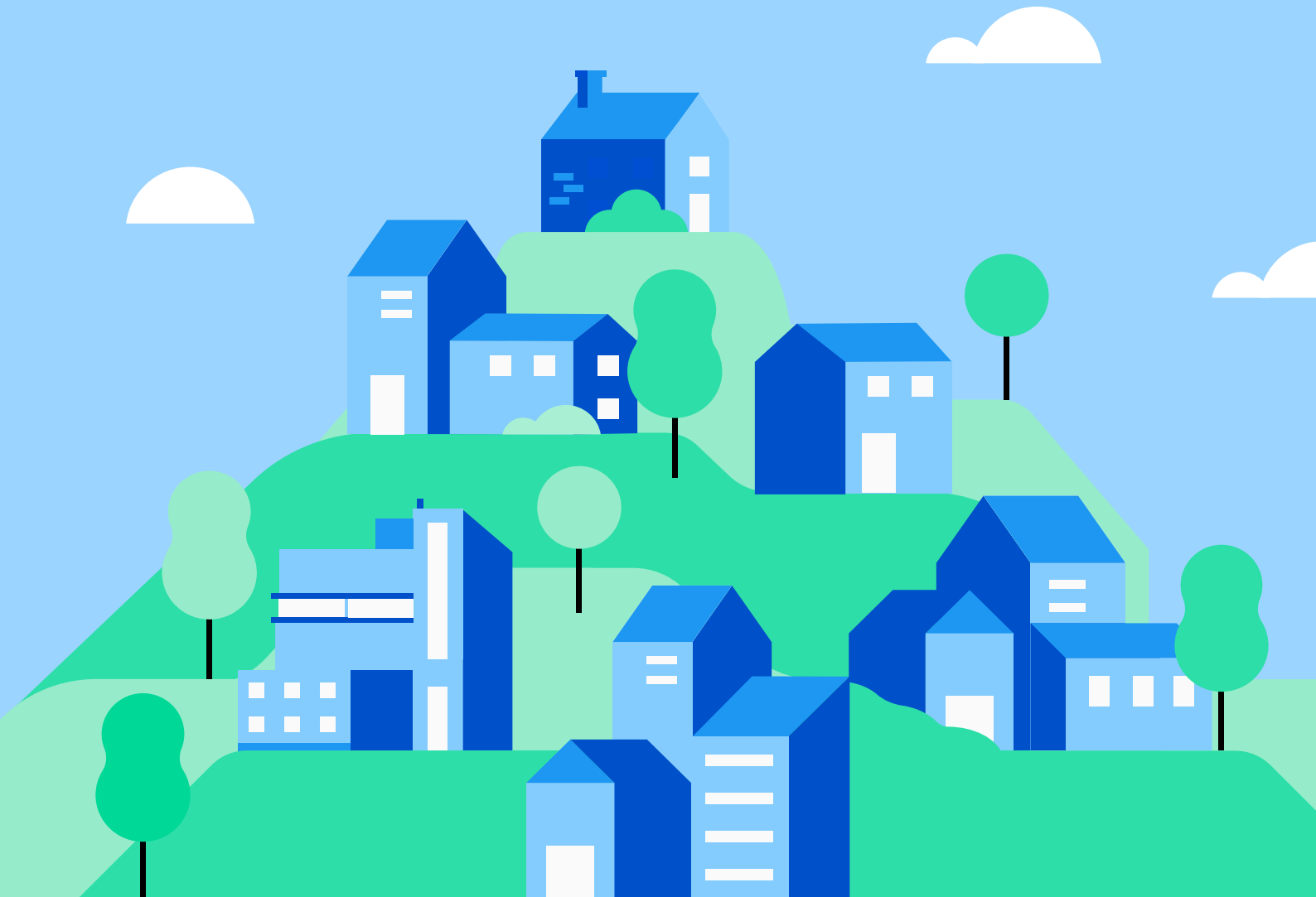




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Capturing the 5G FWA opportunity: A household view



Methodology

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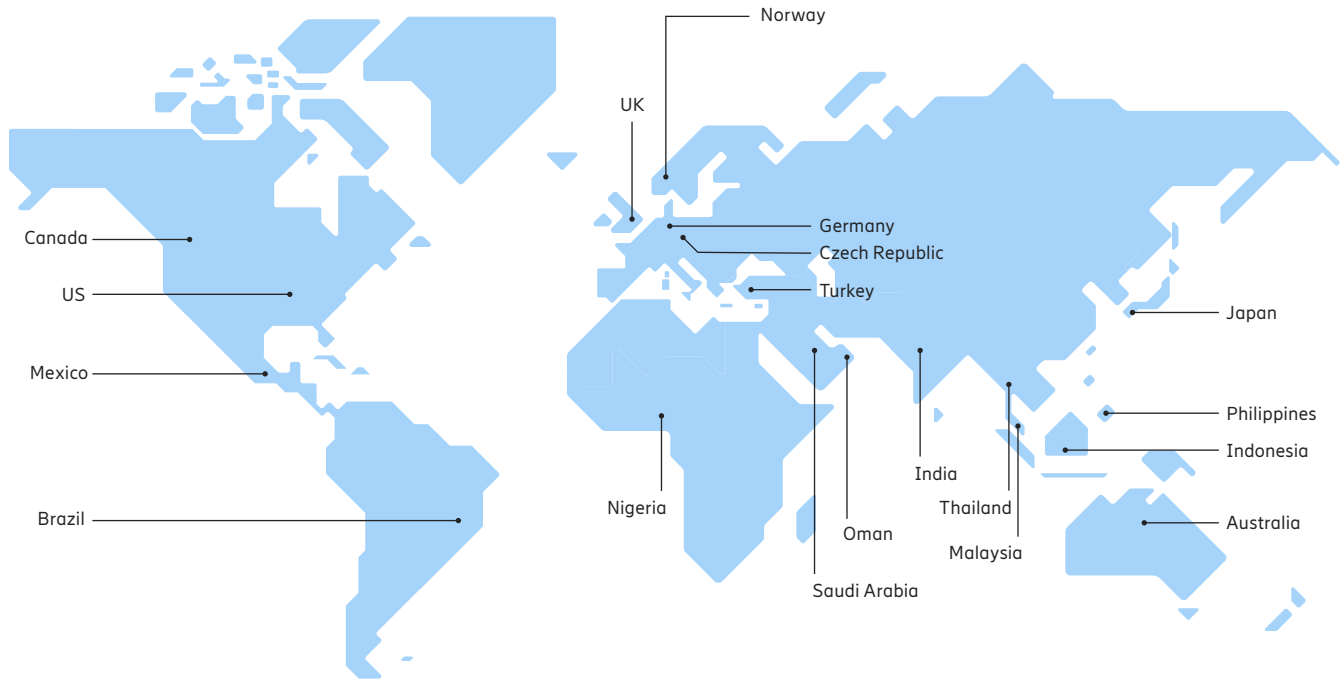
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This Ericsson ConsumerLab study explores the current stage of home broadband internet and delves into the status of Fixed Wireless Access (FWA) connectivity for households with both 4G and 5G. It examines consumer connectivity needs, satisfaction with existing broadband solutions and future demands and potential, as well as perceptions and views on FWA to fulfill these requirements. Unless specified, when FWA is mentioned in the study it refers to both 4G and 5G FWA households.

Spanning 19 countries, this research is unique in its scale, diversity and comprehensive approach to understanding households' internet connectivity.

It focuses on how various stages of home broadband internet development across different markets influence consumer choices and perceptions, emphasizing the importance of diversity and variety of needs across, and within each of these markets. The FWA opportunity is analyzed within the unique home broadband internet context in each market.





19

The study covers
19 countries.

23K+

A total of 23,700
respondents were
interviewed globally.

370m

The study represents
370 million households.

1.2bn

A total of 1.2 billion
people are represented
in the study.

5G FWA is a growing solution for home broadband connectivity, and the markets analyzed in this research cover three FWA adoption stages. The first comprises countries with minimal or no 5G FWA (India, Nigeria, Indonesia, Brazil, Thailand, Mexico, Malaysia and Turkey). In the next stage are countries with best effort¹ 5G FWA (Canada, Germany, Japan, the Czech

Republic, the UK and the Philippines). The final stage is countries in advanced stages toward large-scale, speed-based² 5G FWA rollouts (Oman, Norway, the US, the Kingdom of Saudi Arabia (KSA) and Australia).

The research was undertaken online, between August and October 2023. Surveys were conducted with 23,700 respondents

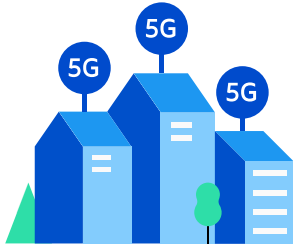
aged between 15 and 65, residing in households where the internet is used daily. Respondents are either decision-makers with influence on their household connectivity or with overall knowledge of internet usage by other members of their household. The study equates to a global representation of 370 million households that are home to 1.2 billion individuals.

¹ Best effort is defined in the Ericsson FWA handbook 2023 as a nomadic indoor device (CPE) with mobile broadband-like device handling. Typically, volume-based price plans (for example, GB bucket per month).

² Speed-based 5G FWA is defined in the Ericsson FWA handbook 2023 as a managed device (CPE), indoor or outdoor. Price plan based on sold data rate. Subscription tied to known location.

Key findings

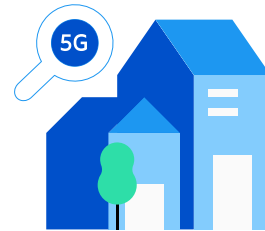
01



Once proven, 5G FWA is chosen for main household connectivity

A belief that 5G network performance is on par with fiber is motivating households that have tried, tested and proven the benefits of 5G FWA to opt for it as their main connectivity, with 7 in 10 purchasing 5G FWA as a full replacement for their previous means of connectivity.

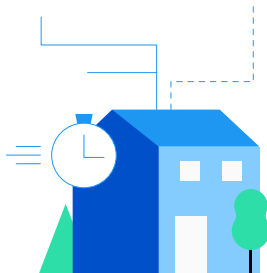
04



Six distinct segments for future uptake of FWA

Households expressing interest in FWA are not a homogeneous group in terms of their needs. Rather, they have indicated a wide range of requirements when selecting FWA. This is reflected in the six needs-based segments presented in this study. The segments, which are available in all markets, are impacted in size by the prevalent market conditions and the socio-demographical situations of households.

02



FWA's drive to committed speed

The key driver for households when opting for FWA is a need for high speed. However, one in three households believe that wired is superior to wireless in terms of speed, which is a barrier to FWA adoption and indicates a need to ensure the committed speeds of FWA offerings.

05



FWA offering: Versatile positions, limitless opportunities

Household interest in FWA as a preferred connectivity offering provides a growth opportunity for service providers to capture. Three offerings are proposed, leveraging the adaptability of FWA, for service providers to consider:

- **Value-based offerings**, suitable for price-sensitive household segments.
- **Performance-based offerings**, recommended for households prioritizing upgrades of current connectivity offerings.
- **Customization-based offerings**, recommended for households that prefer to be able to customize their offerings.

03



Convenience is the main advantage of FWA

Many households indicate that FWA outperforms wired connectivity solutions in terms of flexibility, customization, and ease of installation, with convenience as the notable key differentiator for FWA as a connectivity offering.

5G FWA set to become one of the preferred types of household connectivity

When looking at home broadband internet connectivity on a global level, variations can be seen in the level of connectivity achieved both within countries and between different countries.

Some countries have a high deployment of fiber connectivity on a national level, with certain rural areas lacking the same level of access to reliable connectivity. However, in some countries impacted by the digital divide the large majority of homes lack access to broadband internet connectivity. Globally, over 1 billion households (close to 50 percent of the population) are underserved in terms of access to fast and reliable broadband.³

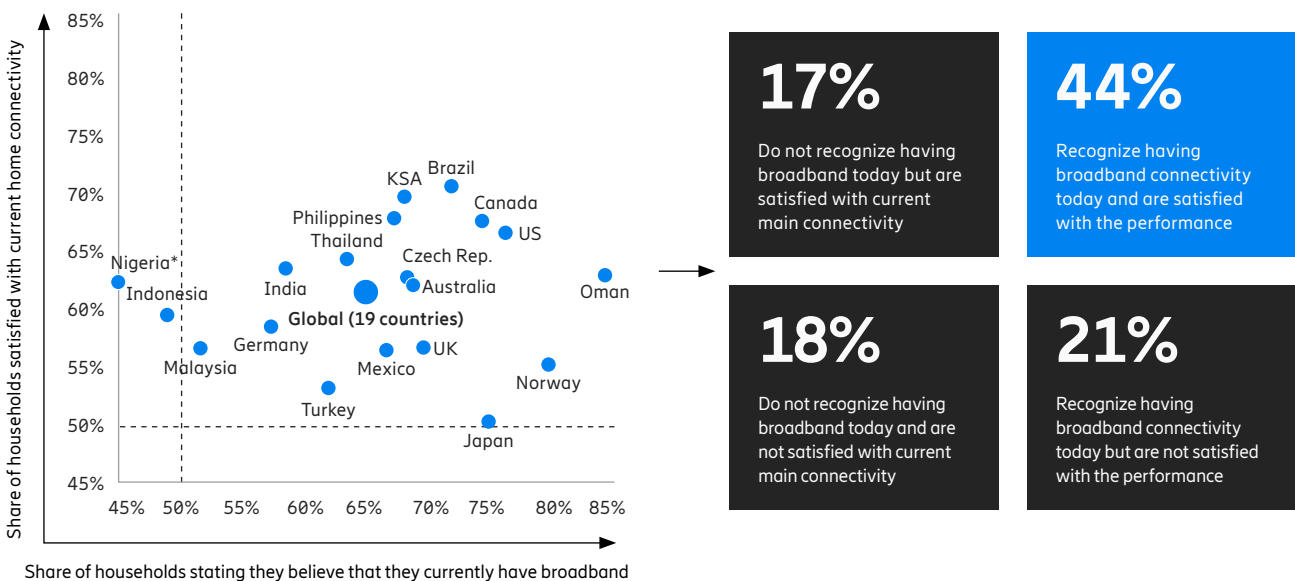
Despite the connectivity differences between countries, several observations can be noted when looking at the global satisfaction levels among households

with their current connectivity. As shown in Figure 1, around two in three of the households surveyed state that they have a broadband connection at home. The majority of them are satisfied with their current connectivity, which can be interpreted as 44 percent of all households already having a relatively fast, stable and – in their opinion – suitable working type of broadband at home. Therefore, any broadband provider seeking to attract these households with a new offer needs to be able to put forward a fully comparable proposition in all aspects.

On the other hand, Figure 1 also shows that 56 percent of households today claim that they either lack broadband connectivity and/or are less satisfied with their current solution. This indicates good potential for FWA service providers to compete on a large scale for these households.

From an FWA perspective, understanding the overall broadband internet satisfaction levels of households in various countries – and different areas within these countries – provides opportunities to understand how and where to best position 5G FWA offerings to capture potential growth.

Figure 1: Two in three households state that they currently have fixed broadband



*Nigeria 23% (currently placed on lowest X-value to fit into graph)

Source: Ericsson ConsumerLab FWA-study 2023/2024.

Base: Household with at least 1 person aged 15–69 using internet at home for over 1h/day within 19 countries (Australia, Brazil, Canada, Czech Republic, Germany, India, Indonesia, Japan, Malaysia, Mexico, Nigeria, Norway, Oman, Philippines, KSA, Thailand, Turkey, UK and US).

³ Source: Ericsson analysis based on Strategy Analytics data, 2022.

Looking at the types of connectivity used by households, 4 in 10 households stated that they rely on tethering or MiFi as their main connectivity medium in the home. The study has noted that mobile tethering is more prevalent in countries in the early stages of broadband deployment while less so in countries with well-deployed broadband connectivity. In Nigeria, for example, 8 in 10 households state that they mainly rely on mobile-centric connectivity access, while the equivalent figure in Norway is 3 in 10 households.

Factors to consider in this regard are firstly households feeling comfortable with wireless and opting to rely on tethering to access connectivity, and secondly households having a sense of trust in and knowledge of wireless capabilities. Both factors present a stand in favor of FWA as a technology that enables fiber-like speeds but also as being a contributor to digital inclusion.



Once proven, 5G FWA is becoming the main connectivity

Households believe 5G FWA achieves fiber-level performance and are more satisfied with the service experience than for fiber.

Compared to fiber, households were more satisfied with 5G FWA in terms of service experience factors such as delivery time, contract conditions, equipment quality and cost level. For network performance factors (speed, indoor coverage, security and capacity) satisfaction among households with 5G FWA was on a par with fiber. There was a notable difference when compared to households using 4G FWA, in which satisfaction expressed was lower for both the service and network areas relative to 5G FWA and fiber.

Differences are also apparent between countries, which are driven by the unique home broadband internet market and competitive situation, as well as the stage of the 5G FWA adoption. Within countries, differences in perception regarding

connectivity performance can be seen more meaningfully in the context of household locations.

Households in rural areas can be seen to have the highest satisfaction rates, followed by those living in metropolitan areas, while households living in smaller cities indicate the lowest rate of satisfaction. The satisfaction shared by households in rural areas highlights the important role that 5G FWA plays as a contributor to bridging the digital divide, by giving households the chance to enjoy reliable connectivity with fiber-like speeds.

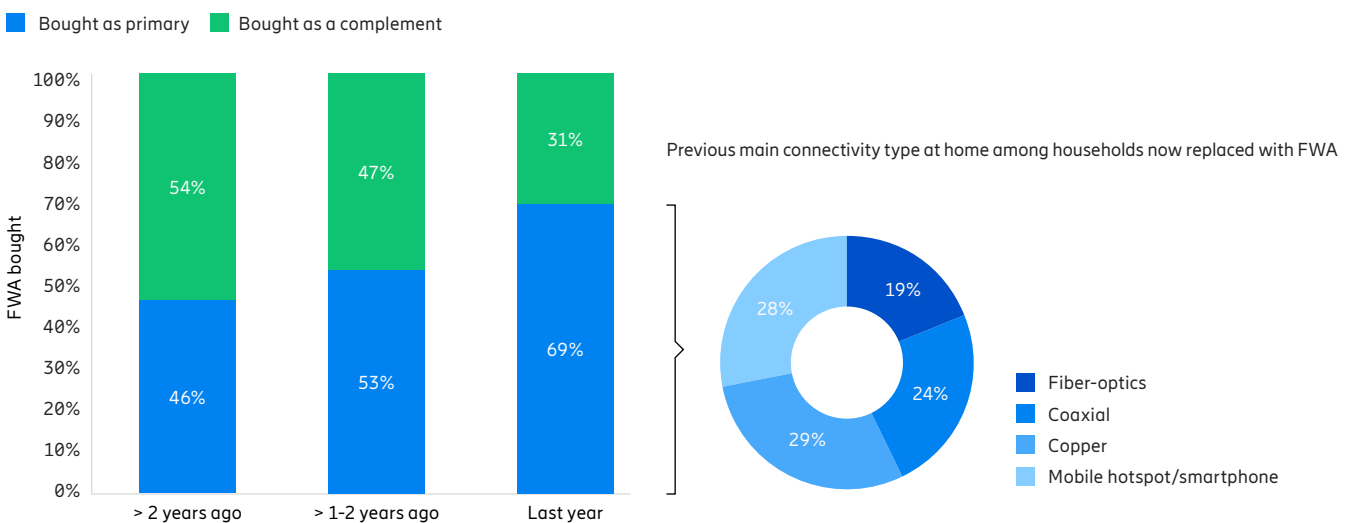
5G FWA emerges as the leading broadband choice for households

Appreciation is increasing among households that are using FWA, with 7 out of 10

households using 5G FWA stating that it has become their primary connectivity in the home. Figure 2 shows how this sentiment is reflected across the board in countries included in the study, with the current uptake of 5G FWA not replacing a specific type of connectivity, but rather replacing all types of connectivity in line with the prevalent types available in the respective markets.

Satisfaction levels expressed by households – and their commitment to FWA and the enhanced capabilities that 5G FWA brings – serve to support the view FWA is a booster for enhanced connectivity, as it enables households to enjoy better and more reliable connectivity, particularly in less-connected markets, but also in poorly-connected areas within well-connected markets.

Figure 2: 5G FWA is becoming the primary means of connectivity



Source: Ericsson ConsumerLab FWA-study 2023/2024.

Base: Household with at least 1 person aged 15–69 using internet at home for over 1h/day having FWA today within 19 countries (Australia, Brazil, Canada, Czech Republic, Germany, India, Indonesia, Japan, Malaysia, Mexico, Nigeria, Norway, Oman, Philippines, KSA, Thailand, Turkey, UK and US).

Households with FWA are keen to continue using FWA as their preferred means of accessing the network.

This enthusiasm for FWA among users is highlighted by the fact that fewer than 1 in 10 households using 5G FWA would consider terminating their subscription within a year.

This commitment to, or preference for, the solution provided by FWA does not only pertain to markets with 5G FWA but also to markets where 4G is still present to a certain extent. In households currently using 4G FWA, a total of two in three have stated they will continue using connectivity enabled by FWA and will upgrade to 5G when it is available in their area/region. This indicates two important points: Firstly, FWA is popular with households and secondly, 5G is an appealing factor for maintaining FWA.



7 in 10

Of households using 5G FWA, 7 in 10 say it has become their primary connectivity.

1 in 10

Among households using 5G FWA, fewer than 1 in 10 would consider terminating their subscription within a year.

2 in 3

Two-thirds of households using 4G FWA have stated they will continue using connectivity enabled by FWA and will upgrade to 5G when it is available in their area/region.

The importance of awareness of FWA capabilities and committed speeds

A “need for speed” is the key driver for households when opting for any new broadband connectivity, and naturally this also applies to FWA.

While speed is a driver for FWA, a barrier is the perception of households that wired offerings provide greater consistency and stability, with one in three believing that wired is superior to wireless in terms of speed. This indicates a need to ensure speed-based FWA offerings, given that 70 percent of FWA offerings in the market are still best effort. Looking at household awareness of FWA globally, half of the households surveyed did not know what FWA is, and one-quarter had heard the term but were unaware of any providers.

The widespread lack of awareness about FWA capabilities as a solution is notable, with 40 percent of households surveyed stating they are unable to take a clear stand of whether it is better to have FWA or fixed broadband (wired connectivity implied) in terms of speed, reliability and data

capabilities. This can be seen in Figure 3. Interestingly, households in mobile-centric markets with limited 5G FWA have indicated a higher awareness of FWA compared to households in markets with well-deployed fiber connectivity. In India, 1 in 3 households are unaware of the benefits of FWA, while 3 in 10 are aware of FWA, but unaware of providers supplying FWA. A similar situation can be seen in Indonesia, where half of the households are not aware of FWA as a technology, while 4 in 10 are aware of FWA but, again, are unaware of any FWA providers.

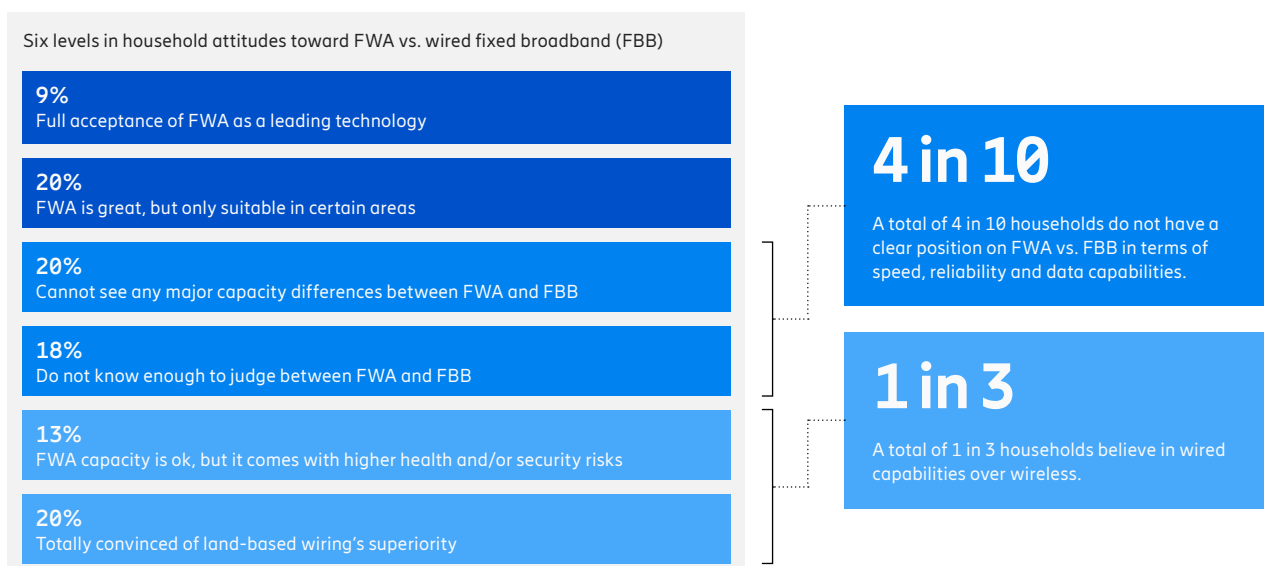
In Norway – a market in the advanced stages toward large-scale, speed-based 5G FWA – a total of 6 in 10 households state they are not aware of FWA as a technology, while 1 in 4 households are unaware of

FWA providers. A similar pattern can be seen in Japan, where 7 in 10 are unaware of the technology, and 4 in 10 are aware of FWA technology, but unaware of FWA providers.

Even if it is clear that households want fast and reliable broadband, the lack of awareness and knowledge of FWA as a solution to address these needs is evident (the respondents in the study were presented with a definition and images to describe the FWA service). Major reasons for a lack of awareness include:

- FWA is still a new/early offering.
- 5G deployments and coverage are still growing.
- 50 percent of FWA offerings are 5G-based.
- FWA-eligible areas (and advertising) are restricted to 5G coverage/capacity.
- Converged service providers often do more to mass promote fiber compared to FWA.

Figure 3: Perceptions of FWA need to be strengthened



Source: Ericsson ConsumerLab FWA-study 2023/2024

Base: Household with at least 1 person aged 15–69 using internet at home for over 1h/day within 19 countries (Australia, Brazil, Canada, Czech Republic, Germany, India, Indonesia, Japan, Malaysia, Mexico, Nigeria, Norway, Oman, Philippines, KSA, Thailand, Turkey, UK and US)

Convenience is the clear advantage of FWA

Reasons given by households for considering acquiring FWA are diverse and varied. They encompass customer experience, offering, performance, reliability, overall ease and convenience.

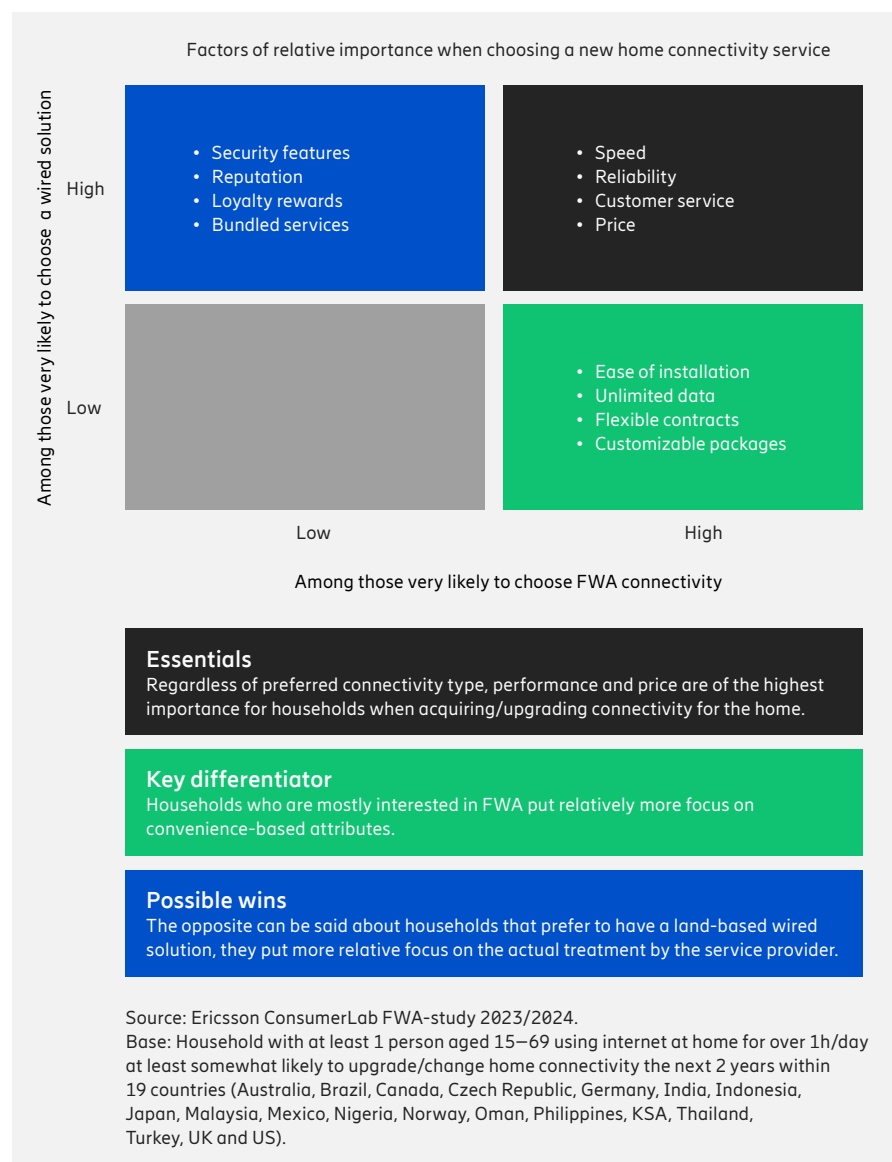
As with any other connectivity type, households that have acquired FWA have described speed, reliability and price as essential considerations, but the main advantage that FWA provides over other connectivity technologies is convenience. A common sentiment echoed by households that have or plan to acquire FWA was the appeal of the convenience of FWA as a solution. This is shown in Figure 4.

Ease of installation was highlighted as a contributor, with a consensus of 50 percent of households stating installation was uncomplicated. A balanced approach to installation was described, with an even split in which half of households opted to do it themselves and the other half relied on external support from technicians.

50%

Half of households in the study said their FWA installation had been uncomplicated.

Figure 4: Priorities when choosing a new home connectivity service



Home broadband is very local, and as expected, there are clear differences in priorities for choosing FWA in this regard. Looking at if and how the location of households might impact their reasons for acquiring FWA, the answer is that there are indeed clear differences in reasons for choosing FWA, as shown in Figure 5.

Drivers arising from the variance in locations of residences indicate the following findings:

- In metropolitan/large cities, drivers pertain to the various offerings provided by FWA.
- In smaller cities/villages, drivers indicate it was the only option available to select between various connectivity offerings.

A positive indication by households residing in metropolitan areas/large cities is that they selected FWA despite the availability of other broadband connectivity options. Looking at households in small cities, towns, or rural areas, they indicate the relative driver was that FWA is the only choice available in their area of residence, followed up by bundling options, positive experience and easier installation. Even though their primary driver was the fact that FWA was the only option available, households selecting FWA indicate a keenness to have access to reliable connectivity that might not be possible with the use of tethering/MiFi, reiterating the role of FWA as a contributor to bridging the digital divide.

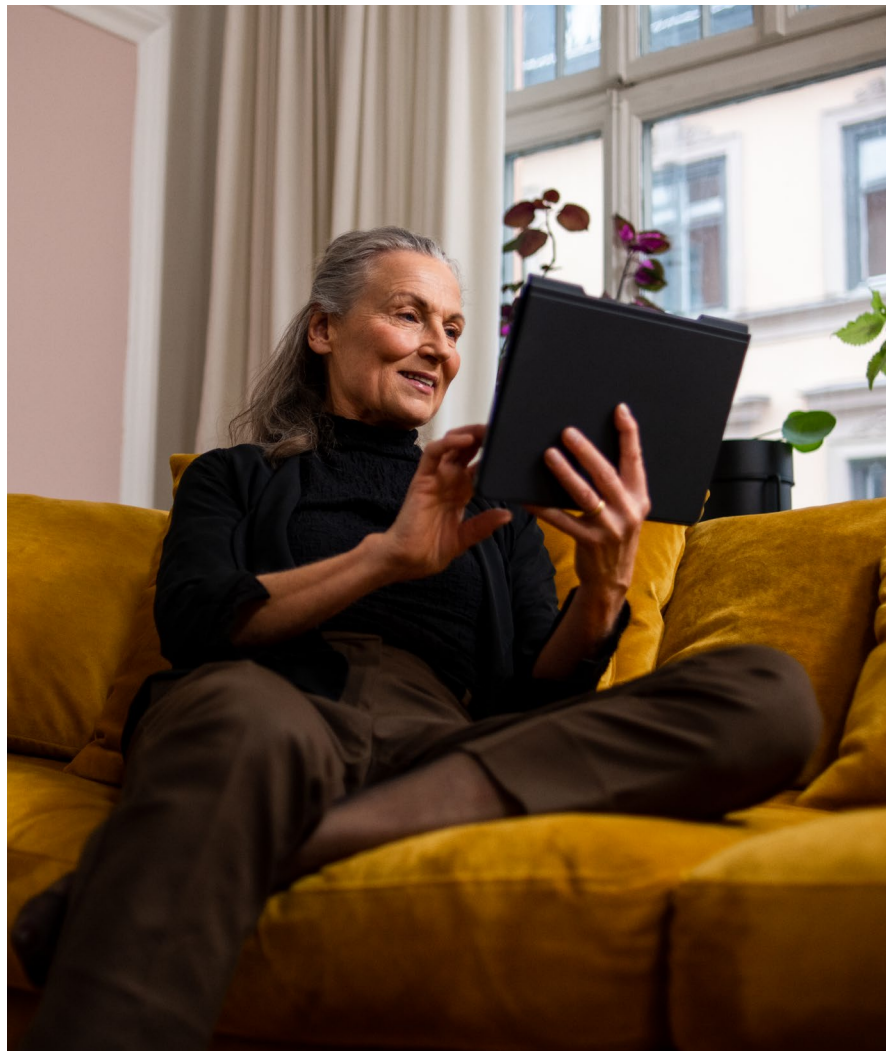
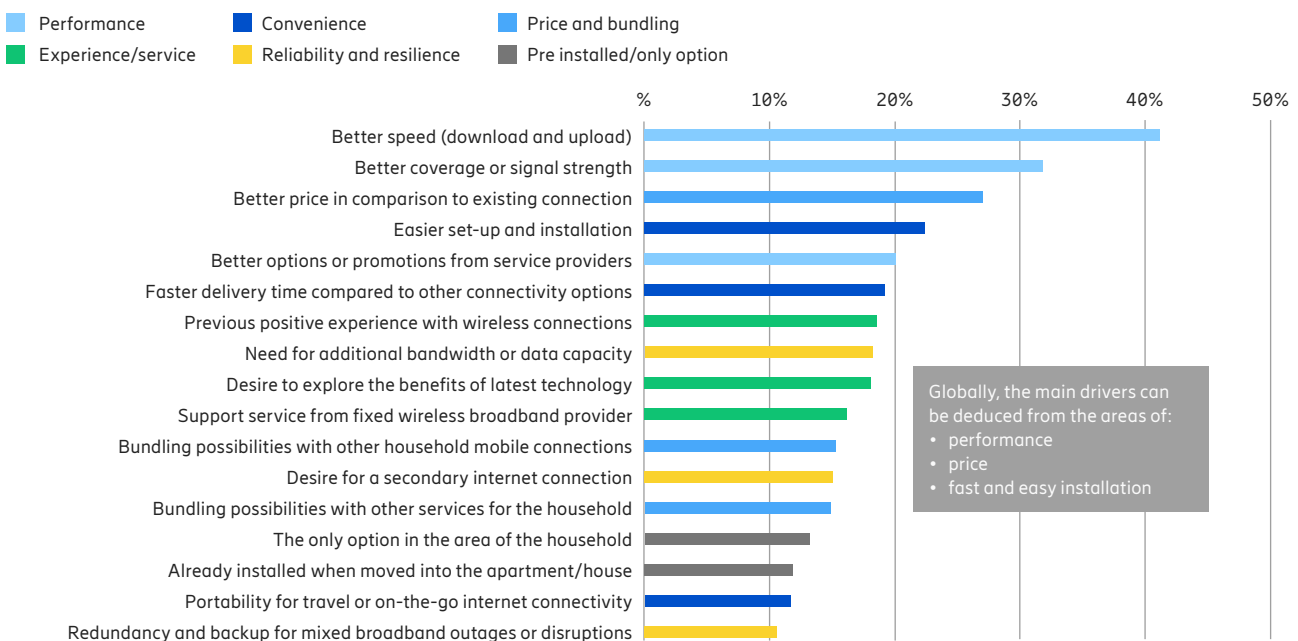


Figure 5: Range of reasons for households choosing FWA

Share of households mentioning each reason why they acquired FWA



Source: Ericsson ConsumerLab FWA-study 2023/2024.

Base: Household with at least 1 person aged 15–69 using internet at home for over 1h/day having FWA today within 19 countries (Australia, Brazil, Canada, Czech Republic, Germany, India, Indonesia, Japan, Malaysia, Mexico, Nigeria, Norway, Oman, Philippines, KSA, Thailand, Turkey, UK and US).

Interest in 5G FWA and willingness to pay extra varies across regions

For service providers, an understanding of the growth opportunities of FWA unlocks tangible opportunities to address the variety of stated household needs.

A recurring interest highlighted by households is the need for availability of information about FWA, its capabilities and the providers of FWA in respective markets. Among households with knowledge of the benefits of FWA, 43 percent have indicated an interest in acquiring FWA, with the number of households increasing to 50 percent when informed about potential providers in respective locations and the availability of suitable solutions to their connectivity needs.

Interest from households willing to acquire FWA does not rely solely on their stated interest in the FWA offering.

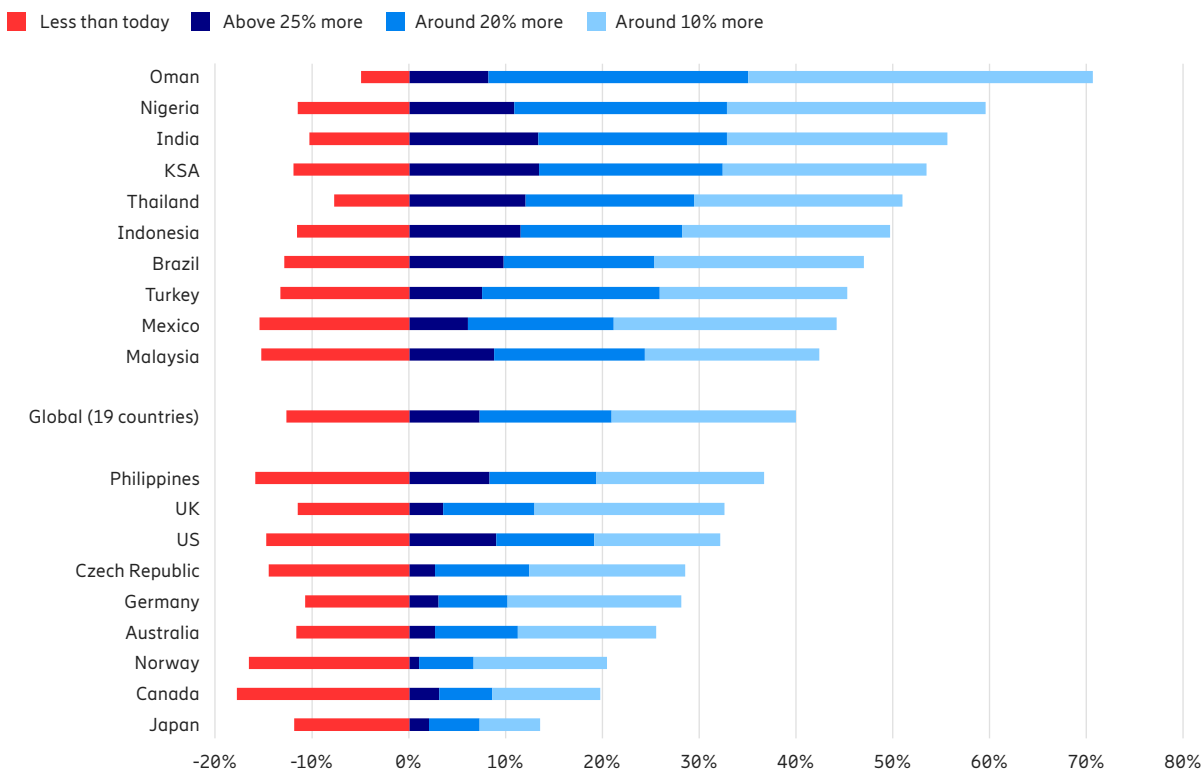
Willingness to pay is also a factor that has been considered, as can be seen in Figure 6, which shows that, globally, for households with stated interest in 5G FWA a total of 2 in 5 are willing to increase their monthly connectivity payment by 10 percent or more to get 5G FWA.

Despite notable regional differences in levels of households indicating a willingness to pay, it is generally market conditions that steer households' attitudes on how much they are willing to pay to get 5G FWA compared to their current connectivity.

2 in 5

Of households interested in getting 5G FWA, 2 in 5 are willing to increase their monthly connectivity payment by 10 percent.

Figure 6: Willingness among households to increase monthly connectivity payments to get 5G FWA



Source: Ericsson ConsumerLab FWA-study 2023/2024.

Base: Household with at least 1 person aged 15–69 using Internet at home for over 1h/day interested in FWA within 19 countries (Australia, Brazil, Canada, Czech Republic, Germany, India, Indonesia, Japan, Malaysia, Mexico, Nigeria, Norway, Oman, Philippines, KSA, Thailand, Turkey, UK and US).

Six distinct segments for future uptake of FWA

The interest in FWA expressed by households – and their stated willingness to pay for it – indicates potential growth to be captured in the FWA market.



By addressing the wide range of household needs, service providers can pave the way to capturing the growth opportunity of FWA. Based on this, the following six distinct and differentiated household segments were identified, with the sizes of these household segments impacted by overall market conditions, the state of overall connectivity, current connectivity to the home and the stage of FWA rollout in different countries in which the households are located.

- 1. Price pushers:** Households driven by ensuring they get the best price for their offering. Globally, the households prevalent within this segment are those with older members, whether couples or individuals. Households located in metropolitan areas and suburbs are particularly reactive to price as a stated need.
- 2. Mobile champions:** Households opting to have all their offers with the same service provider. From a global perspective, this segment mostly features nuclear families with younger household members and households residing in small town houses.
- 3. Connectivity upgraders:** Households opting to join the “reliable connectivity club” and seeking to upgrade their current connectivity. They opt to secure the reliability of stable connectivity and high speed. Reliability is indicated as the most important need for households residing in small cities and rural villages, but also in rented apartments.
- 4. Capacity upgraders:** Households seeking to enhance connectivity on all fronts to benefit from speed, capacity and coverage, as well as premium customer service. Around the world, multigenerational households are the largest group within this segment, indicating the need to increase speed and capacity due to multiple users in households needing to access the internet for different purposes, either at different times or simultaneously.
- 5. Bundling seekers:** Households that are attracted by any opportunity to bundle and obtain good offers, speeds and flexibility. Globally, nuclear families and single-member households are relatively more dominant in this segment. Households located in metropolitan centers show the strongest demand for bundling options and opportunities.
- 6. Convenience seekers:** Households that require flexibility in their offerings and prioritize ease in the process of securing reliable speeds. This segment is prominent globally in both single households and households with both young and old members.

Household segments vary across regions

The size of household segments within countries in the initial stage of FWA rollout is dictated by market conditions.

Looking at the household segments in countries in the initial stage of FWA rollout, it is apparent that countries where broadband services are emerging have a higher number of households within the **Capacity** and **Connectivity** segments.

Household segments in these markets are keen on enhancing the performance of connectivity to their homes, either by having the option to move from tethering to reliable access and fiber-like speeds by acquiring FWA, or that they are seeking to enhance their existing connectivity by increasing capacity. A notable example is

Nigeria, where 34 percent of households are in the segment for **Capacity upgraders**, followed by 25 percent in the **Connectivity upgraders** segment.

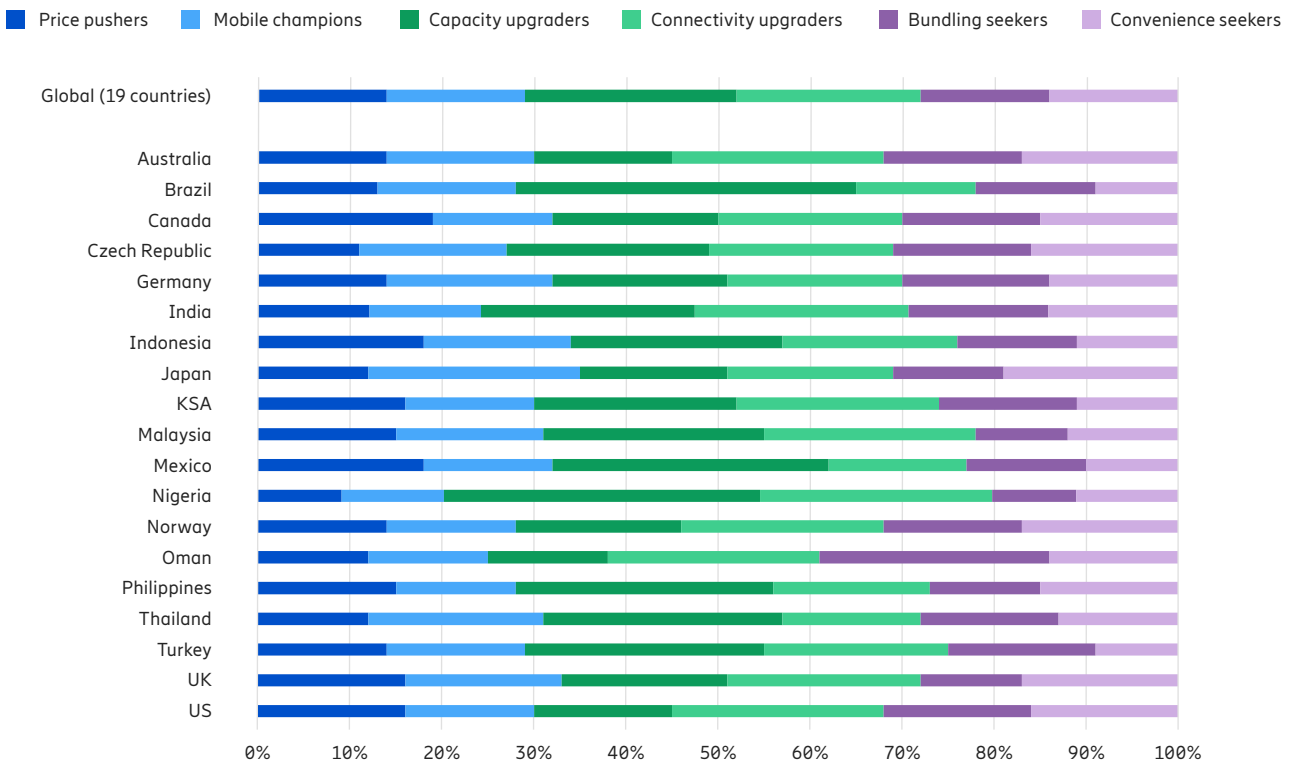
There is also variation among countries in adoption with regard to a large-scale, speed-based 5G FWA stage. Firstly, they vary between connectivity maturity, widespread access to high-speed internet and the topography of the market. The general indication is these markets would be household segments keener to seek customization of offering and bundling or the benefits of convenience.

In the US, the leading household segment is **Connectivity upgraders**, with 23 percent of households being in this category. Norway, which is at the same stage of FWA rollout as the US, has a similar level of **Connectivity upgraders** with 22 percent of households belonging to this segment.

Although its stage of FWA rollout is aligned with the US and Norway, Oman differs in size of dominant segment, with **Bundling Seekers** being the biggest segment at 25 percent.

In summary, market conditions dictate the segment size, as illustrated in Figure 7.

Figure 7: Regional conditions dictate the sizes of household segments



Source: Ericsson ConsumerLab FWA-study 2023/2024.

Base: Household with at least 1 person aged 15–69 using Internet at home for over 1h/day having and/or being interested in FWA within 19 countries (Australia, Brazil, Canada, Czech Republic, Germany, India, Indonesia, Japan, Malaysia, Mexico, Nigeria, Norway, Oman, Philippines, KSA, Thailand, Turkey, UK and US).

FWA offers versatile positions and limitless opportunities

This report highlights how FWA is attracting extensive interest across household segments and indicates its growth potential. The question is, what is the best way forward?

The answer is not a simple one. This is because there is no one specific way to capture the growth potential as indicated by the interest from households, rather it should be a localized approach. Therefore, the key to unlocking the growth potential of FWA lies with the strategy selected by service providers with regard to implementing their FWA offerings.

One effective approach is for service providers to consider a balanced approach that meets the requirements of the six household segments identified in this study, taking into consideration their stated connectivity needs, as well as addressing the segments based on whether their main driver is value, performance, or customized offerings.

For service providers aiming to cater to households seeking value, applying a value-based offering could be a way of appealing to more price-sensitive households, such as the **Price pushers** and the **Mobile champions**. Another option is to focus on ensuring low-price FWA offers, but potentially bundling offers as an attractive way to capture a wider range of households.

To address the needs of households indicating a requirement for enhanced performance, service providers could focus on providing a performance-based offering. This addresses households in the **Capacity upgraders** and **Connectivity upgraders**, as both household segments indicate the need to enhance their current connectivity. A potential selling point to consider when marketing FWA to these household segments would be providing speed-tiered offerings including high-speed plans.

When addressing household segments that are seeking flexibility and convenience, a customization-based offering would be the most suitable for service providers to follow, especially when addressing the needs of **Bundling seekers** and **Convenience seekers**. Service providers could consider customizing their offers, for example fast and reliable FWA plans, as well as providing add-on paid services for entertainment (such as streaming and gaming), security features and premium customer service.

5G FWA can be positioned as a complement to fiber.

An interesting aspect for service providers to consider is the way increased consumer usage of services and experiences is creating more demand on networks. Addressing the needs of the household segments should be done within the context of the impact this could have on customer experience and the network. While this is less of an issue with the **Price pusher** segment, it is significant in terms of the needs of the remaining segments. It will be important to strike a balance between capturing growth without compromising either the network or customer experience and satisfaction in the long run.

FWA can be positioned as a complement to fiber. Not only is it a product with an opportunity to scale, but it is also an additional offering for service providers to have in their connectivity portfolios. There are various opportunities to be captured with the opening of new markets focusing on scale and increased demand for connectivity. The rise of personalized digital experiences is also creating opportunities, starting with the growth of on-demand digital entertainment (such as video streaming or gaming) that will evolve to immersive media (notably XR) and digitally connected homes. The potential growth of FWA as a means of home connectivity is evident in the number of households stating their interest in having more knowledge about the product and solutions available.

Whatever path – or paths – that service providers select for marketing FWA as a solution for the various connectivity needs, it is apparent that FWA is and will continue to be a strong contender as a connectivity solution. Not only can it contribute to bridging the digital divide, but in doing so, it will also enable households everywhere and the people within them to become part of the connected world and enjoy fiber-like speeds.

About Ericsson

Ericsson enables communications service providers and enterprises to capture the full value of connectivity. The company's portfolio spans the following business areas: Networks, Cloud Software and Services, Enterprise Wireless Solutions, Global Communications Platform, and Technologies and New Businesses. It is designed to help our customers go digital, increase efficiency and find new revenue streams. Ericsson's innovation investments have delivered the benefits of mobility and mobile broadband to billions of people globally. Ericsson stock is listed on Nasdaq Stockholm and on Nasdaq New York.

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