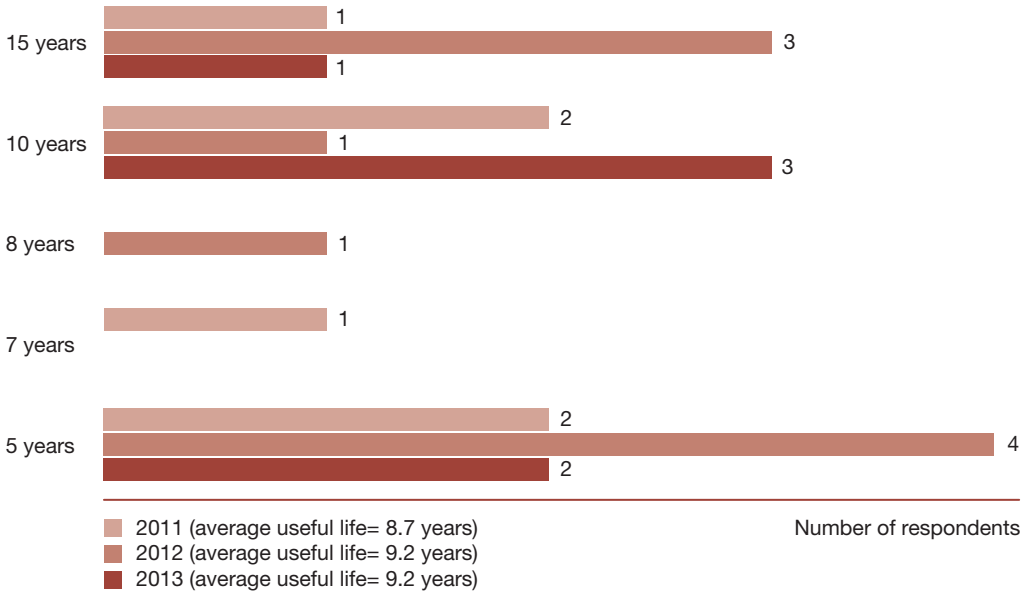
No responses were received in the 5 years category for 2013.

Figure 5.55: Land improvements—owned land 4G



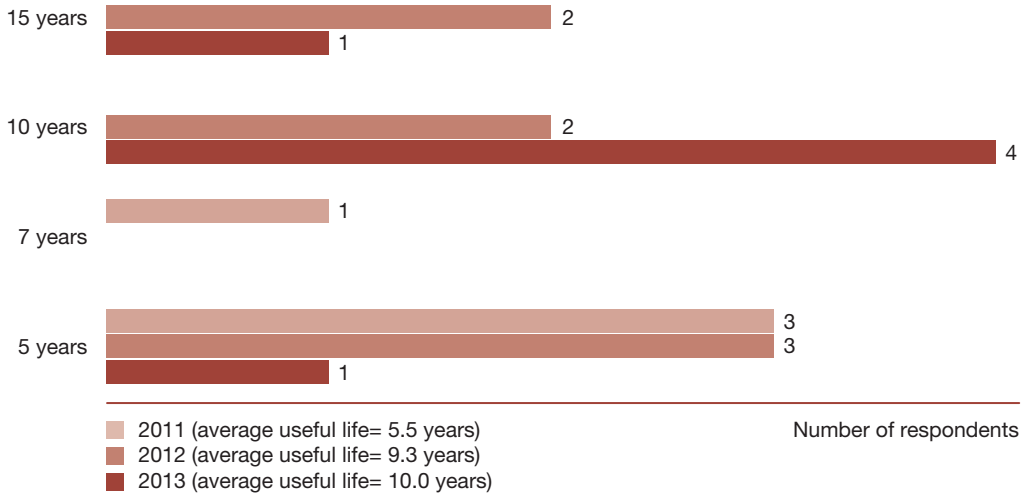
No responses were received in the 5 years category for 2013.

Figure 5.56: Leasehold improvements 3G



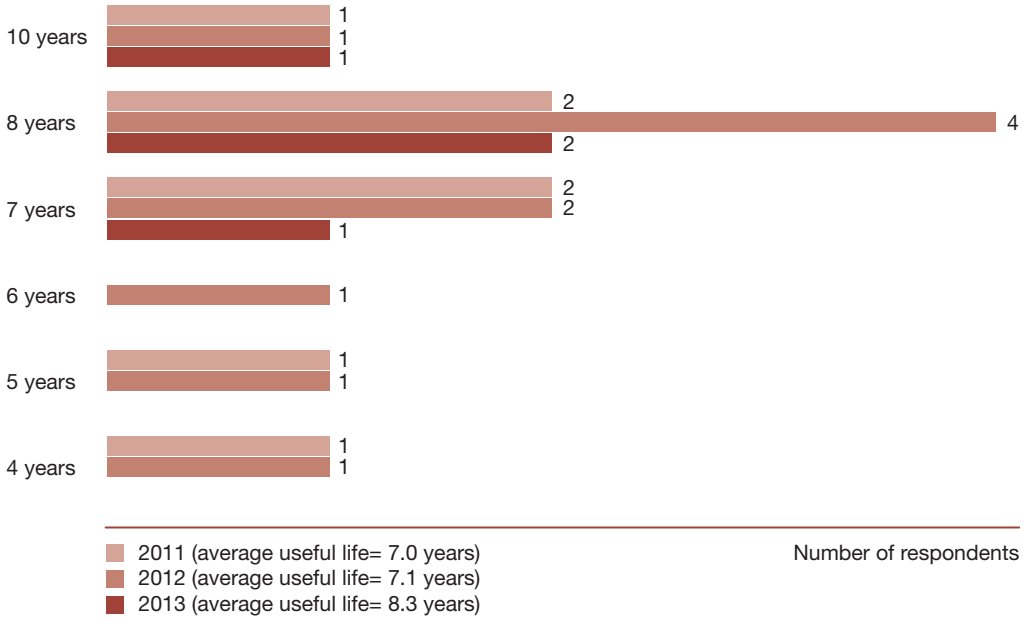
No responses were received in the 7 years category for 2012 and 2013 or the 8 years category for 2011 and 2013.

Figure 5.57: Leasehold improvements 4G



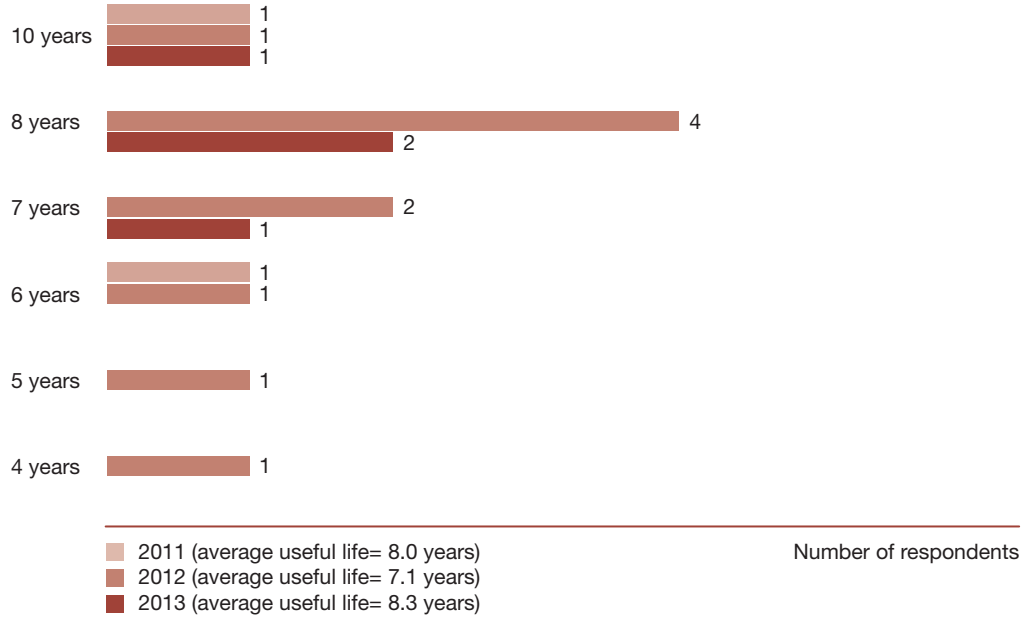
No responses were received in the 7 years category for 2012 and 2013 or the 10 or 15 years categories for 2011.

Figure 5.58: Channel cards—hardware 3G



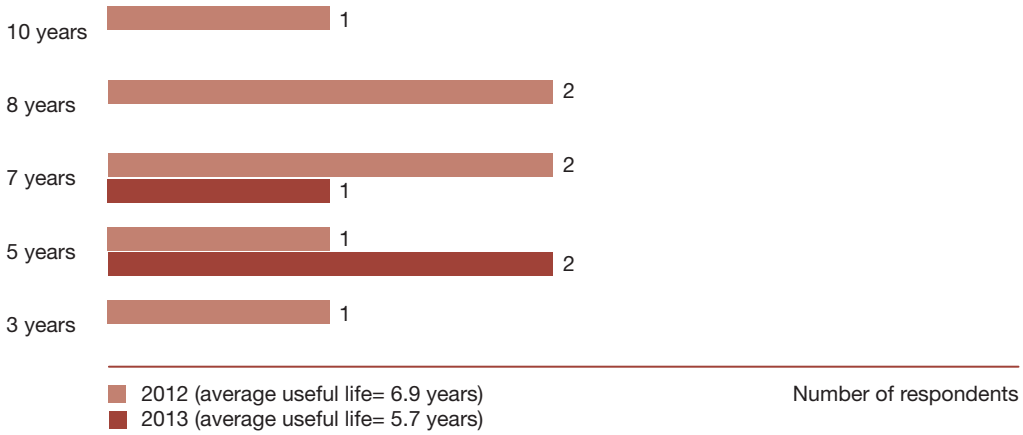
No responses were received in the 4 or 5 years category for 2013 or the 6 years category for 2011 and 2013.

Figure 5.59: Channel cards—hardware 4G



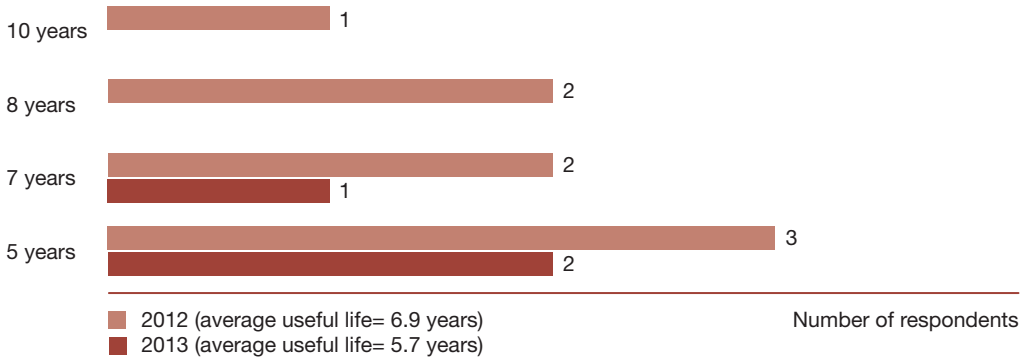
No responses were received in the 4 or 5 years categories for 2011 and 2013, the 6 years category for 2013, or the 7 or 8 years categories for 2011.

Figure 5.60: Channel cards (software-access/keys to unlock additional capacity) 3G



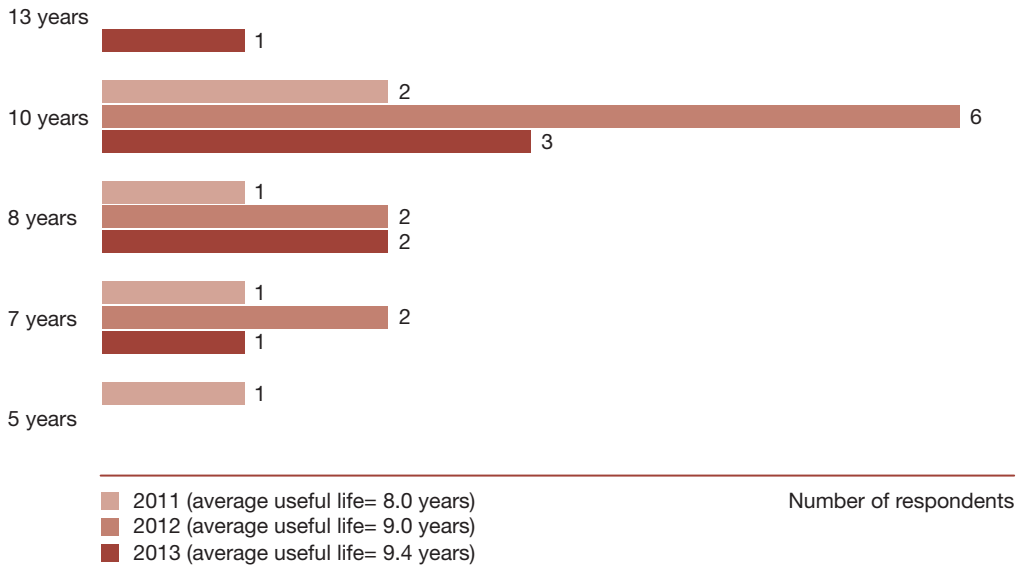
No responses were received in the 3, 8, or 10 years categories for 2013. Asset category was not included in 2011 survey.

Figure 5.61: Channel cards (software-access/keys to unlock additional capacity) 4G



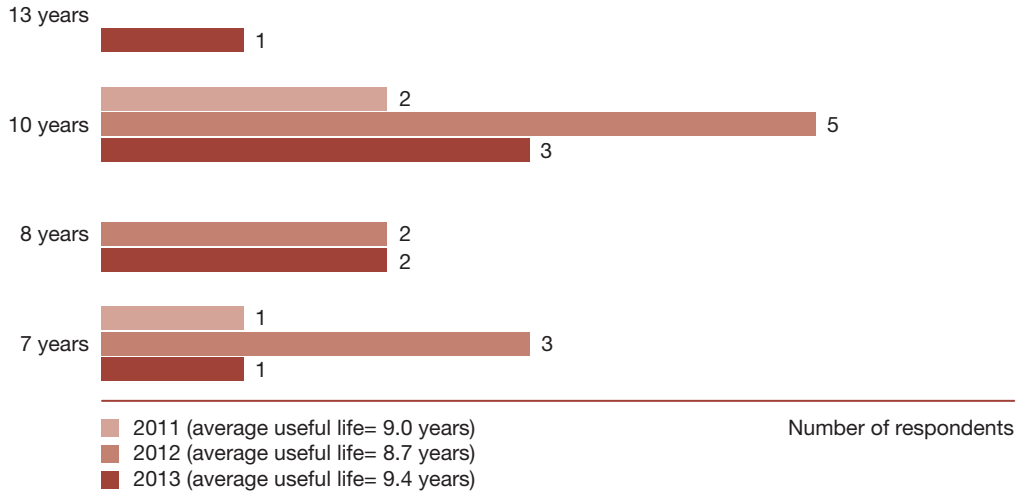
No responses were received in the 8 or 10 years categories for 2013. Asset category was not included in 2011 survey.

Figure 5.62: Power equipment 3G



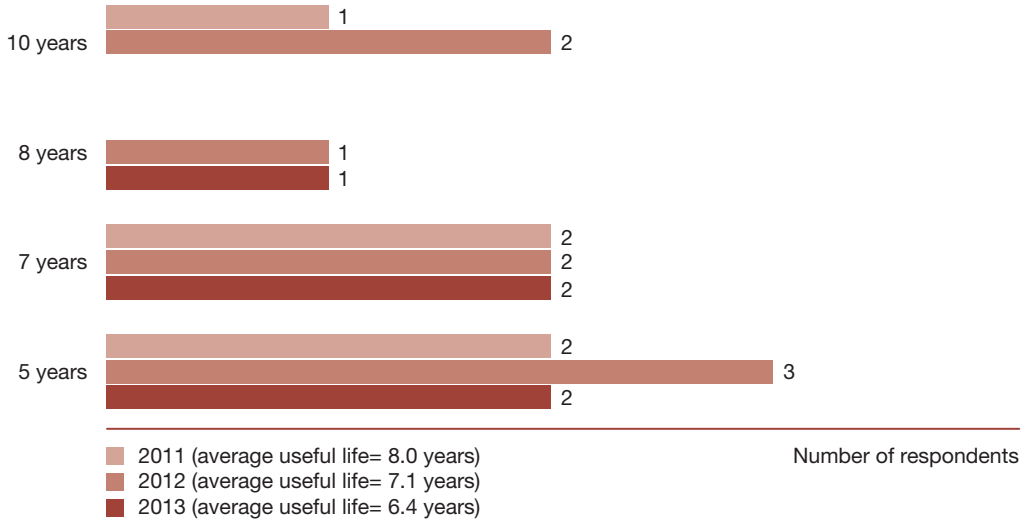
No responses were received in the 5 years category for 2012 and 2013 or the 13 years category for 2011 and 2012.

Figure 5.63: Power equipment 4G



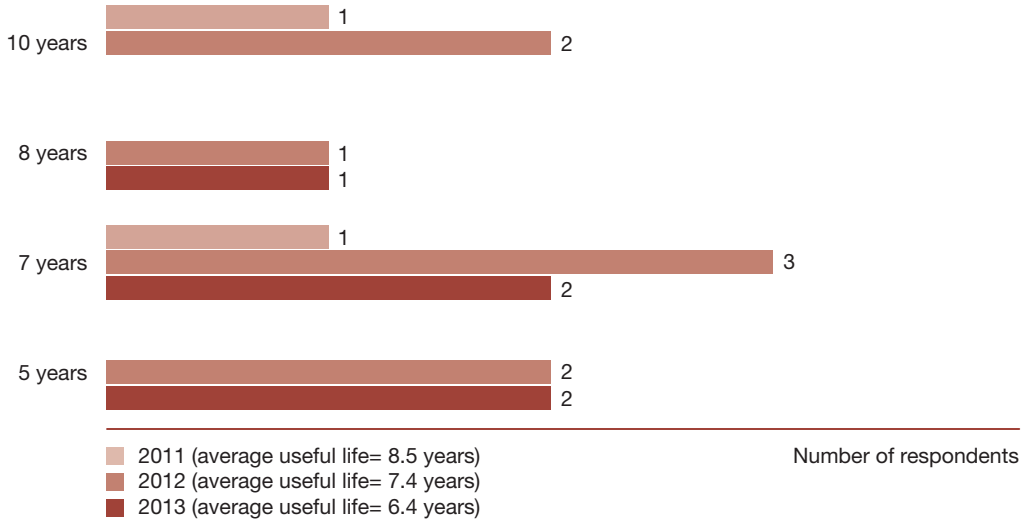
No responses were received in the 8 years category for 2011 or the 13 years category for 2011 and 2012.

Figure 5.64: Voice mail equipment 3G



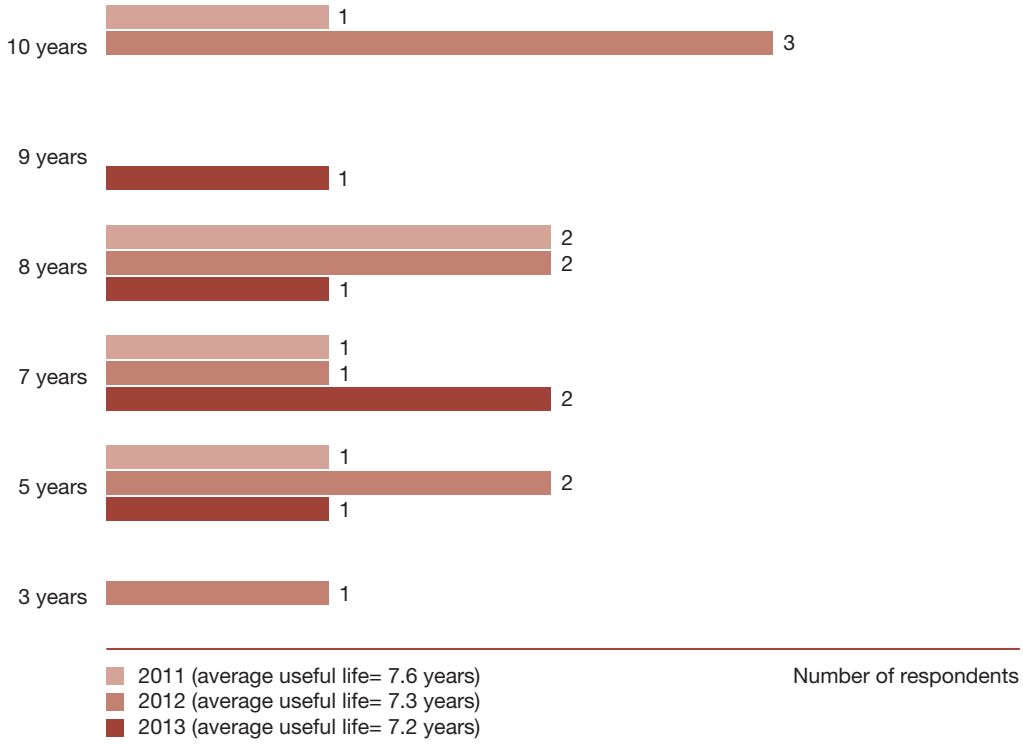
No responses were received in the 8 years category for 2011 or the 10 years category for 2013.

Figure 5.65: Voice mail equipment 4G



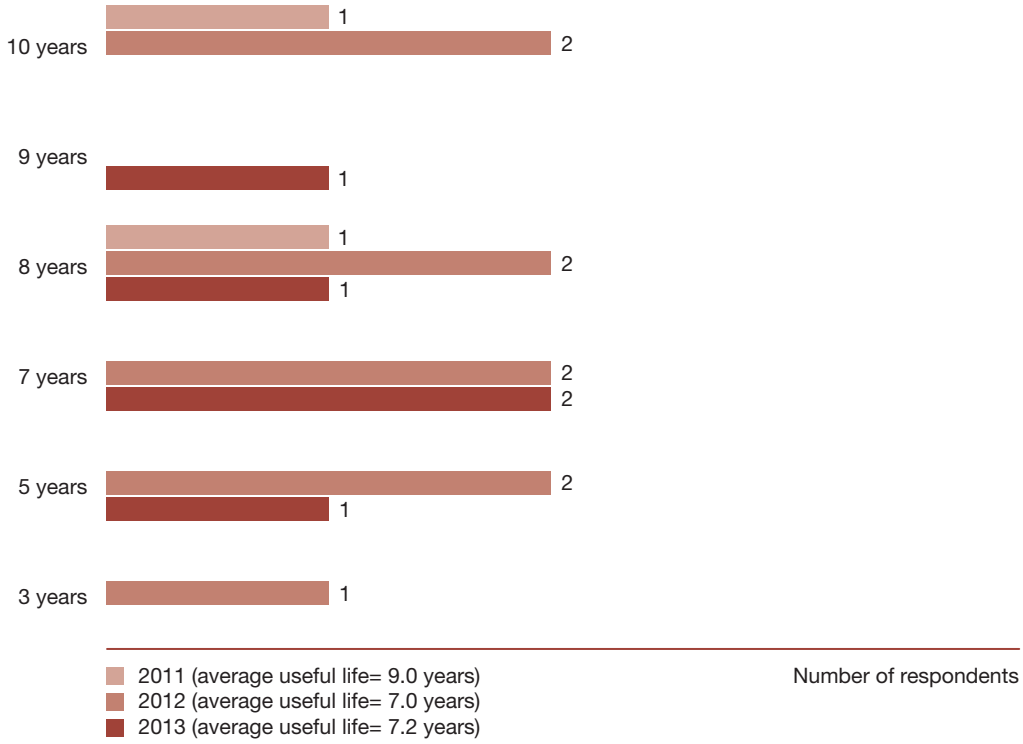
No responses were received in the 5 or 8 years categories for 2011 or the 10 years category for 2013.

Figure 5.66: Data network 3G



No responses were received in the 3 years category for 2011 and 2013, the 9 years category for 2011 and 2012 or the 10 years category for 2013.

Figure 5.67: Data network 4G



No responses were received in the 3 years category for 2011 and 2013, the 5 or 7 years categories for 2011, the 9 years category for 2011 and 2012, or the 10 years category for 2013.

Figure 5.68: Batteries 3G

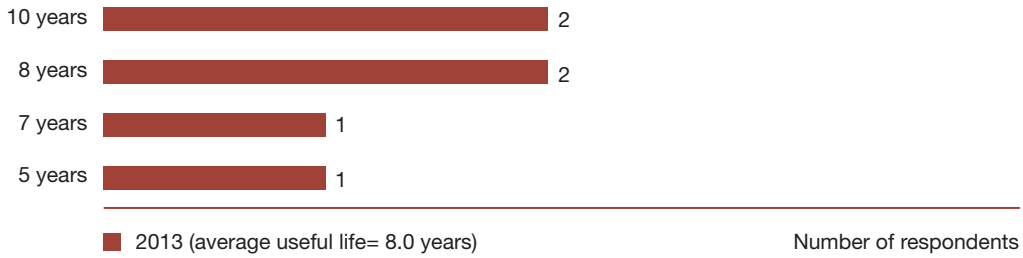


Figure 5.69: Batteries 4G

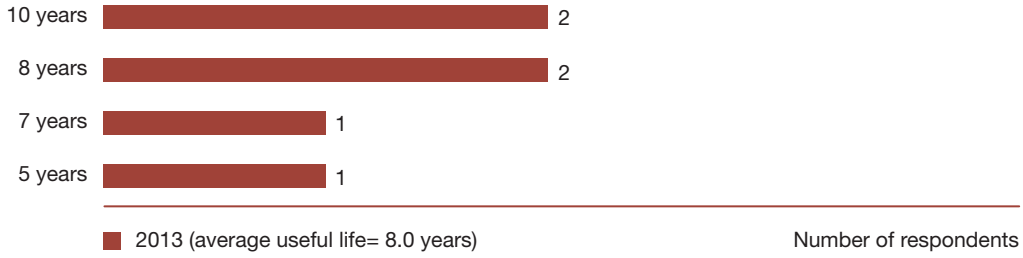


Figure 5.70: Capitalized interest on wireless licenses (Spectrum) 3G

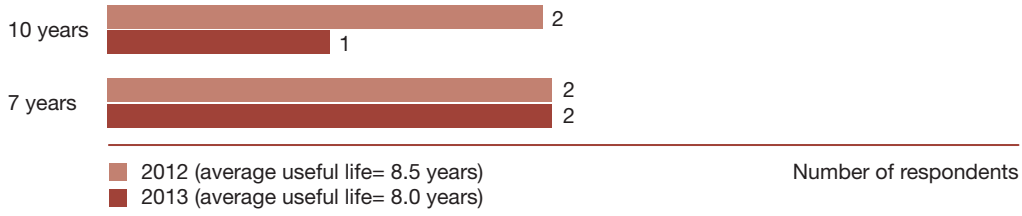


Figure 5.71: Capitalized interest on wireless licenses (Spectrum) 4G

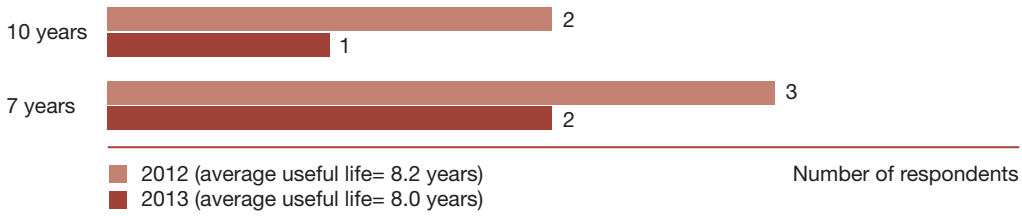
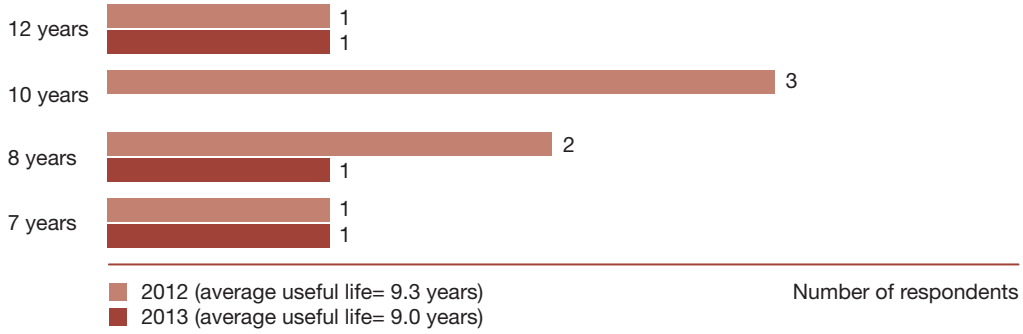
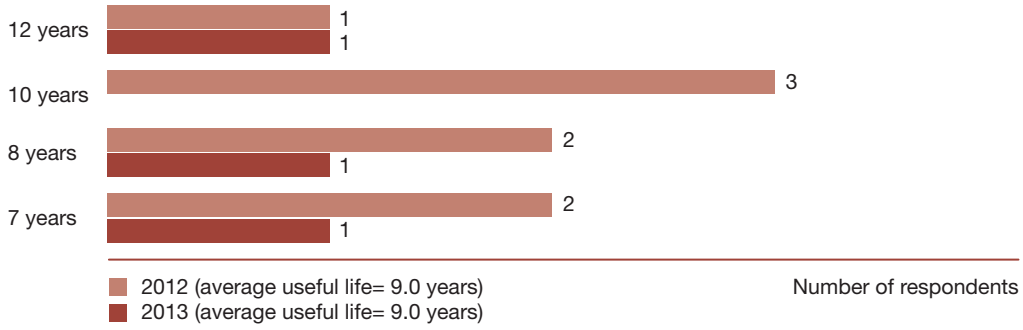


Figure 5.72: Capitalized interest on property, plant, and equipment 3G



No responses were received in the 10 years category for 2013.

Figure 5.73: Capitalized interest on property, plant, and equipment 4G



No responses were received in the 10 years category for 2013.

Figure 5.74: Site acquisition costs 3G

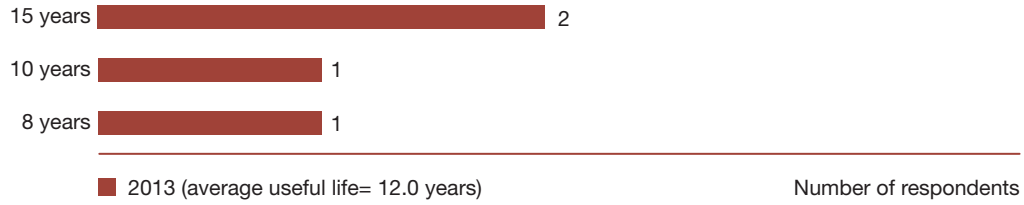
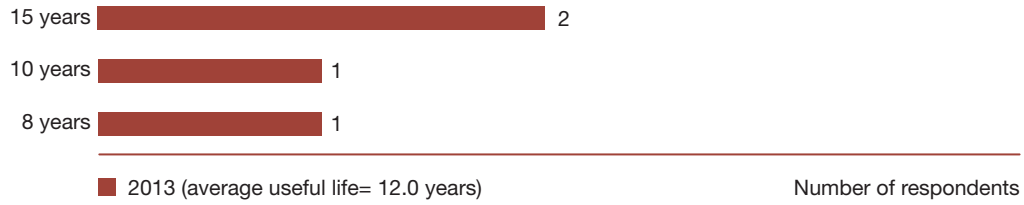


Figure 5.75: Site acquisition costs 4G



Co-location

As cell sites have a significant upfront cash outflow and often ongoing lease payments carriers are increasingly looking for ways to monetize the investment. Figure 5.76 shows the approximate percentage of respondents' total cell sites that generate co-location receipts. Although a small percentage of cell sites are currently generating co-location revenue we expect this trend to continue as we see carriers sell their towers to third-party tower operators and lease them back. On average 27 percent of cell sites generate revenue and range from six percent to 80 percent of the total sites.

Figure 5.76: Percentage of cell sites that generate co-location receipts

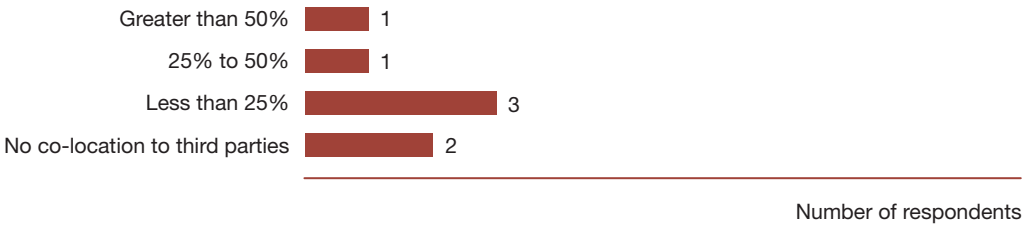
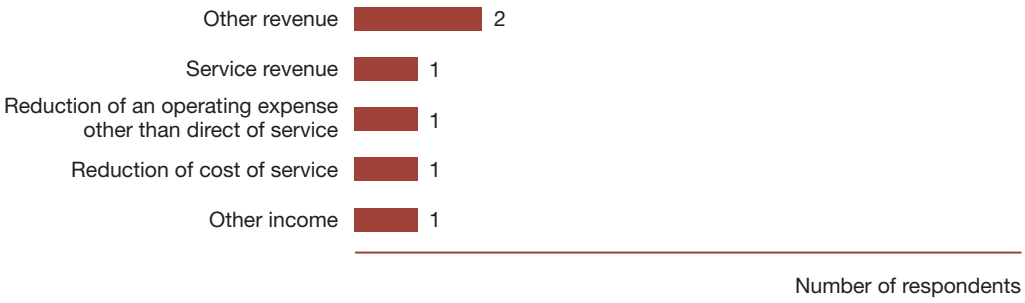


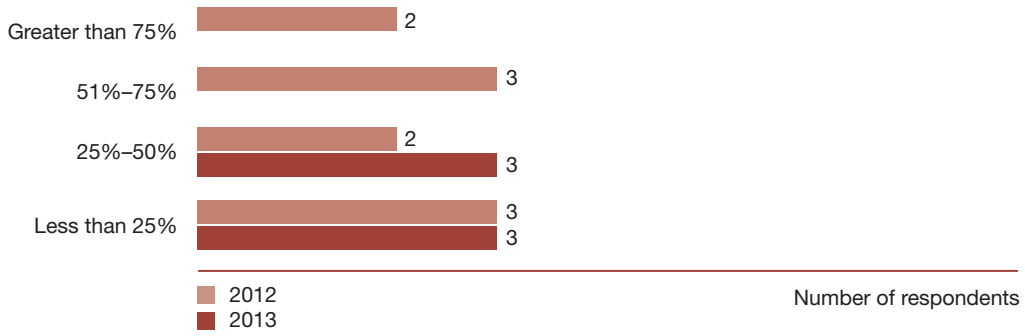
Figure 5.77 shows where the respondent's record co-location receipts on their income statements.

Figure 5.77: Classification of co-location receipts on income statement



Carriers were also asked what percentages of assets are co-located on third-party sites. The average of co-located assets for all respondents was 21 percent. The results are presented in Figure 5.78.

Figure 5.78: Percentage of assets co-located on third-party sites



No responses were received in the 51%–75% and greater than 75% categories in 2013.

Forty-three percent of respondents indicated that they record co-location costs on the income statement in cost of services/revenue, while 57 percent indicated they record the costs in operating expenses.

Five of the responding carriers are participating in network sharing agreements, and, on average, 25 percent of the networks are shared. These carriers are sharing between one percent and 50 percent of their networks.

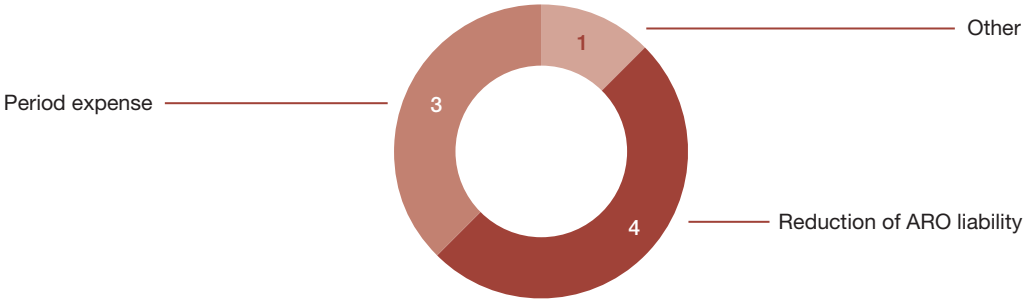
Decommissioning of network assets

Increasing data demands due to the omninchannel experience and the competitive landscape mandating increased network coverage and speed requires telecom operators to continue to upgrade their network technologies. Operators have to balance maintaining multiple generations of technologies and networks while deploying 4G technology at a rapid pace. As technologies are replaced, reframed, or deactivated, operators have begun to prepare for the decommissioning of their older networks.

As of December 31, 2013, six of the eight responding carriers indicated they have plans for, or are currently in the process of decommissioning network assets. Generally, the assets being decommissioned consist of cell site and switch equipment, radio equipment, and broadband wireless networks. On average, responding carriers indicated they physically removed 75 percent of these assets and abandoned 25 percent. Carriers were specifically asked with more subscribers opting for 3G/4G networks what was the plan regarding 2G assets. Four of the five respondents with 2G assets indicated planning had begun for the decommissioning of those assets.

Figure 5.79 indicates how costs associated with decommissioning assets are being recorded/treated each period. Respondents indicated that incremental decommissioning expense is recorded in cost of sales, depreciation, and other expenses.

Figure 5.79: Decommissioning expense recognition

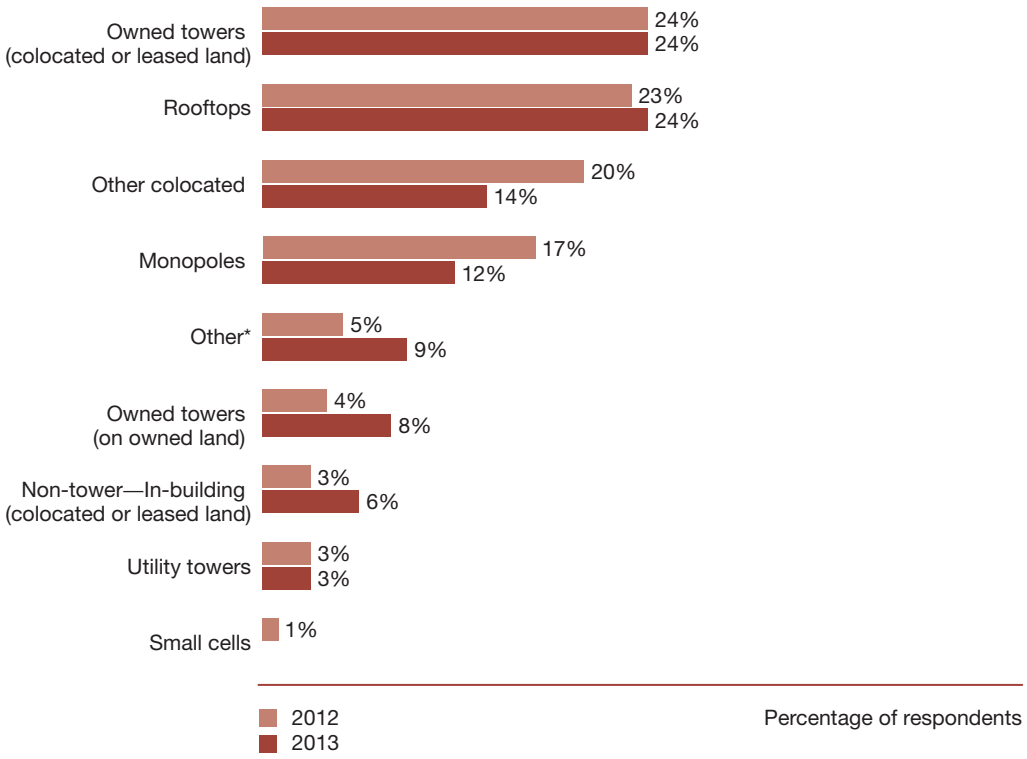


*Other represents a mixture of the two approaches depending on the nature of the asset (leased or other).

Cell sites and asset retirement obligations

Responding carriers were asked to indicate the locations of their cell sites, and the average results are presented in the following chart (Figure 5.80).

Figure 5.80: Type of cell sites utilized as of December 31



*Other includes guyed, flag pole/wood poles, test sites, BTS, signs, DAS.

No responses were received in small cells category in 2013.

The average cost per cell site for the current year, compared with the 2012 and 2011 surveys, is included in Figure 5.81 below.

Figure 5.81: Average cost per cell site

	2013	2012	2011
Co-located cell sites	$229,000	$277,285	$211,412
Rooftops	$408,238	$278,774	$126,012
Towers on leased lands	$392,312	$292,616	$202,142
Monopoles	$395,308	$231,996	$226,394
Towers on owned land	$478,031	$360,870	$184,687
Utility towers	$388,489	$330,907	$160,897
Non-tower—in-building	$463,629	$289,324	$103,595

For the respondents that indicated they record asset retirement obligations, Figure 5.82 summarizes the costs included in the respective calculations, compared with the previous two surveys.

Figure 5.82: Costs included in asset retirement obligation calculation

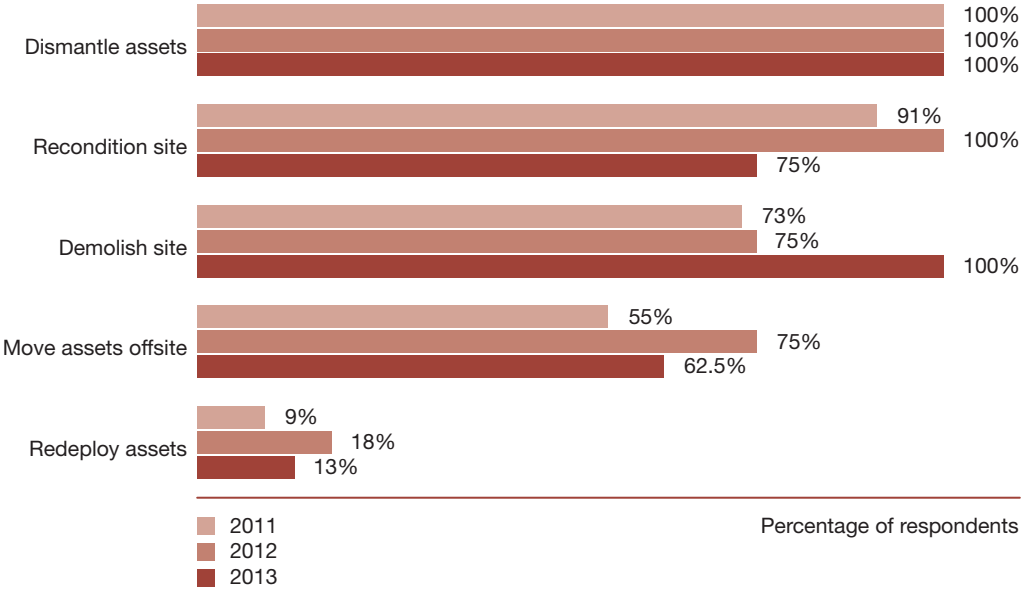
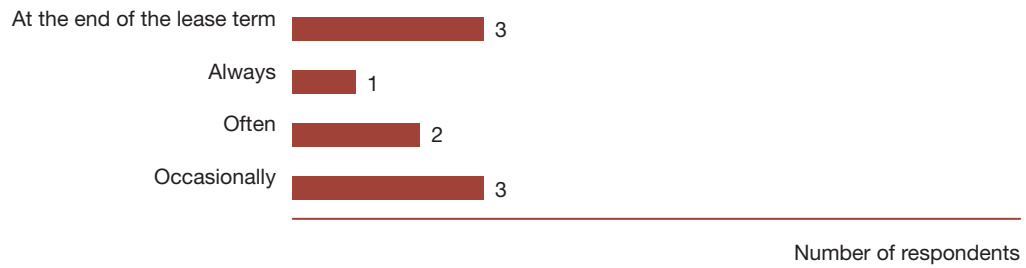


Chart sums to greater than 100 percent because multiple responses were allowed.

Sixty-seven percent of the responding carriers indicated that lessors have required remediation or restoration activities related to termination of cell site leases. On average, lessors have required remediation 76 percent of the time. In addition, three carriers indicated they have been required to remediate 100 percent when terminating cell site leases. During 2013 and 2012, responding companies completed remediation activities associated with cell towers (located on rooftops, co-located, monopoles, and utility towers).

The survey asked companies whether they factored the probability of the lessor enforcement into the calculation of their asset retirement obligation liabilities. Fifty percent of the respondents factor the probability of lessor enforcement into the calculation of their asset retirement obligation liability. Figure 5.83 indicates how often those carriers believe lessors will enforce remediation.

Figure 5.83: Remediation or restoration activities expected to be required by lessors



In 2013, half of the responding companies recorded asset retirement obligation accretion expense in depreciation expense compared to 42 percent in the 2012 survey as depicted in Figure 5.84.

Figure 5.84: Income statement line classification for accretion expense

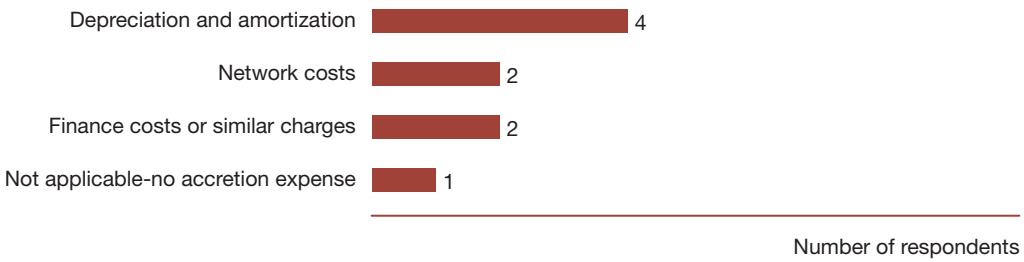


Figure 5.85 shows which line items on the statement of cash flow respondents use for reporting accretion expense.

Figure 5.85: Reporting of accretion expense on statement of cash flow

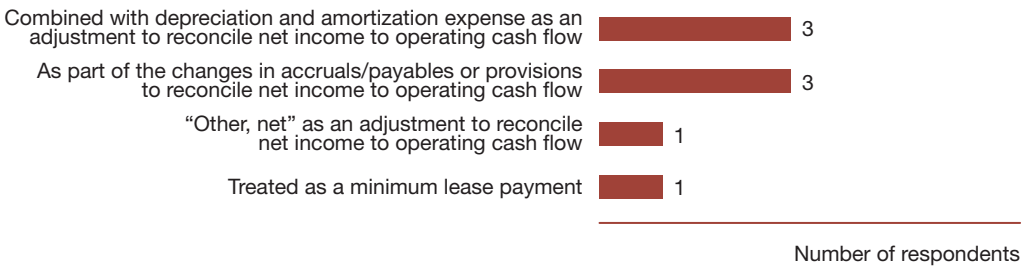
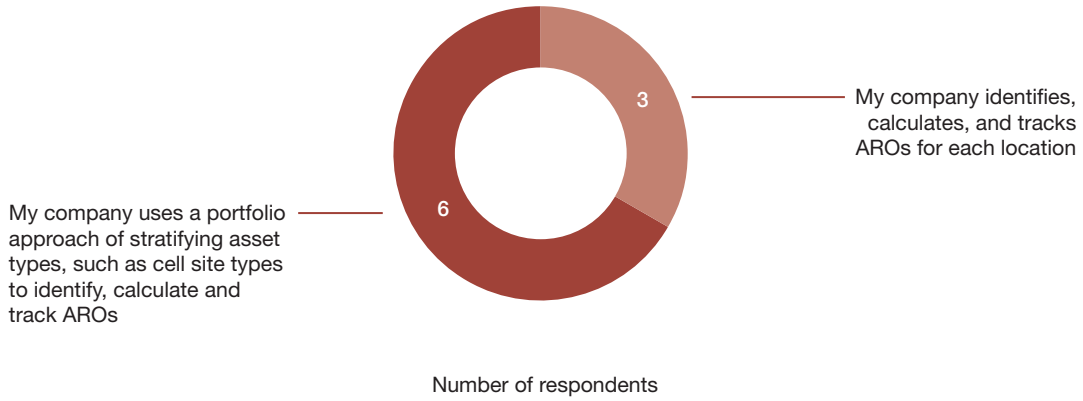


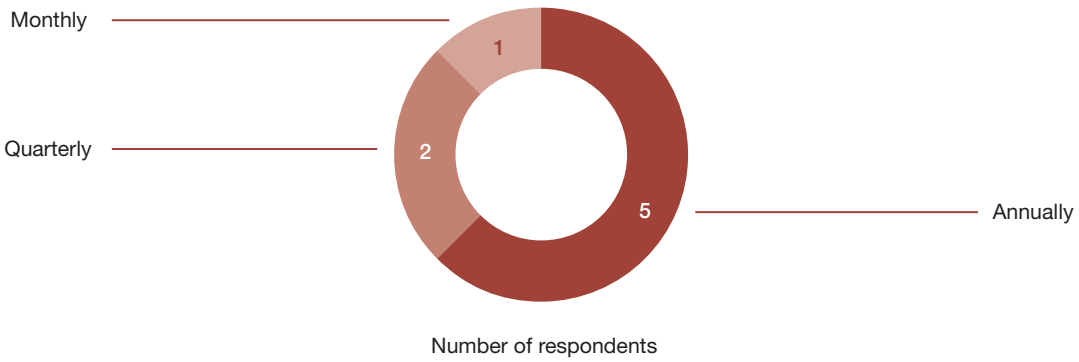
Figure 5.86 illustrates the responding companies' various methods of identifying, calculating, and tracking asset retirement obligations.

Figure 5.86: Method of identifying, calculating, and tracking asset retirement obligations



Consistent with previous years' surveys, more than 50 percent of the respondents update AROs on an annual basis. Figure 5.87 shows the frequency with which the responding companies update their ARO analyses.

Figure 5.87: Frequency of update of asset retirement obligation analysis



Responding carriers that do not use mass asset accounting were asked how they account for retirement of components of a piece of equipment. Seventy-two percent of the respondents indicated they write off the exact value because components are tracked at the component level. Fourteen percent write off a component based on an estimate of its remaining net book value, while 14 percent use a combination of exact value and estimates.

Summary of tables and charts

Participating company information

Postpaid revenue

Prepaid revenue

Postpaid performance measures

Property, plant, and equipment

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- Mobile Innovation Forecast PwC's four-part framework for analyzing and understanding mobile innovation including; enabling technologies; new technological capabilities; new use cases and new business models. By examining, analysing and forecasting mobile innovation along these lines will shed light on the interdependencies that are otherwise cloaked by the unorganised daily stream of innovation announcements. To view or download the latest report, visit www.pwc.com/gx/en/technology/mobile-innovation/index.jhtml.

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PwC's Entertainment, Media and Communications industry practice is dedicated to delivering effective solutions to the complex business challenges facing communications companies. We can help you with capex, customer excellence, partnerships, network life-cycle management, regulation, and investor confidence, compliance and risk. We work with clients from telecom, cable, satellite, and internet companies in developed and emerging markets all over the globe.

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