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competitive analysis of next-generation
business and technology solutions for
service providers and vendors

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**CUSTOM
REPORTS**

The State of the Service Provider

A custom Heavy Reading survey report produced for Calix



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1. INTRODUCTION AND KEY FINDINGS

Business and technical change have been a constant for communications service providers (CSPs) for decades. However, the current evolution of networks to a software-enabled, application-centric architecture presents unique service delivery challenges that CSPs must successfully address to remain relevant in the cloud era.

In response, C-level executive leaders from the smallest and largest CSPs must reassess their strategic plans. They must ensure that the key tenets of their strategies remain valid in this new operating environment.

To understand the implications for CSPs serving 100,000 and fewer subscribers in the US and Canada, Heavy Reading conducted an exclusive C-level survey in collaboration with Calix. The survey polled C-level respondents on the following topics:

- Effect of changes in the competitive landscape on revenue generation
- Primary revenue growth and competitive response strategies
- Current and future network investment use case priorities
- Effect of changes in the competitive landscape on revenue generation
- Value of subscriber and application usage data
- Impact of government funding initiatives

This report documents in detail the responses from these C-levels, providing invaluable insight into how they plan to navigate and continue to succeed in an evolving telecom landscape.

1.1 Executive key findings

- **Although C-levels' primary revenue growth strategy is to upsell their existing subscriber base (52%),** they also acknowledge the need to expand into new markets (24%), increase market share (14%), and diversify the customer base (10%).
- **57% of C-levels are "extremely concerned" that 5G mobile service providers will affect their ability to grow revenue.** Other competitors are starting to have an impact as well. In second place are wireless internet service providers (ISPs) (40%), followed by Tier 1 fixed service providers (33%), webscalars (29%), satellite providers (25%), and smaller sized adjacent wireline service providers (22%).
- **C-levels plan to counter these competitive threats through a balanced number of initiatives.** Leading the way is a focus on service innovation (49%), followed by a focus on new markets (45%) and lowering operational costs (45%). Also important are infrastructure partnerships (40%) and partnerships to develop new services, including those with webscalars such as Microsoft (34%) to facilitate the integration of high speed internet access with Microsoft Office 365 services.
- **Fiber broadband network expansion (47% top priority) and deployment of security infrastructure (38% top priority)** represent two foundational components of their strategies to generate new revenue and mitigate the impacts of a changing competitive landscape.

- **Security investment also has revenue generation implications.** In this context, C-levels believe that several security capabilities will improve the “stickiness” of their high speed internet use cases. Among these, based on “extremely likely” input, the leading “upsell” use cases are home network security (67%) and device security (41%). Other security-based services such as home-monitored security (24%) and professional-monitored security (21%) attracted interest as well.
- 25–28% of C-levels believe corporate hiring restrictions (28%), employee retirement levels (28%), and a mismatch of employee skill sets to new job requirements (25%) will be “extremely impactful” in growth strategy execution. **But CSPs are most concerned about the operational impact of labor costs (37%).**
- **Still, 78% of these same respondents agree that operational costs as a percentage of total revenues will grow over the next 12 months.** And while 71% of C-levels agree in theory that it would be necessary to shift to an outsource hiring model to reduce operational costs, more than half (56%) do not believe that labor costs are negatively impacting their operational cost structure. This means that outsourcing is a lower priority currently for more than half of the respondent companies.

1.2 Detailed key findings

- **Most C-levels are either “extremely confident” or “confident” that their companies are well-positioned to maintain and grow revenues.** Based on “extremely confident” responses, the greatest level of confidence was in securing the network (52%). This was followed by a tight group of responses encompassing regulatory compliance (36%), the ability to grow revenue and market share (32%), delivering a differentiated customer experience (30%), and increasing network capacity (30%).
- **There are two areas of concern.** 40% of respondents are only “somewhat confident” (29%) or “not confident” (11%) about their ability to minimize customer churn. Additionally, 38% of respondents are only “somewhat confident” (28%) or “not confident” (10%) of their ability to deliver a differentiated customer experience.
- **C-levels selected a shift to disaggregated software model (selected by 34%) and the rollout of 5G networks (selected by 32%) as the top two “extremely impactful” factors affecting their business.** Other related factors, such as open source adoption (26%) and migration of services to the cloud (25%), also had significant levels of support. This confirms that the companies these C-levels lead are now experiencing the impact of the software-enabled cloud era.
- **C-levels are mixed on the impact that competitor consolidation will have on their businesses.** While 45% of respondents believe that consolidation is having a negative impact on profit and sustainability, 33% believe consolidation is having a positive impact on profit and sustainability. The remainder of respondents believe that consolidation is having limited or no impact on profitability (20%) or are not sure of the impact (2%).
- While C-levels expect a subtle shift in investment priorities in the next five years, **fiber broadband network expansion and security infrastructure remain strategic imperatives both today and within a five-year window.**

- **Their current three “top priority” investment priorities include fiber broadband network expansion (47%), data center and applications, and security infrastructure (both 38%).** These are followed by back office system upgrades (29%) and regional and core network expansion (16%).
- **Looking forward five years, C-levels’ “top priority” investments change in priority, with fiber broadband network expansion increasing in relevance (57% vs. 47% current ranking).** Additionally, commitment to deploying security infrastructure increases (45% vs. 38% current ranking). The commitment to investing in data centers and applications also remains a focus (41% vs. current 38% ranking). And they plan to increase investment in core and regional network expansion (23% vs. 16% current ranking). To support the additional investment in these areas, spending on back office system upgrades will be reduced (20% vs. 29% current ranking).
- **Although their investment priorities will change somewhat in the next five years, 61% of C-levels expect the level of capex investment will not change.** In contrast, 17% expect capex investment to increase compared to 10% who expect capex to decline.
- **US government loan or grant initiatives also factor into C-level network execution and capex strategies. Of these, the US Department of Agriculture (USDA) ReConnect Program leads the pack, with more than half (51%) ranking this organization’s program as “extremely important.”** In second place are specific state funding initiatives, including COVID-19 relief initiatives (42%), followed by targeted clean energy initiatives to reduce carbon footprint (36%) and government policies on vendor selection (33%). Heavy Reading believes the high ranking of support for the USDA program can be partially attributed to the focus of USDA to provide capex funding for fiber buildouts, which is a C-level top priority to eliminate the “digital divide” in many rural markets.
- **The top three industry trends that C-levels believe could be “extremely impactful” in changing their investment priorities are changes in consumer service consumption patterns (54%),** changes in enterprise service consumption patterns (36%), and a shift from fixed to mobile services (33%).
- **C-levels are most concerned about securing billing data (60% “extremely concerned”)** compared to subscriber data (24%) and location data (23%).

1.3 Methodology

This research report is based on a comprehensive online 24-question survey launched in 2Q21. Only C-level executives who worked for CSPs serving 100,000 and fewer subscribers in North America were allowed to take the survey.

These C-level respondents were invited to take the survey on the understanding of anonymity (i.e., that their names, job titles, and employers would not be made available to the study’s sponsors or eventual readers) and that the results will only be presented in aggregate form. Respondents were not told who sponsored the study. The C-levels who took the survey were split equally among general managers (29%), vice presidents (25%), CEO/CIO/CTOs (25%), and directors (21%). The full demographic breakout of respondents is provided in the **Appendix – Survey demographics** section of this report.

2. COMPETITON AND CONSOLIDATION

One key area of focus of this survey was to obtain granular insight into C-levels’ strategies to achieve revenue growth and mitigate the impact of competitors. To provide a benchmark for comparative purposes, the first question investigated current C-level confidence levels.

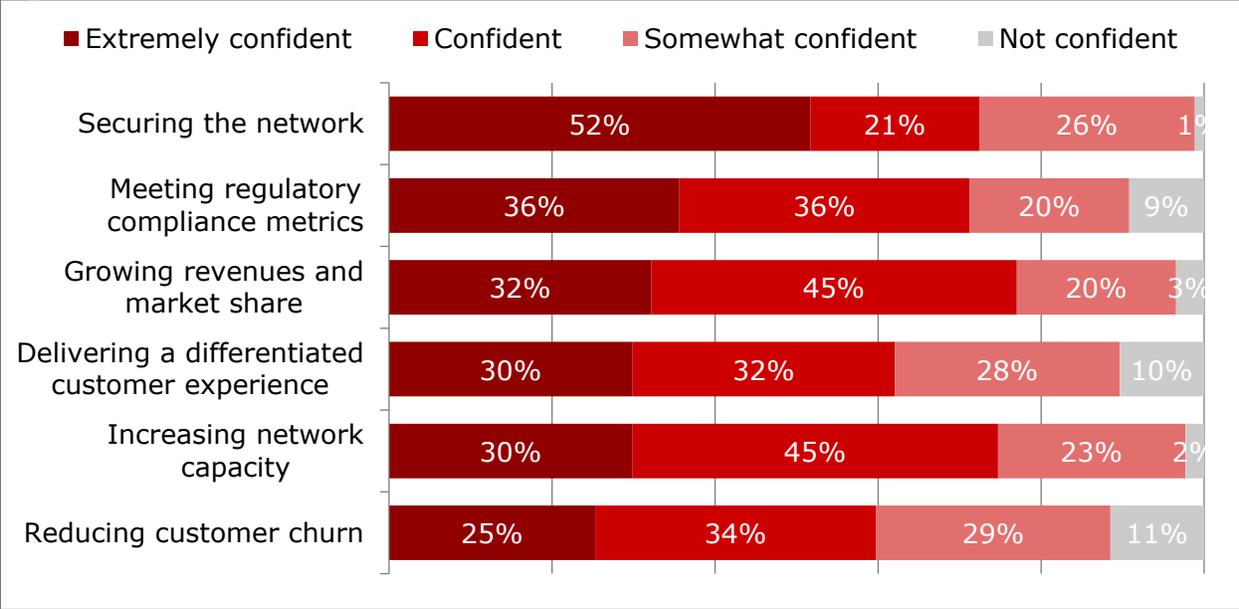
As shown in **Figure 1**, based on the responses from these C-levels, there is a general sense of comfort that the technical and business foundations of their respective companies are solid.

Based on “extremely confident” responses, the greatest level of confidence was in securing the network (52%). This was followed by a tight group of responses encompassing regulatory compliance (36%), ability to grow revenue and market share (32%), delivering a differentiated customer experience (30%), increasing network capacity (30%), and reducing customer churn (25%).

These inputs, as well as the strong band of “confident” responses (21–45%), confirm that C-levels generally feel confident their companies are well-positioned to maintain and grow revenues.

There are, however, two areas of concern. The leading concern is that 40% of respondents are either only “somewhat confident” (29%) or “not confident” (11%) in their ability to reduce customer churn. The second is the 38% of respondents who are only “somewhat confident” (28%) or “not confident” (10%) about their ability to deliver a differentiated customer experience. Given that both of these functions have major revenue implications, the trend of approximately 4 out of 10 C-levels harboring concerns about their companies’ ability to fulfill these requirements is troubling.

Figure 1: Executive confidence levels



Question: How confident are you in your company’s ability in the following areas? (n=87)
 Source: Heavy Reading

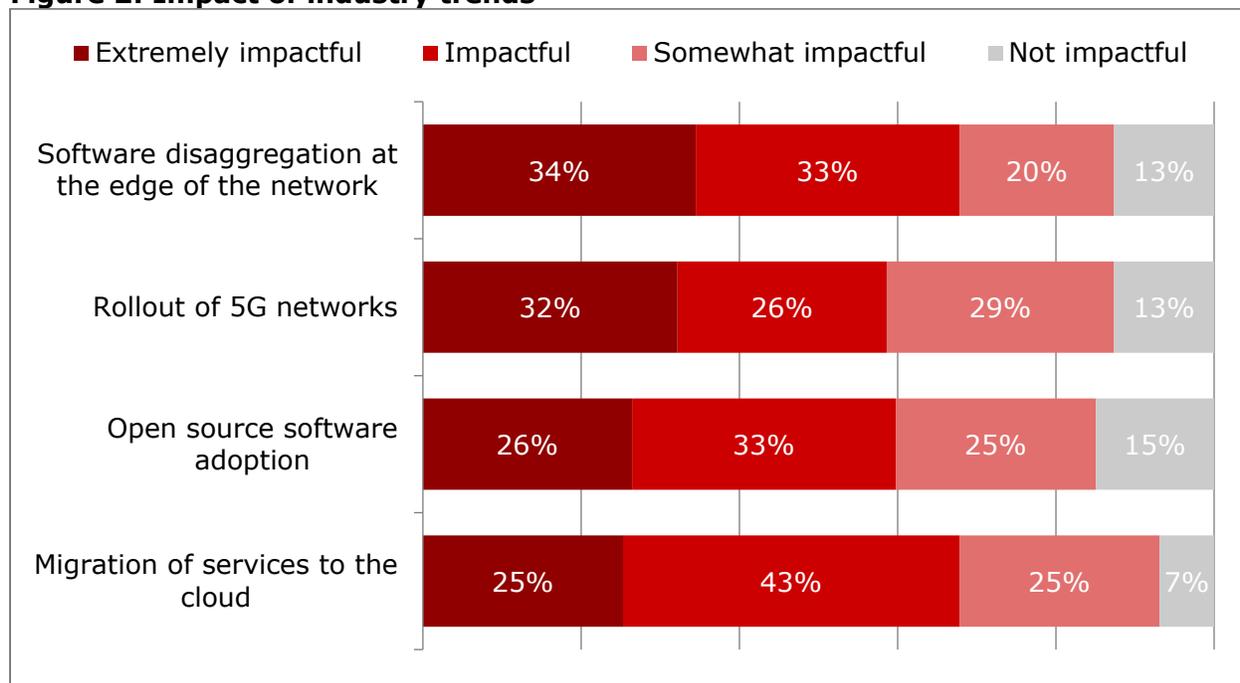
There are numerous technology trends that all CSPs, large or small, must successfully navigate to maintain a secure network posture, ensure regulatory compliance, grow revenues, and maintain a subscriber base.

Of these, based on the “extremely impactful” inputs shown in **Figure 2**, the respondents believe that software disaggregation at the edge of the network (34%) and the rollout of 5G networks (32%) would have the greatest impact. Other factors such as open source adoption (26%) and migration of services to the cloud (25%) also had significant levels of support.

The message here is clear: the disaggregation of software and the rollout of 5G (which implements software disaggregation) will have immediate and significant impacts on strategy execution.

Another point worthy of note is that while cloud service migration achieved a fourth place “extremely impactful” ranking, it did achieve the highest “impactful” ranking (43%). Heavy Reading believes C-levels who took this survey recognize that while still early days in their company’s cloud migration, the impact will ultimately be profound in nature.

Figure 2: Impact of industry trends



Question: To what extent are the following industry trends impacting your business? (n=87)
 Source: Heavy Reading

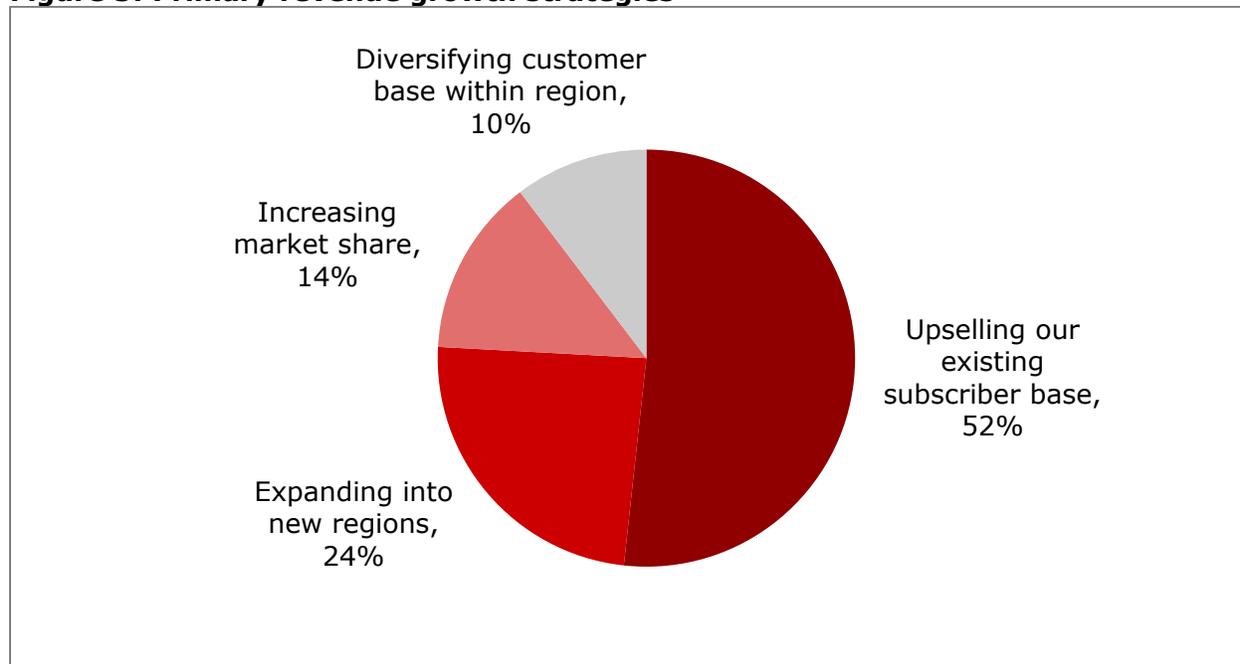
As documented in **Figure 1**, 77% of C-levels are either “extremely confident” (32%) or “confident” (45%) in their companies’ ability to grow revenues and market share. **Figure 3** below provides insight into how they plan to achieve primary revenue growth.

Based on the data illustrated in the figure, it is readily apparent that more than half (52%) plan to focus on upselling their existing subscriber base. The second ranked strategy

advocates expanding into new regions (24%). The remaining strategies are based on increasing market share (14%) and diversifying the customer base (10%).

While this focus was somewhat expected given that upselling existing customers has long been a staple in any effective revenue generation strategy, it reinforces just how vital maintaining a customer base is in a revenue context. In turn, this highlights the importance of minimizing customer churn, which a significant number of C-levels are apprehensive about (see **Figure 1**).

Figure 3: Primary revenue growth strategies



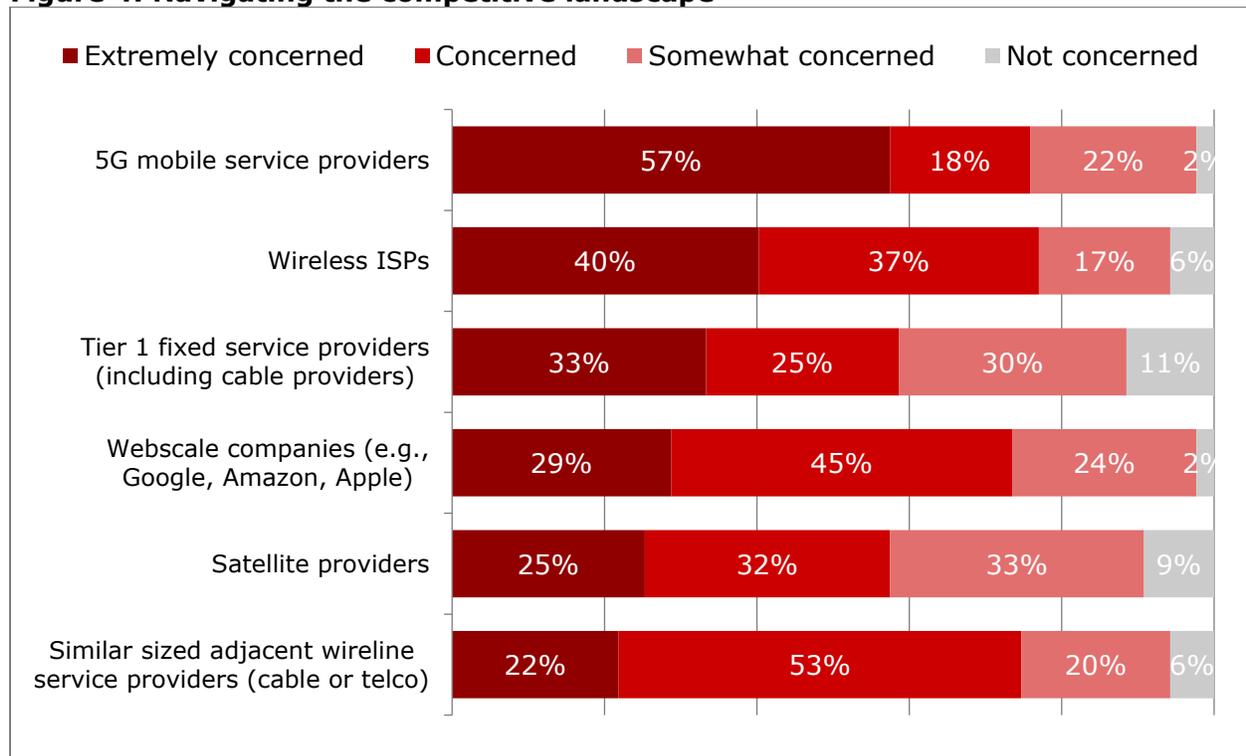
Question: What is your primary strategy for growing your revenue base? (n=87)

Source: Heavy Reading

C-levels believe that the rollout of 5G will have profound implications on their business. This is reinforced in **Figure 4** below. As the figure illustrates, 57% of the respondents are “extremely concerned” about 5G mobile service providers having an impact on their company’s ability to grow their revenue base. In second place are wireless ISPs (40%), followed by Tier 1 fixed service providers (33%), web-scalers (29%), satellite providers (25%), and smaller sized adjacent wireline service providers (22%).

This ranking is logical given that 5G will deliver enhanced bandwidth and coverage that could ultimately rival the performance of well-engineered fixed rural networks. In turn, the enhanced performance of 5G could make upselling fixed services to existing subscribers more difficult while potentially increasing the all-important churn rate.

Figure 4: Navigating the competitive landscape



Question: How concerned are you that the following competitors will impact your company’s ability to grow your revenue base? (n=87)

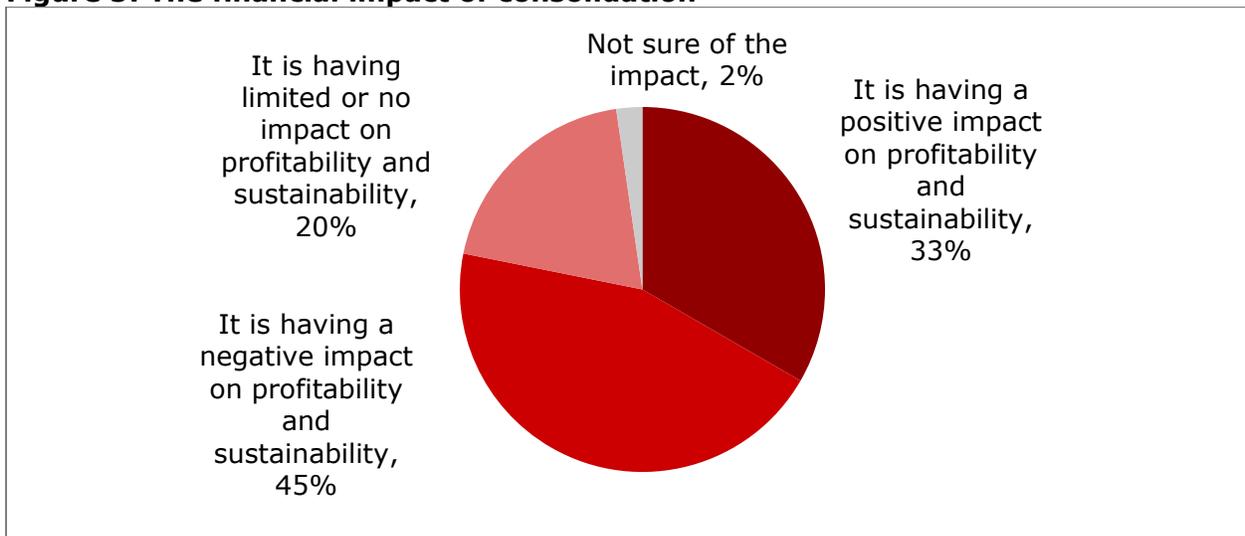
Source: Heavy Reading

The adoption of 5G could also potentially accelerate the pace of industry consolidation as new players with expansion strategies of their own focus on targeted acquisitions or mergers.

While it is difficult to forecast the future pace of consolidation, as **Figure 5** below shows, 45% of respondents are already seeing consolidation as having a negative impact on profit and sustainability. In contrast, 33% of respondents are seeing consolidation as having a positive impact on profit and sustainability. The remainder of respondents believe that consolidation is having limited or no impact on profitability or sustainability (20%) or are not sure of the impact (2%).

Heavy Reading is aligned with the view that consolidation will have a negative impact on companies serving 100,000 and fewer subscribers.

Figure 5: The financial impact of consolidation



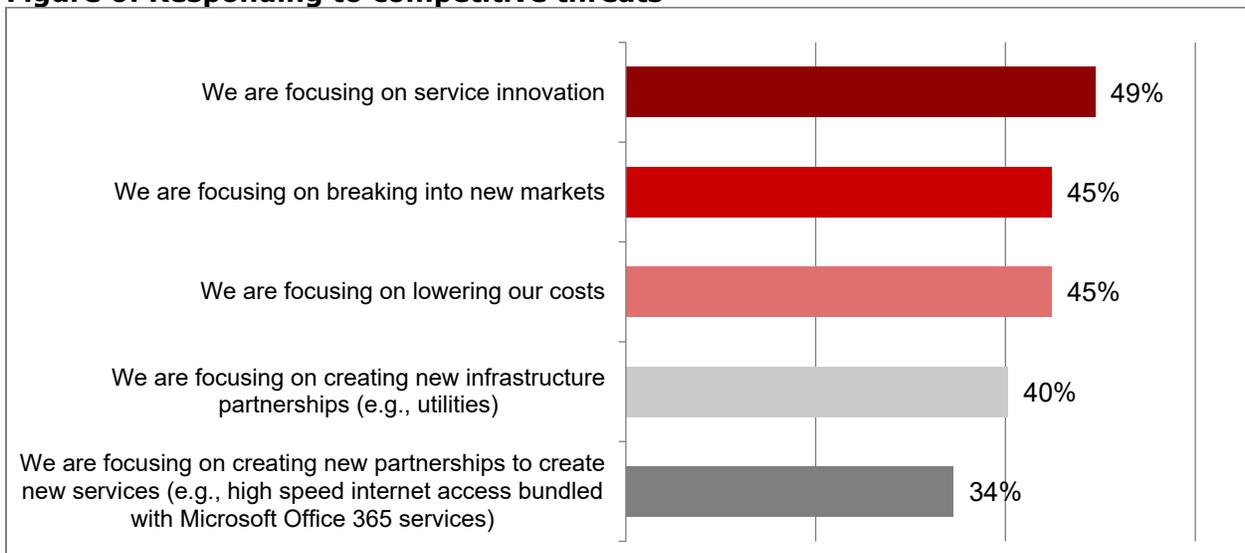
Question: To what extent is service provider consolidation impacting your profitability and sustainability? (n=87)

Source: Heavy Reading

C-levels plan to counter these competitive threats through a balanced number of initiatives. As shown in **Figure 6** below, leading the way is a focus on service innovation (49%). Consistent with **Figure 3**, other approaches include focusing on new markets (45%) and lowering operational costs (45%).

Also important in a consolidating world is the development of new infrastructure partnerships (40%) and partnerships to develop new services. The latter include those with web scalers such as Microsoft (34%) to integrate high speed internet access with Microsoft Office 365 services.

Figure 6: Responding to competitive threats



Question: How is your company responding to competitive threats? (n=87)

Source: Heavy Reading

3. INVEST FOR SUCCESS

C-levels' ability to achieve service innovation goals and mitigate the impact of competitors hinges on network investment efficacy.

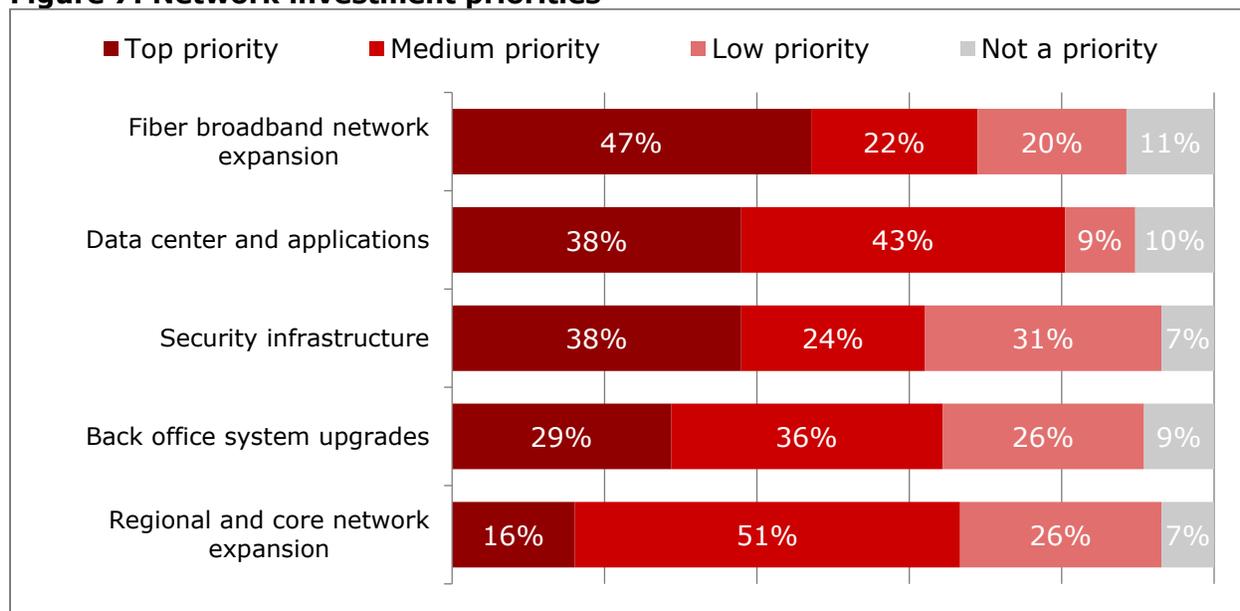
While investment priorities may vary due to several factors, including the competitive landscape, as **Figure 7** shows, the current top three ranking investment priorities include fiber broadband network expansion (47%), data center and applications, and security infrastructure (both 38%). These are followed by back office system upgrades (29%) and regional and core network expansion (16%).

Heavy Reading believes that the strong focus on fiber expansion is primarily driven by two factors:

- The need to continue enhancing bandwidth to mitigate the impact of 5G competitors.
- The need to provide the connectivity fabric vital for upselling new services to existing customers, such as high speed internet-based services (see **Figure 3**, **Figure 4**, and **Figure 14**).

The focus on applications and data centers and even security can also be considered upsell related (see **Figure 15**).

Figure 7: Network investment priorities



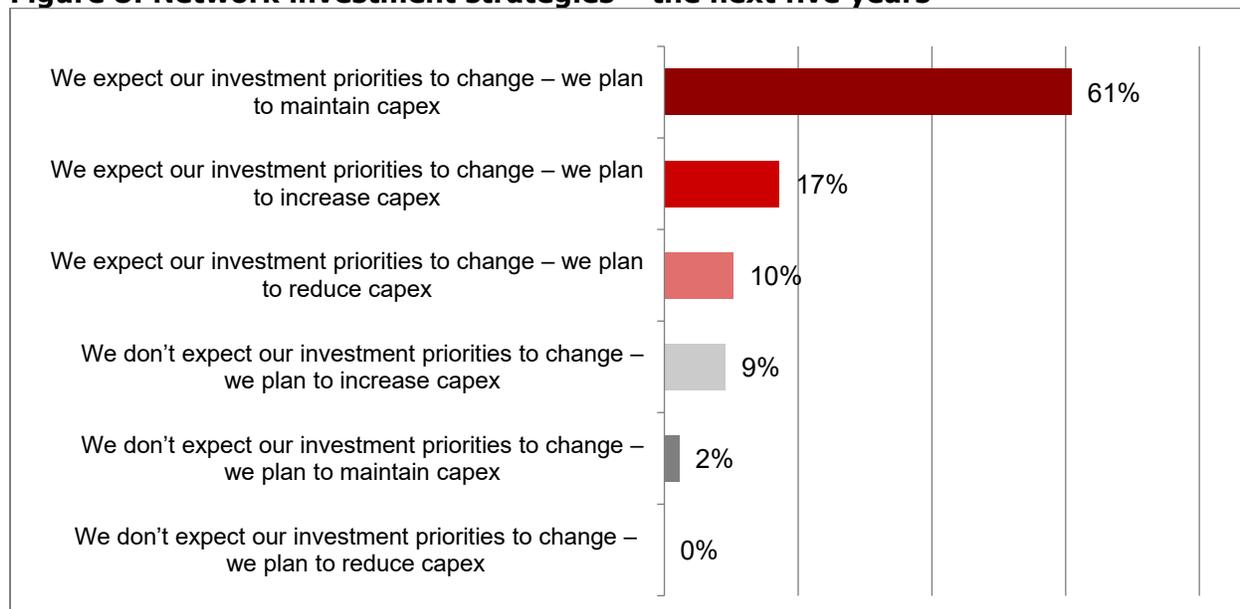
Question: What are your current network capital investment priorities? (n=87)

Source: Heavy Reading

Looking forward five years, as shown in **Figure 8** below, while most C-level respondents (61%) expect their investment priorities to change, they do not expect their level of capex investment to change. In contrast, 17% expect capex investment to increase, compared to 10% who expect capex to decline. That leaves only about 11% of C-levels who believe their investment priorities will not change.

The logical conclusion here is that CSPs believe their investment priorities will need to adapt to changing technology and competitive landscapes in the next five years. But about 6 out of 10 C-levels believe they will need to maintain current investment levels to safeguard the level of service innovation necessary to mitigate the impact of competitors (see **Figure 7**).

Figure 8: Network investment strategies – the next five years



Question: How do you expect your network investment priorities to change over the next five years? (n=87)

Source: Heavy Reading

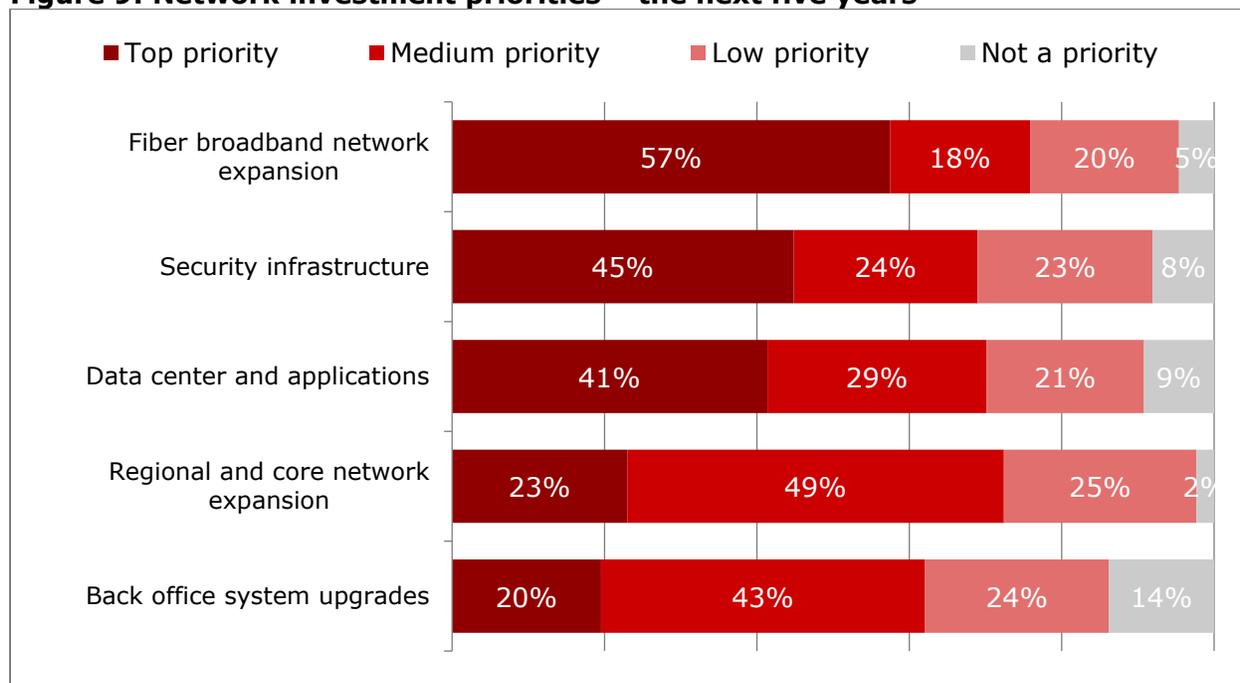
Although most C-levels expect capex to remain steady in the next five years, as **Figure 9** below shows, they do expect gradual changes in investment priorities.

The first observation is that the current “top priority” investment—fiber broadband network expansion increases in relevance (57% vs. 47% current ranking—see **Figure 7**). Additionally, the commitment to deploying security infrastructure increases (45% vs. 38% current ranking) and the commitment to investing in data centers and applications remains a focus (41% vs. current 38% ranking).

To support the investment commitment for these three areas and assuming a static level of capex investment as per **Figure 8**, C-levels plan to reduce their spending on back office system upgrades (20% vs. 29% current ranking).

A final point worth noting is that CSPs also plan to increase their investment in core and regional network expansion (23% vs. 16% current ranking). While there is unquestionably a myriad of factors influencing five-year investment priorities, Heavy Reading believes that 5G competition is once again a key factor. In this scenario, C-levels are looking to provide a better end-to-end user experience, including enhancing the “stickiness” of high speed internet services, which starts with greater throughput in both core and regional networks.

Figure 9: Network investment priorities – the next five years



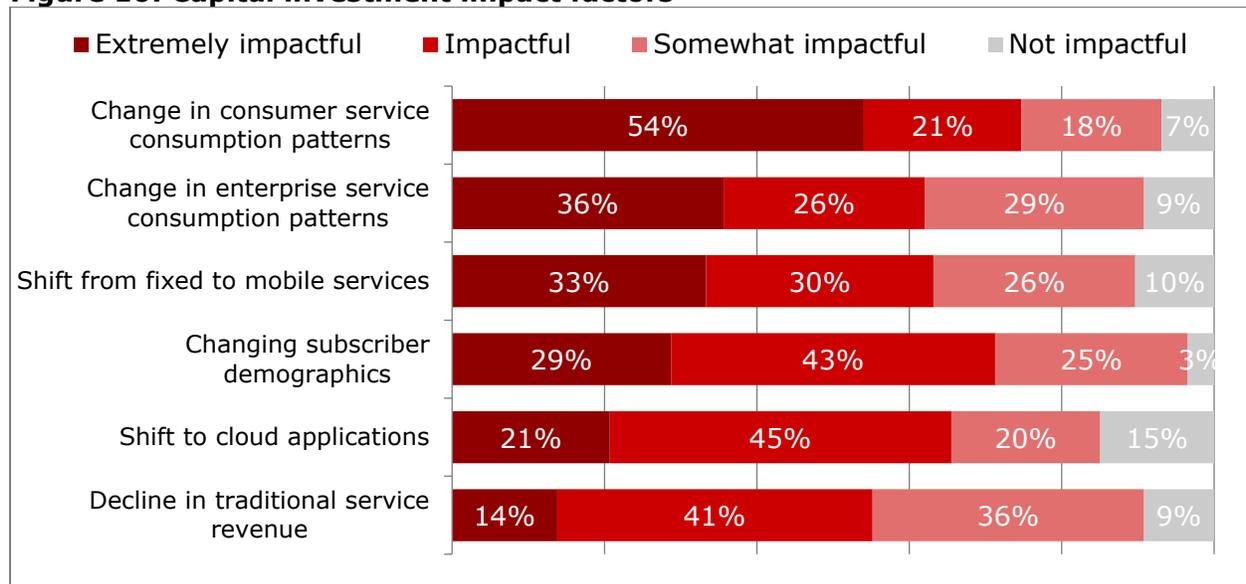
Question: What are your network capital investment priorities in the next five years? (n=87)
Source: Heavy Reading

One important capital investment consideration that C-levels must address is how subscribers will utilize the new technologies. Specifically, will they alter their service consumption patterns? These impacts are investigated in **Figure 10** below. As the figure shows, based on “extremely impactful” response levels, more than half of the C-levels surveyed (54%) are most concerned about a change in consumer service consumption patterns.

They are also concerned about the impact on enterprise service consumption patterns (36%), as well as a shift from fixed to mobile services (33%). Other concerns are associated with changes in subscriber demographics (29%), a shift to cloud applications (21%), and the related decline in service revenue (14%).

These concerns are viewed as integral to the previous observations that C-levels are targeting upselling their existing subscriber base (see **Figure 3**) as a primary revenue generation strategy. In this framework, any changes in subscriber patterns—whether consumer or enterprise-related—could make upselling problematic and make the capital investment business case more difficult to rationalize.

Figure 10: Capital investment impact factors



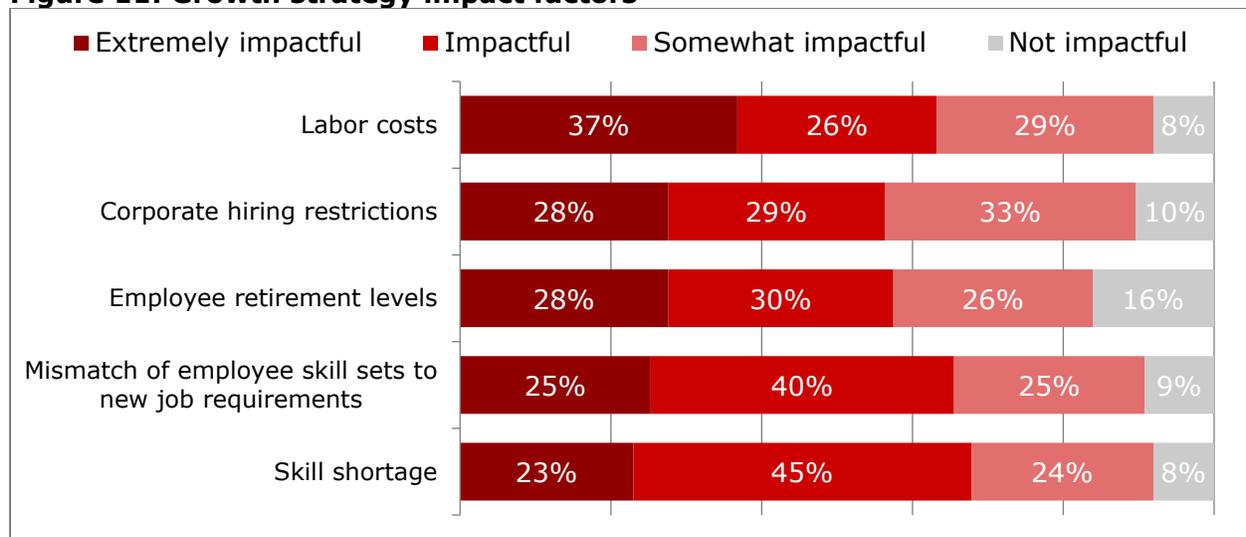
Question: To what extent will the following impact your investment priorities? (n=87)

Source: Heavy Reading

CSPs require an experienced employee base to successfully execute their investment strategies. As **Figure 11** below shows, based on “extremely impactful” responses, about a quarter of C-levels are concerned about corporate hiring restrictions (28%), employee retirement levels (28%), and a mismatch of employee skill sets to new job requirements (25%). But they consider labor costs (37%) as having the greatest impact.

Given the proportion that salaries typically make up of operational budgets, it was not unexpected that labor costs would rank highly in the list of impact factors.

Figure 11: Growth strategy impact factors



Question: To what extent will the following impact your ability to execute your growth strategy? (n=87)

Source: Heavy Reading

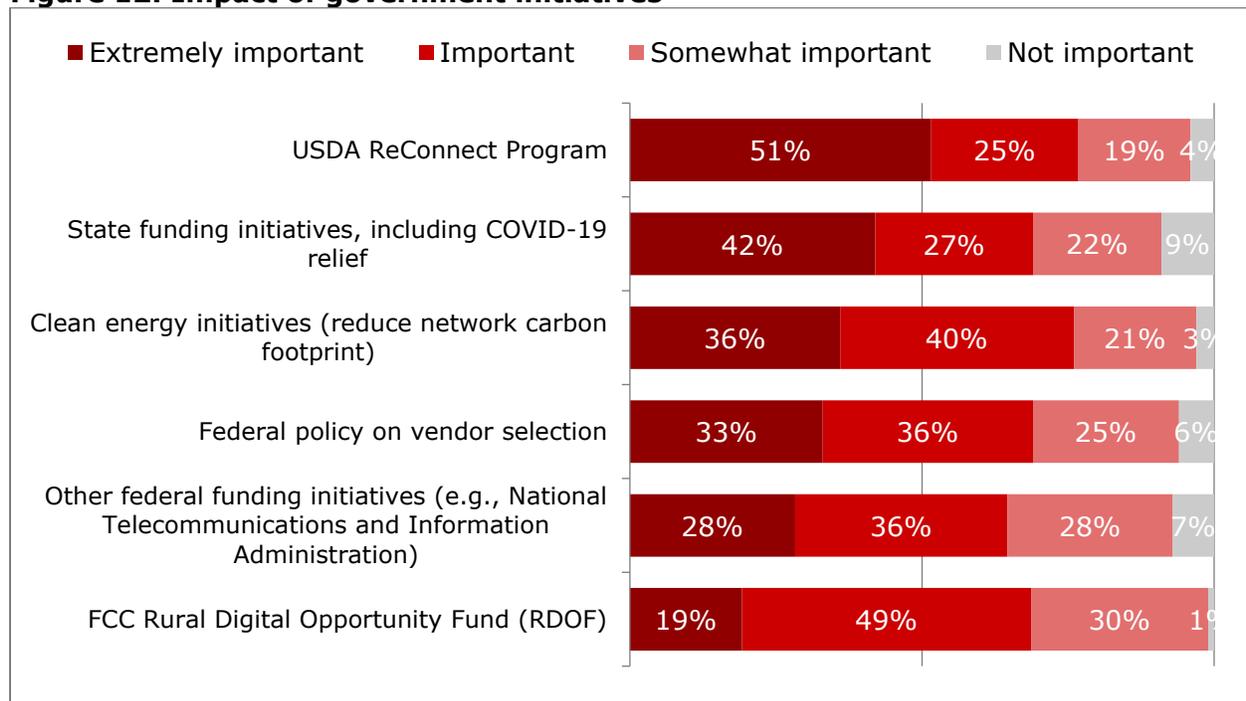
In addition to relying on organic revenue growth to fund investments, smaller CSPs may also rely on specific government initiatives to gain access to loans or grants to cover network expansion, upgrades, and operational costs.

In the US, there are several government-funded programs. Of these, as **Figure 12** below shows, based on “extremely important” inputs, the USDA ReConnect Program leads the pack, with more than half (51%) ranking this organization’s program as extremely important. (Note that given the US-centric nature of the question, the data in **Figure 12** was filtered to include responses only from the 67 US C-level respondents.)

In second place are specific state funding initiatives, including COVID-19 relief initiatives (42%), followed by targeted clean energy initiatives to reduce carbon footprint (36%). Government policies on vendor selection (33%) also factor into the equation.

Heavy Reading believes the high level of support for the USDA can be partially attributed to the focus of the USDA on providing funding for fiber broadband network expansion, which is a C-level top investment priority to eliminate the “digital divide” in some rural markets.

Figure 12: Impact of government initiatives



Question: How important are the following initiatives to the execution of your growth strategy? (n=67)
 Source: Heavy Reading

4. DATA, USE CASE, AND EXPENSE MANAGEMENT

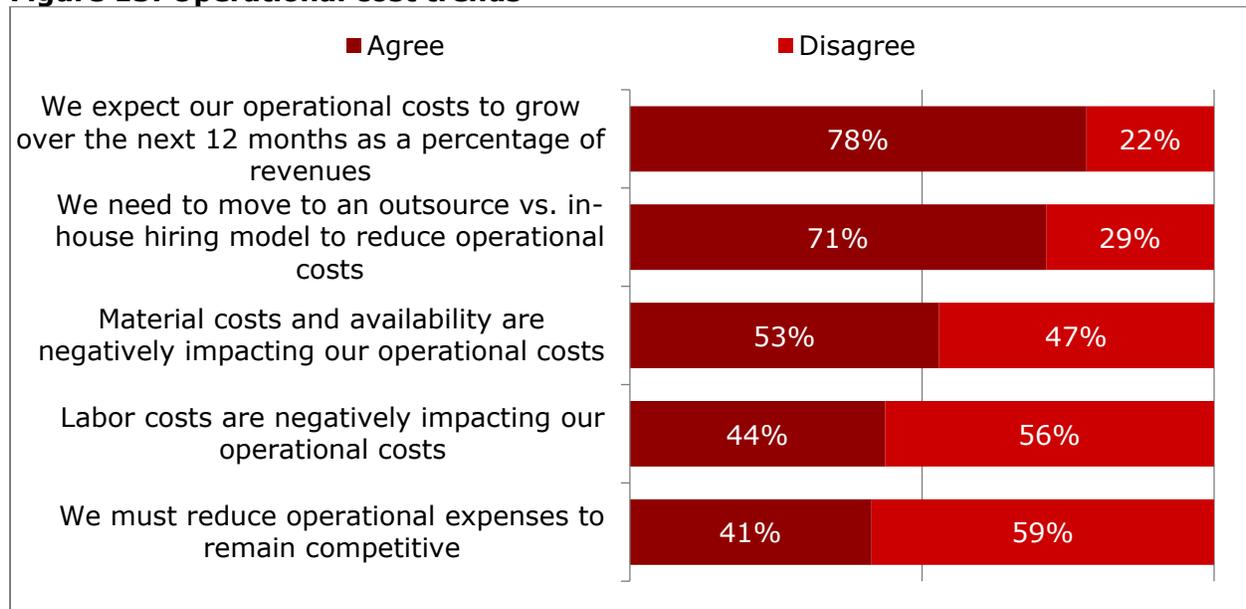
While a majority of the C-levels expect that capex will stay static in the next five years (see **Figure 8**), as **Figure 13** shows, 78% of these same respondents agree that operational costs as a percentage of total revenues will grow over the next 12 months. C-levels do not seem overly concerned about this increase.

As a proof point, only about 4 out of 10 C-levels (41%) believe they must reduce their operational expenses to remain competitive, compared to 59% who do not tie operational expense management to market competitiveness.

Most C-levels (71%) do, however, agree in theory that to reduce operational costs, it would be necessary to adopt an outsource hiring model. Still, more than half of these same respondents (56%) do not believe that labor costs are negatively impacting their operational cost structure. Thus, outsourcing is a lower priority currently for more than half of the respondent companies.

The conclusion here is that more than half of the C-levels believe that operational costs, including labor costs, will continue to increase. However, these increases can be absorbed without negatively impacting overall competitiveness and forcing the need to adopt an outsourced hiring model. But the remaining minority are concerned about labor costs and would very likely consider outsourcing of some form.

Figure 13: Operational cost trends



Question: Do you agree or disagree with the following statements? (n=87)

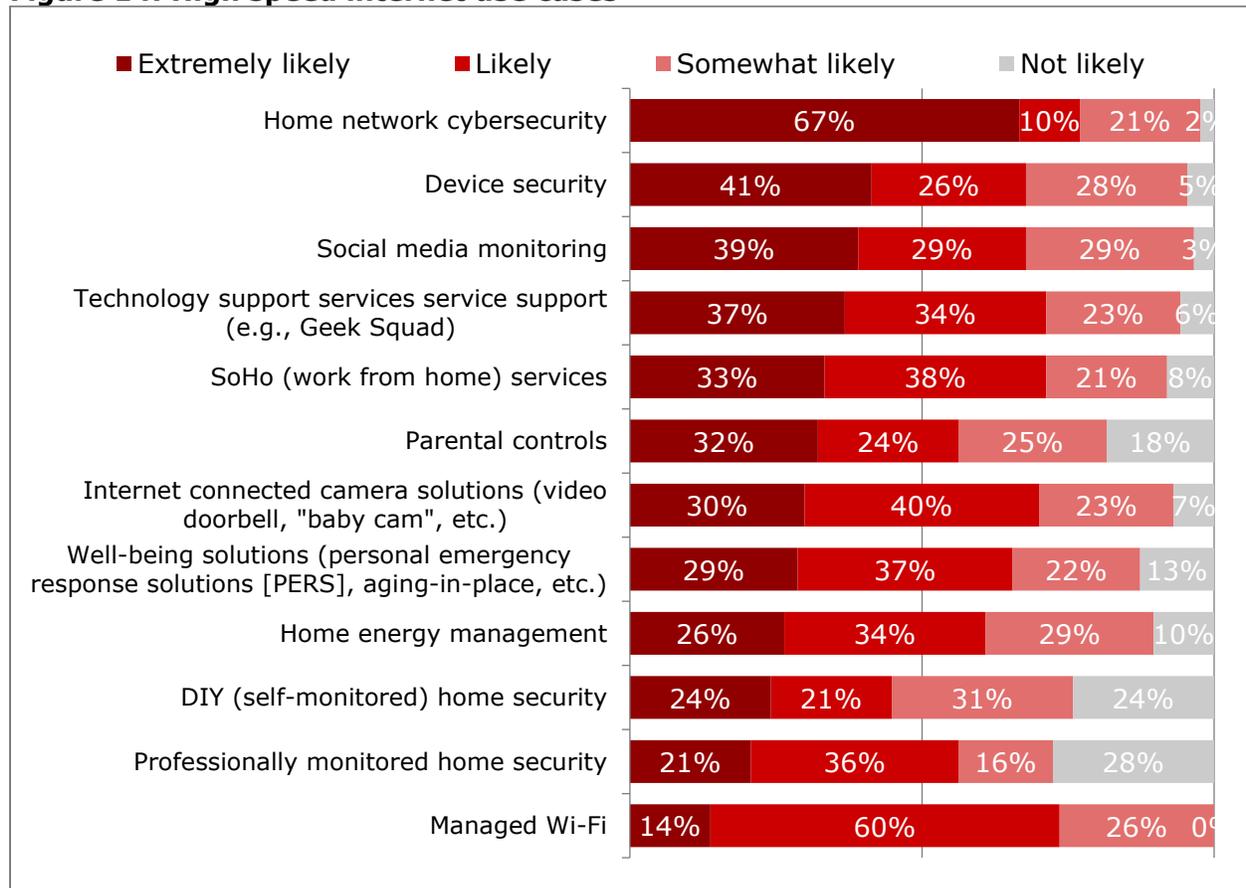
Source: Heavy Reading

C-levels plan to increase investment in security infrastructure in the next five years (see **Figure 9**). In addition to maintaining a strong security stance, as shown in **Figure 14** below, they expect that several security related use cases will improve the “stickiness” of their high speed internet use cases.

Among these, based on “extremely likely” input, the leading use cases are home network security (67%) and device security (41%). Other security-based services, such as home-monitored security (24%) and professional-monitored security (21%), garnered interest as well.

While security is a top consideration, other non-security capabilities scored highly too. These include other premium services such as social media monitoring (39%), technology support services (37%), small office/home office (SoHo) services (33%), parental controls (32%), internet camera solutions (30%), well-being solutions (29%), and even home energy management services (26%).

Figure 14: High speed internet use cases



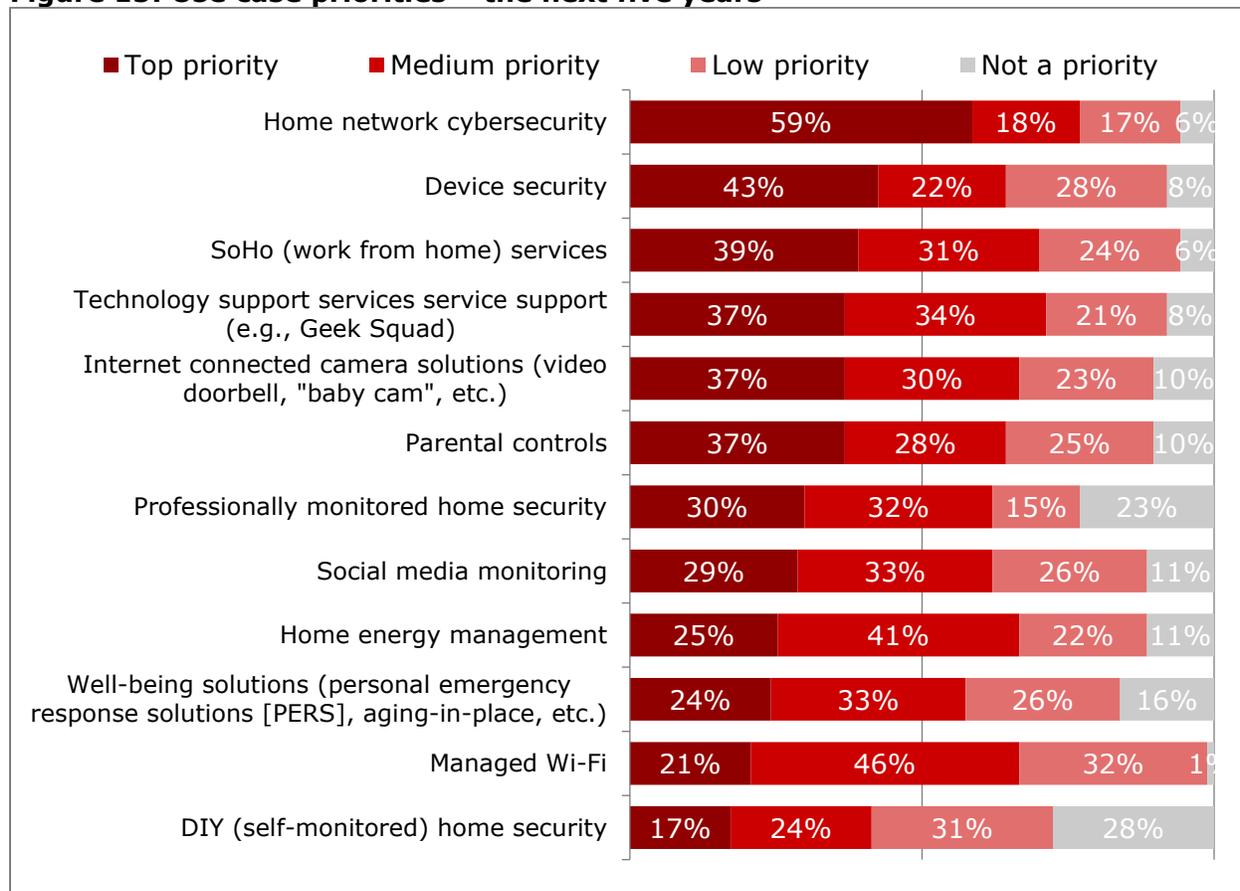
Question: How likely will the following use cases improve your high speed internet service “stickiness” in the next five years? (n=87)

Source: Heavy Reading

In theory, improving the stickiness of specific high speed internet services should translate into a higher prioritization to implement. **Figure 15** below confirms this is the case. Once again, home network cybersecurity is the leading use case (59%), followed by device security in second place (43%). One notable change is that social media monitoring drops significantly from third place to eighth place (29%).

In response, SoHo services (39%), which have unquestionably become a greater priority due to COVID-19, and technology support services and internet camera-based solutions (both 37%) remain key focus areas.

Figure 15: Use case priorities – the next five years



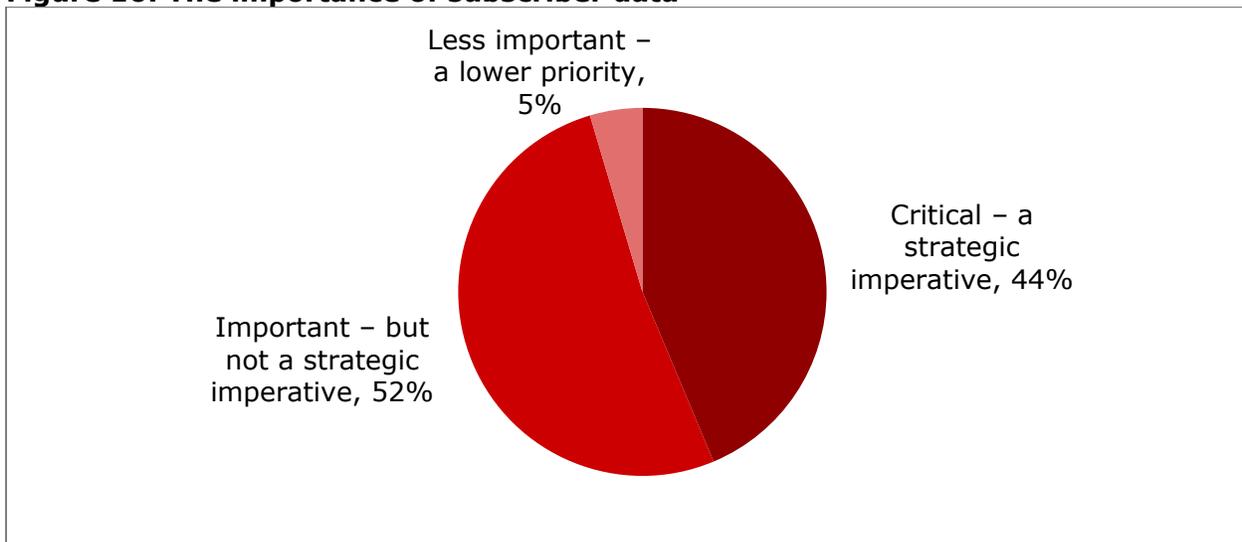
Question: Please rate your company's priority level for each of the following use cases in the next five years. (n=87)

Source: Heavy Reading

CSPs will rely on service innovation to counter competitive threats (see **Figure 6**). And as noted in the figure directly above, a broad range of use cases will drive this service innovation in the next five years.

The monetization of these use cases will also hinge on the CSPs' ability to exploit various data sources to provide a seamless and intuitive customer experience. As **Figure 16** below shows, 95% of C-levels believe subscriber data is either "critical" (44%) or "important" (52%), confirming that subscriber data plays a key role in driving new revenue and service opportunities.

Figure 16: The importance of subscriber data



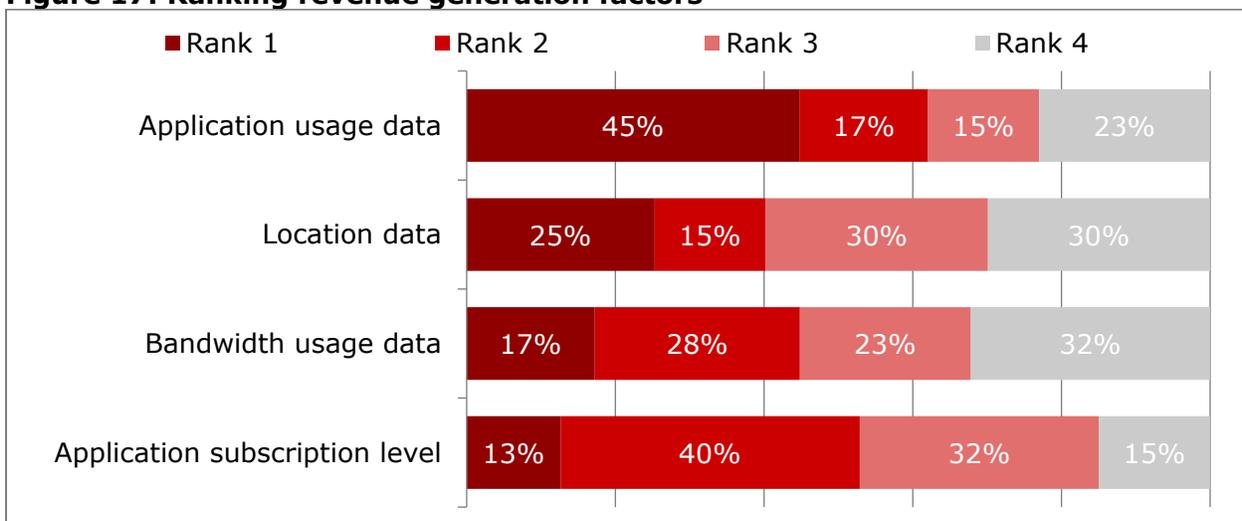
Question: How important is it for your company to utilize subscriber data to drive new revenue and service opportunities? (n=87)

Source: Heavy Reading

Subscriber data comes in various formats, including location data, application usage data, and even bandwidth related data. **Figure 17** below captures the priorities and C-level rankings. Of these, based on the highest ranking (Rank 1), application usage data stands out (45%), followed by location data (25%), bandwidth usage data (17%), and application subscription level (13%).

Heavy Reading interprets these rankings as confirming that the relative importance of application data continues to increase as CSPs and their subscribers move to a services- and application-centric world aligned with the spirit of a 5G services-based architecture.

Figure 17: Ranking revenue generation factors



Question: How important are the following factors to revenue generation? (Rank 1 = most important and Rank 4 = least important) (n=87)

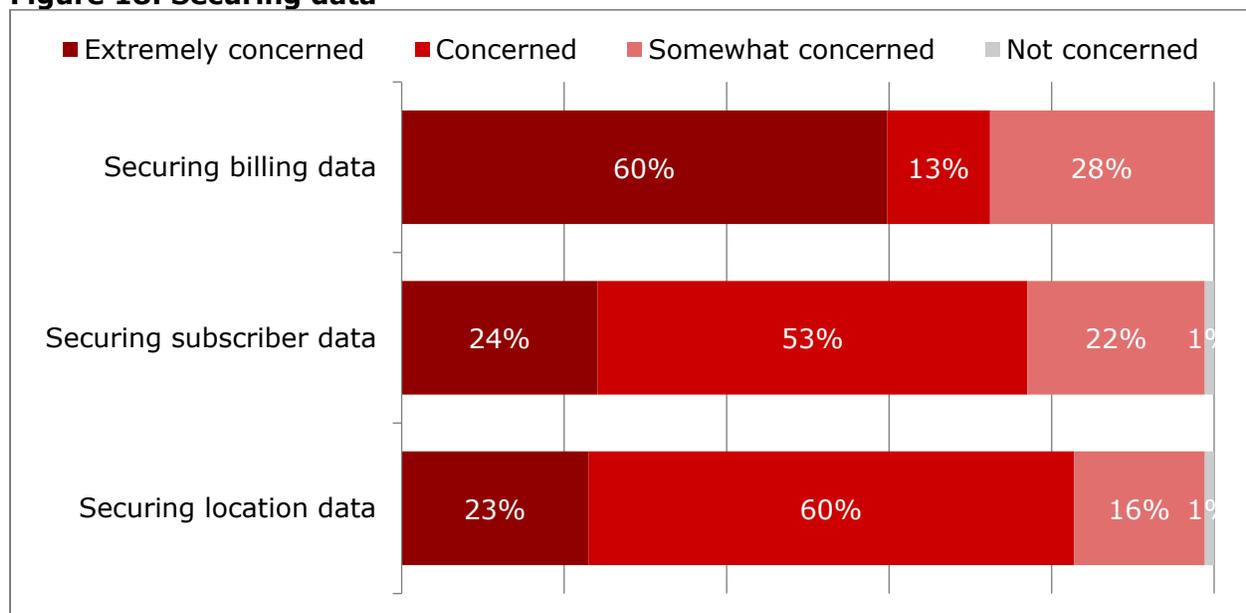
Source: Heavy Reading

Finally, although C-levels (as noted in **Figure 1**) are confident in their overall company's ability to secure their networks, **Figure 18** below illustrates that these same C-levels are pragmatic that security requires constant vigilance to safeguard valuable data.

Based on the level of "extremely concerned" responses, they were most concerned about securing billing data (60% "extremely concerned"), compared to subscriber data (24% "extremely concerned") and location data (23% "extremely concerned"). This was not unexpected, given that billing data is critical for maintaining a solid financial footing.

Heavy Reading believes that the significant level of "concerned" response levels for securing subscriber data (53%) and securing location data (60%) reinforces that securing these data types is also important.

Figure 18: Securing data



Question: How concerned are you about your company's ability to secure the following data? (n=87)
 Source: Heavy Reading

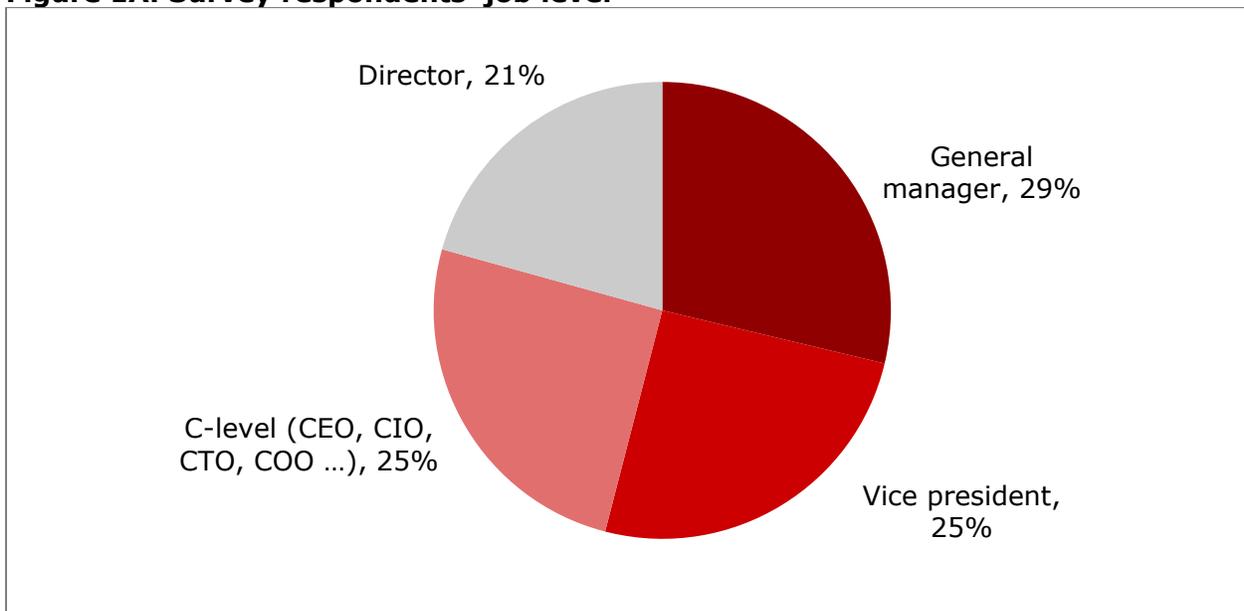
APPENDIX – SURVEY DEMOGRAPHICS

This research is based on a 24-question custom survey of North American CSPs jointly developed by Heavy Reading and Calix and fielded globally by Light Reading parent Informa Tech in May 2021.

The survey exclusively targeted C-levels who worked for Tier 2/3 operators serving 100,000 and fewer subscribers in Canada or the US.

As shown in **Figure 1A**, the C-levels who took the survey were split fairly equally among general managers (29%), vice presidents (25%), CEO/CIO/CTOs (25%), and directors (21%).

Figure 1A: Survey respondents' job level



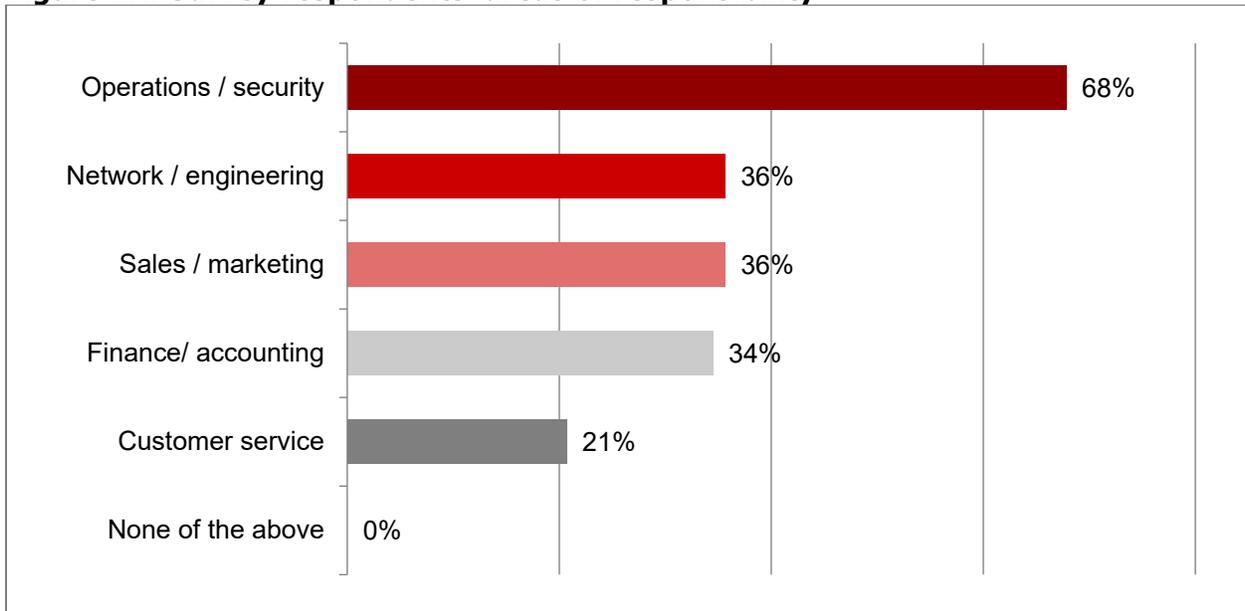
Question: Which of the following best describes your job level? (n=87)

Source: Heavy Reading

These C-levels performed a range of functions in their respective companies. As shown in **Figure 2A** below, the largest group led operations/security teams (68%), followed by an equal distribution of those who led network/engineering (36%), sales/marketing (36%), and finance/accounting (34%) teams. Customer service team leads accounted for 21% of the population sample.

While these C-levels clearly identified specific and diverse areas of responsibility, Heavy Reading believes it is important to note that in smaller companies such as the ones covered in this survey, executives often perform several overlapping roles.

Figure 2A: Survey respondents' areas of responsibility

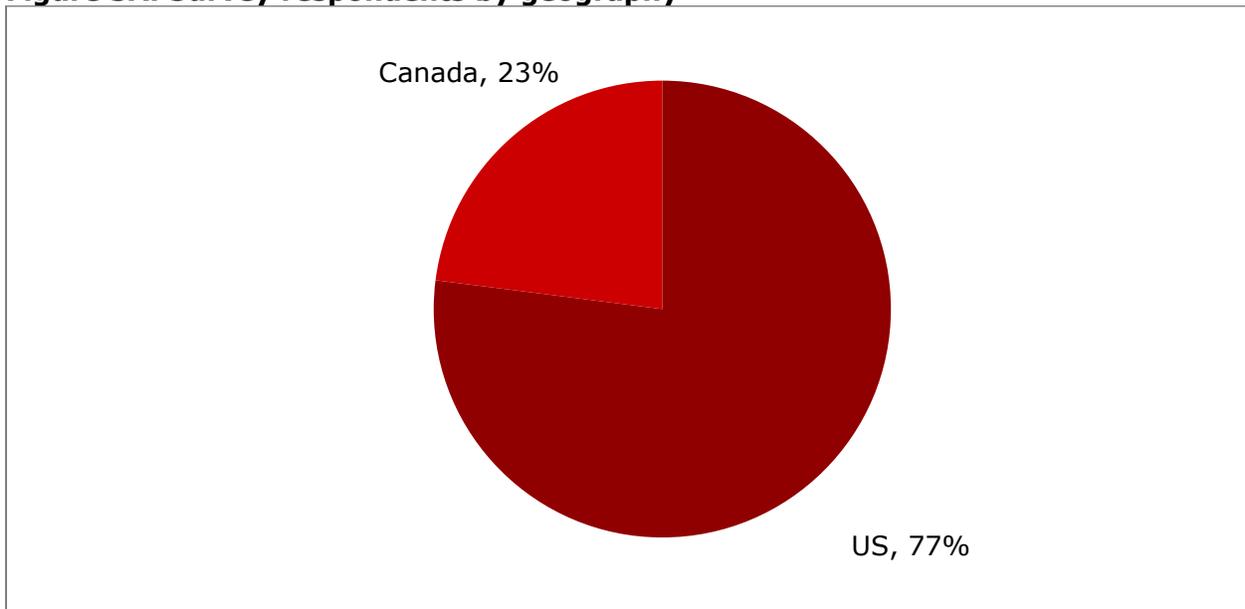


Question: What areas are you responsible for? (n=87)

Source: Heavy Reading

These C-levels worked for both US- and Canada-based companies. Of these, as shown in **Figure 3A**, the largest sample came from the US (77%) compared to Canada (23%). This is considered an optimal distribution, given there are a greater number of companies with 100,000 and fewer subscribers in the US compared to Canada.

Figure 3A: Survey respondents by geography



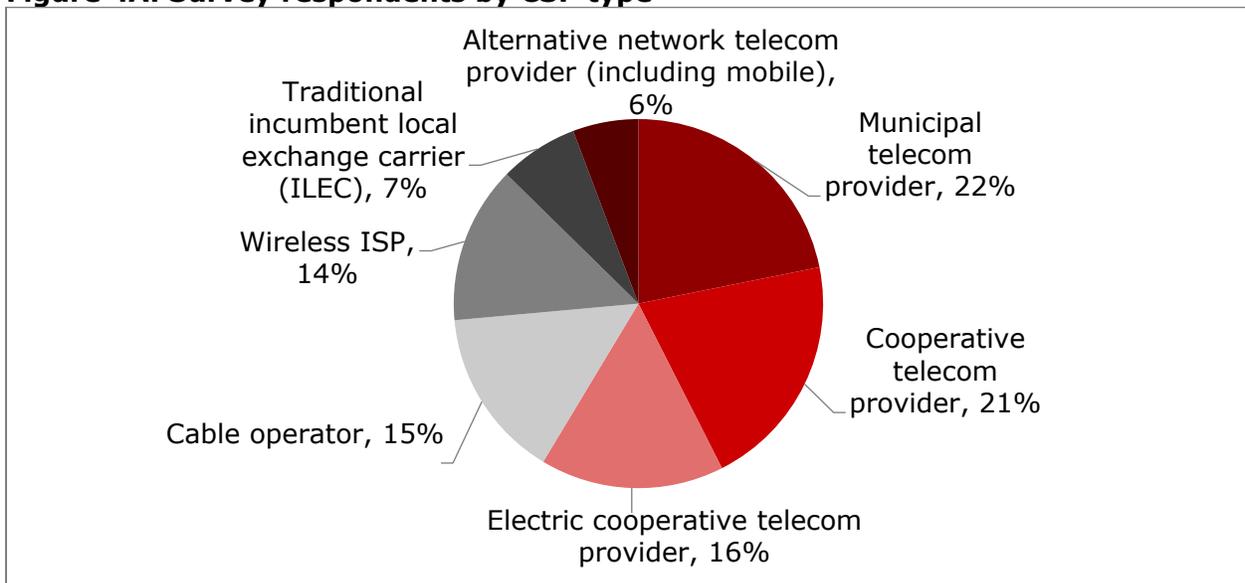
Question: Where is your company located? (n=87)

Source: Heavy Reading

The company types these C-levels worked for were also diverse. As **Figure 4A** shows, these included municipal telecom providers (22%), cooperative telecom providers (21%), electric cooperative telecom providers (16%), cable operators (15%), wireless internet service providers (ISPs; 14%), traditional incumbent local exchange carriers (ILECs; 7%), and alternative network telecom providers (6%).

Heavy Reading also considers this an optimal distribution because it reflects the reality that service delivery in rural municipal markets is often shaped by regional specific historical and regulatory factors.

Figure 4A: Survey respondents by CSP type



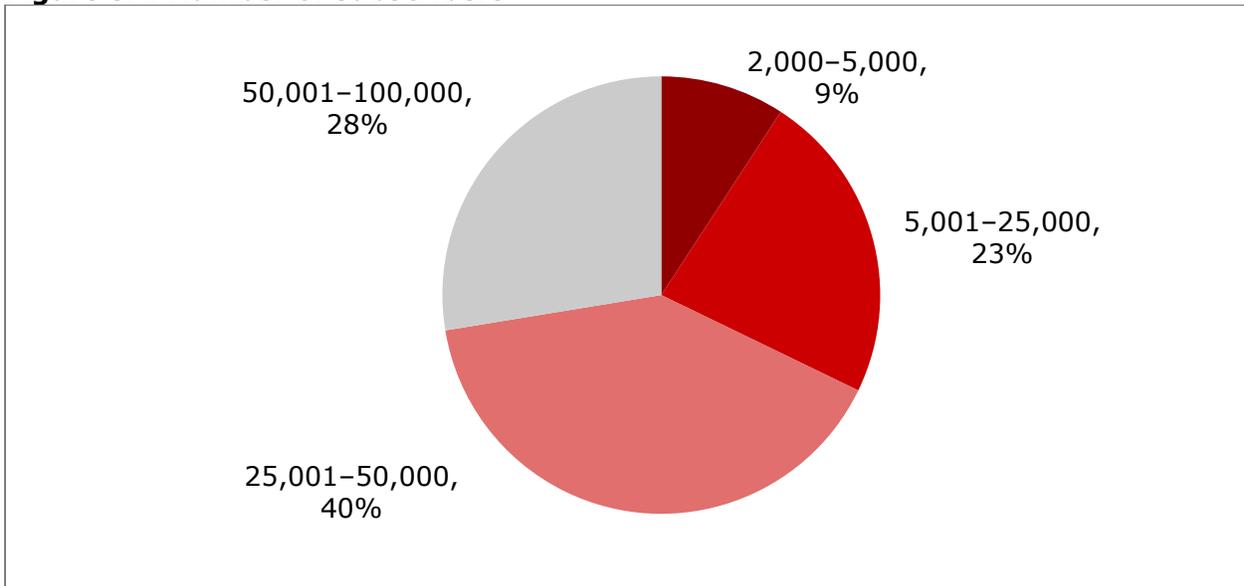
Question: What type of communications service provider (CSP) do you work for? (n=87)

Source: Heavy Reading

In terms of actual company size, as shown below in **Figure 5A**, the largest group of C-levels (40%) worked for companies that served 25,001–50,000 employees. The second group (28%) served the largest subscriber base (50,001–100,000).

Close behind were companies serving 5,001–25,000 subscribers (23%), followed by those 9% who led the smallest companies—those serving 2,000–5,000 subscribers.

Figure 5A: Number of subscribers



Question: How many subscribers does your company have? (n=87)

Source: *Heavy Reading*

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