

2021 Annual “Wireless First” Broadband Service Provider Survey Results



EXECUTIVE SUMMARY

Wireless-first broadband service providers are confident in their ability to deliver higher performance at lower costs. With a satisfied business and residential customer base, they are expanding their service offerings to existing customers. They are also capitalizing on new opportunities in suburban and rural areas while serving their satisfied base in rural areas.

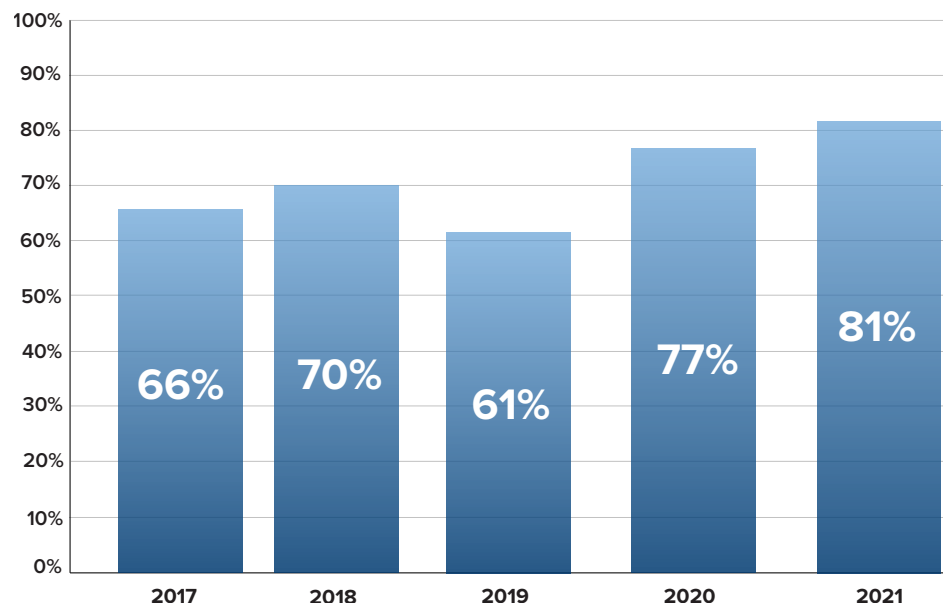
LOCAL AND REGIONAL BROADBAND SERVICE PROVIDERS

provide high-speed connectivity to business and residential customers around the world. For the fifth year in a row, Cambium Networks, a leading technology supplier to the global service provider market, has conducted a vendor-neutral, 38-question survey in July and August of 2021, collecting insights from 412 “wireless first” service provider operators located in 23 countries. These operators, with a majority of their networks using wireless technology, typically serve their local communities and may extend to regional or even national network footprints. They provide reliable streaming video, data, voice and IT services in a competitive market to their enterprise and residential customers.

In addition to providing broadband connectivity, these “wireless first” operators, commonly referred to as wireless internet service providers (WISP), are finding business success in leveraging their skills to provide additional services. In addition to offering managed services and IT support, they offer residential Wi-Fi, outdoor hotspots and video surveillance solutions; and on an increasing basis, they offer managed Wi-Fi services for enterprise and government institutions.

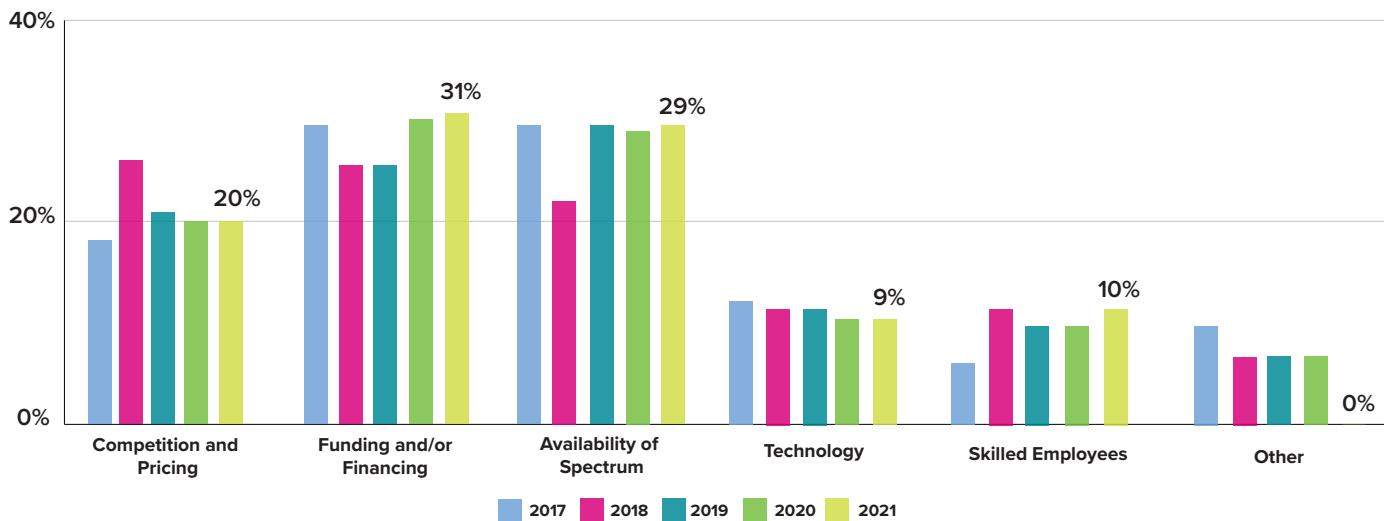
Despite the lingering COVID-19 pandemic and uncertainty in the economic climate, optimism among WISPs is at the highest level in five years. More than 80% state that they are either more or equally optimistic about the future, up from 66% in 2017. The details show their ability to rapidly adapt to changes in demand and technology. They are fundamentally confident in their ability to acquire and retain satisfied business and residential customers by offering reliable service at reasonable prices. They are comfortable being early adopters of wireless technology and quickly develop and share best practices as they make the most of new spectrum. New spectrum includes the Citizens Broadband Radio Service (CBRS) in the United States and 60 GHz frequency band globally, which cement WISPs’ reputations for providing reliable service at competitive prices.

WISP Overall Optimism



Expanding Coverage Faster Than Competition

Constraints to Growth



ECONOMIC UNCERTAINTY AFFECTS these service providers and their business and residential customers. The essential nature of broadband given the work-, learn-, and play-from-home environment and the need for connectivity for business continuity favors service providers who deliver reliable connectivity. End customers are indifferent to the technology used in the network, and these operators have chosen technology with a favorable cost structure over the long term.

Among the challenges which may affect growth, funding and financing rank as the highest concern with RF spectrum availability close behind.

RF spectrum is a limited resource and essential to operating a wireless network. All of the operators are developing plans to capitalize on the opening of the 6 GHz spectrum in 2022. Currently, 5 GHz is the most popular among these operators. The 2022 planned availability of new 6 GHz spectrum is an exciting opportunity for expansion.

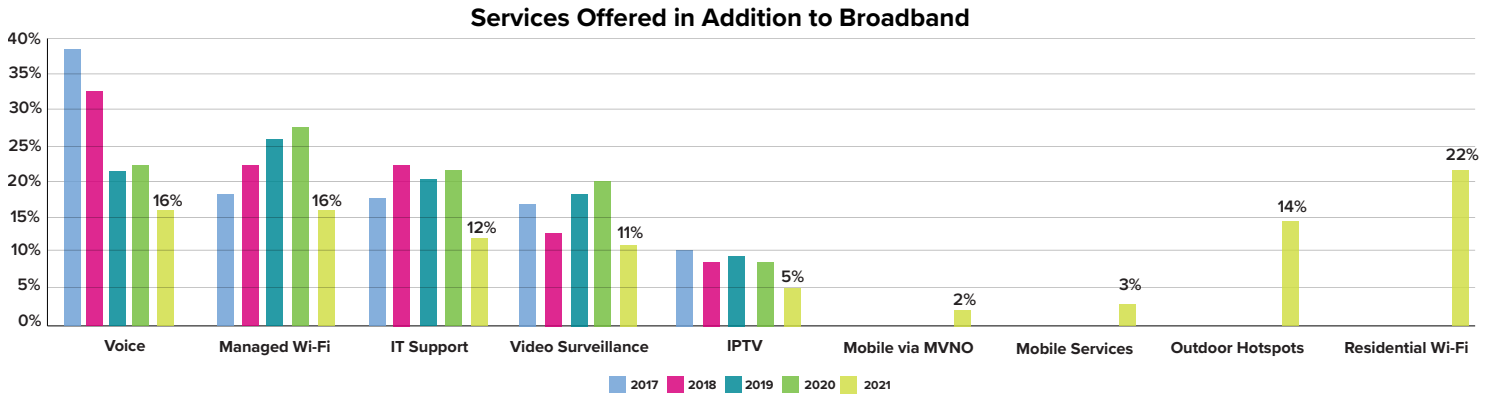
Competition remains important, but it is third most important. This bears out in the sequential decline of their view of competition as being a constraint to growth. While competition exists, they feel that with spectrum and financing, they know how to focus on their target customers and win.

It is also interesting to note the sequential decline in technology as a constraint to growth. Manufacturers serving the industry have continued to innovate and provide technology solutions that allow WISPs to economically and technically meet the needs of their growing business and customer base. The advent of gigabit wireless networking at the edge using 60 GHz spectrum is a good example of the industry’s innovative spirit. These operators are early adopters of this technology. With many successful successful proof of concept trials under their belt, they are now in the midst of planning deployments for 2022.

Many industries are currently challenged to find skilled technicians. More than two thirds of these WISPs have fewer than 10 employees. So, losing a skilled technician would impact the business. The small rise in the concern of availability of skilled technicians demonstrates that these operators know how to train and retain skilled talent. Also, many of these operators are improving efficiency in planning, installing and managing wireless networks. This adoption of automation and efficient equipment enables them to maximize productivity of their existing skilled talent while limiting their need to to add labor as their network scales.

Expanding Service Offerings to Satisfied Customers

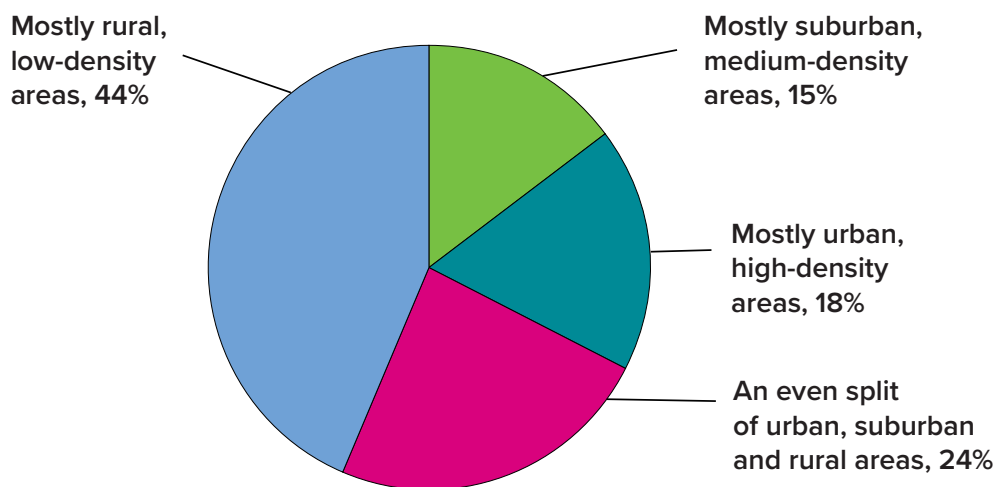
THESE ENTREPRENEURIAL OPERATORS are finding success in expanding service offerings. 16% are offering managed Wi-Fi, voice, IT support and video surveillance services. They are also adding residential Wi-Fi and outdoor hotspots, and some are even moving into offering mobile services.



Rapidly Increasing Coverage to Satisfy New Markets

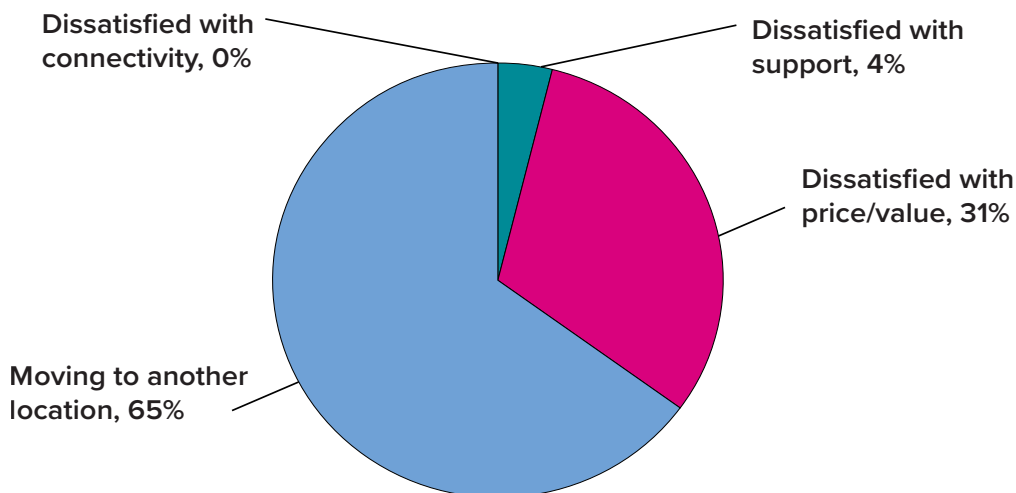
THE TRADITIONAL MARKET FOR WISPS is rural residential service. While 44% provide coverage in rural, low-density areas, 24% provide services in areas with an even split of urban, suburban and rural communities. As 28 and 60 GHz millimeter wave technology has become available, with many trials and early deployments in 2021, coverage in urban areas has climbed from 15% to 18%. On the aggregate, it shows that these operators are becoming equally adept at providing connectivity in urban, suburban and rural applications.

Which of the Following Best Describes the Coverage Area?



The trend in customer cancellations reveals a high level of customer satisfaction. While price, value and support appear as reason for cancellation, the large majority of customers cancelling service do so because they are moving to another location. This is evidence that these operators know their technology and how to compete and win in the marketplace.

When Customers Cancel, What Is the Most Frequent Reason?



Looking Forward to 2022

MORE THAN 66% OF THESE OPERATORS HAVE FIBER in their network. Many are finding that hybrid fiber and wireless networks give them the ability to offer the optimal combination of performance and price for business, industrial and government end customers. Simultaneously, this combination also enables affordable yet high quality connectivity experiences to their legacy residential customers who now have dozens of devices at home and are using the home as an office and education environment.

These providers are comfortable being early adopters of new technology. In this last year, they have led the way in:

- Proving CBRS frequency bands in the United States and managing spectrum access
- Demonstrating multi-gigabit speeds over wireless for business and residential applications
- Extending municipal networks with gigabit-speed wireless connectivity
- Closing the homework gap with innovative solutions that are rapidly deployable
- Demonstrating that region-wide rollouts of effective solutions can bridge the digital divide and be implemented in a matter of months

In 2022, we expect to see these operators continue to leverage their ability to provide reliable connectivity at affordable prices. This will enable them to expand to offer more turnkey services to enterprise, industrial and municipal markets while extending services for home office applications. Most significantly, we see rapid and efficient use of RF spectrum as 6 GHz frequency bands become available.

ABOUT CAMBIUM NETWORKS

Cambium Networks delivers wireless communications that work for businesses, communities and cities worldwide. Millions of our radios are deployed to connect people, places and things with a unified wireless fabric that spans multiple standards and frequencies of fixed wireless and Wi-Fi, all managed centrally via the cloud. Our multi-gigabit wireless fabric offers a compelling value proposition over traditional fiber and alternative wireless solutions. We work with our Cambium certified ConnectedPartners to deliver purpose-built networks for service provider, enterprise, industrial, and government connectivity solutions in urban, suburban, and rural environments, with wireless that just works.