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5G consumer potential

Busting the myths around
the value of 5G for consumers

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Figure 1: Coverage map



Methodology

Quantitative data was collected from 22 countries. Over 35,000 online interviews were held with people aged 15–69 in Australia, Argentina, Brazil, Belgium, Canada, China, Chile, France, Finland, Germany, Ireland, India, Italy, Indonesia, South Korea, Singapore, Saudi Arabia, Thailand, Uruguay, the UAE, the UK and the US. All respondents are smartphone owners and use the internet on a daily basis. This study is representative of the opinions of 1 billion smartphone users globally.

Qualitative insights were gathered through six focus group interviews, with two each conducted in New York, US; London, UK; and Seoul, South Korea. These respondents were early adopters of tech gadgets such as smart speakers and virtual

reality (VR) headsets and were familiar with the promises of 5G.

In addition to the consumer interviews, 22 expert interviews were conducted with senior executives from telecom operators, handset and chip manufacturers, start-ups, academia and think tanks to gain a perspective on industry sentiment around the value of 5G for consumers. These were facilitated by tefficient, a telecom consulting firm on behalf of Ericsson ConsumerLab. Ericsson Consumer & IndustryLab would like to thank the individuals listed below for their valuable inputs to this study.

About Ericsson Consumer & IndustryLab

Ericsson Consumer & IndustryLab delivers world-class research and insights for innovation and sustainable business

development. We explore the future of consumers, industries and sustainable society in regards to connectivity, by using scientific methods to provide unique insights on markets, industries and consumer trends.

Our knowledge is gained in global consumer and industry research programs, including collaborations with renowned industry organizations and world-leading universities. Our research programs cover interviews with over 100,000 individuals each year, in more than 40 countries – statistically representing the views of 1.1 billion people.

All reports can be found at: www.ericsson.com/consumerlab

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The four industry myths surrounding 5G

Much of the discussion around the value of 5G for consumers has been driven by polarized opinions and myths. In this report we aim to bust the myths and reveal its potential with consumer realities.

Is there an opportunity for a premium consumer offering based on 5G's extra capabilities, or is it the enterprise and B2B space that is likely to generate the best opportunities?

Around the globe, telecom operators, industry representatives and government stakeholders are actively discussing the 5G opportunity.

However, much of the discussion in the public domain has been driven by polarized opinions and myths such as that 5G will be all about businesses and not consumers,¹ and that there are no real use cases that would be relevant for the consumer market. Such is the uncertainty that some believe 4G technology is already more than capable of doing everything consumers demand.² This has led analysts and commentators to warn that consumers are unlikely to pay a premium to access a service they don't need. These presumptions seem to have rubbed off on operators as well.

To date, smartphones have been key to driving mobile broadband technology adoption and the common presumption is that it will be the same in the 5G era.³ With the belief that 5G's potential is limited for consumers, the industry is

uncertain about the future of mobile data usage and where 5G will lead us. But not everybody is consumed by these myths; some believe that consumers are indeed the key pillar for the 5G era.⁴ Looking back into history, such uncertainty and skepticism with previous generations of mobile technology is nothing new. Even back in 2010, people predicted that 4G cellular networks might not live up to the hype.⁵ Fast forward to 2019, could anyone imagine us without 4G LTE mobile broadband networks?

As an emerging technology, there are a lot of questions surrounding 5G's potential for consumers. It is time to bring some depth and realism to the debate. This report aims to dispel four key myths around 5G:

- There are no near-term consumer benefits of 5G.
- There are no real use cases for, or price premium on, 5G.
- Smartphones are the only solution for 5G.
- Current usage patterns accurately predict future 5G demand.

We bust these myths based not only on extensive consumer research but also on opinions from experts in the ICT industry.

Common myths

"Users are very happy with their current 4G service and for them there would not be a reason to pay extra money to switch over to 5G."

Telecom analyst

"The monetization of 5G is harder. It is not like 2G, 3G or 4G. It is not going to address consumers. It needs to be more directed and steered towards enterprise use cases and enterprise solutions."

Operator CTO

Myth 1 – There are no near-term consumer benefits of 5G.

Myth 2 – There are no real use cases for, or price premium on, 5G.

Myth 3 – Smartphones are the only solution for 5G.

Myth 4 – Current usage patterns accurately predict future demand.

¹ <https://www.zdnet.com/article/5g-initial-use-cases-are-going-to-be-all-about-business/>

² <http://paulbudde.com/blog/mobile-communications/no-quick-wins-with-5g-for-telstra/>

³ <https://venturebeat.com/2019/03/06/idc-5g-phones-will-grow-from-0-5-market-share-2019-to-26-in-2023/>

⁴ <https://news.samsung.com/global/5g-is-now-part-3-interview-youngky-kim-head-of-networks-business-consumers-are-the-key-pillar-of-the-5g-era-users-will-consume-100gb-a-month>

⁵ <https://phys.org/news/2010-11-4g-cellular-networks-hype.html>

Key consumer realities

Through the insights provided by industry experts and consumers, we uncover the potential 5G holds for consumers.

Figure 2: Four common myths around 5G for consumers

Myth 1:

There are no near-term consumer benefits of 5G.



Reality

Consumers expect 5G to offer a step change in network performance, relief from urban network congestion and more home broadband choices as near-term benefits.

- Half of smartphone users in South Korea and Australia, and two in five in the US, claim mobile broadband speeds are not fast enough.
- Urban network congestion is visible to consumers in megacities; 6 in 10 in mega/metro cities globally face most issues in crowded areas and would like 5G to be deployed first in such areas.
- Consumers expect more home broadband choices; half of those interested in 5G home wireless broadband are either dissatisfied with their existing provider or lack broadband choices.

Myth 2:

There are no real use cases for, or price premium on, 5G.



Reality

Consumers see value in 5G services and expect most use cases to go mainstream within 2 to 3 years of 5G's launch – 67 percent say they are willing to pay for them.

- Consumers in the US would prefer to cut the cord from cable TV and instead use streaming services via 5G; Chinese consumers expect to live in a 5G-connected smart home; and South Korean consumers would love to go shopping in mobile VR.
- Smartphone users say they are willing to pay a 20 percent premium for 5G, and early adopters as much as 32 percent. However, higher internet speed alone won't be enough: 4 in 10 high-spenders expect new apps and services from their 5G plan.

Myth 3:
Smartphones are the
only solution for 5G.



Reality

Smartphones alone are unlikely to drive 5G adoption.

- Of those who have a recent iPhone model, 43 percent doubt whether the form factors and features of today's smartphones can best take advantage of 5G.
- Current smartphones should evolve; 4 in 10 expect foldable screens, holographic projection and 360-degree cameras as features on upcoming 5G devices.
- Globally half of all consumers agree that smartphones will still exist but that we will all be wearing augmented reality (AR) smart glasses in the next five years.

Myth 4:
Current usage patterns accurately
predict future demand.



Reality

Consumers themselves predict massive changes in future usage on 5G, with video consumption set to peak.

- Three hours' more video content will be consumed on mobile devices weekly when away from home, of which one hour will be on AR/VR glasses in a 5G future.
- Half of all users expect their mobile cellular data usage to increase significantly on 5G, and 1 in 5 could see an increase of 10 times, with usage of 200GB per month.
- For 6 in 10, 5G-connected home robots will be a status symbol, while 4 in 10 expect access to 5G in the car to be as important as fuel efficiency and engine power in the next 5 years.

Great expectations

Although consumers are aware of 5G's promises, they have high expectations which need to be met. Does 5G offer any near-term benefits to consumers?

Our survey found that the markets with highest consumer awareness of 5G and its promises were, in order, China, South Korea, the US, Italy and the Kingdom of Saudi Arabia. Of the smartphone users surveyed globally, 7 out of every 10 said they were excited about the possibility of 5G being available in their markets soon, while 4 in every 10 expect 5G to be available in their market within a year.

While commercial 5G launches are kicking off in the US, South Korea and Switzerland, consumers in markets like the UK, Canada, Italy, Brazil and Finland expect 5G to be available in their market within 1.5 years from now. Meanwhile, consumers in Ireland, France and Germany expect networks to be available any time between mid- and late 2021.

Perfect network performance

Consumers have extremely high expectations of mobile broadband performance. Evidence of this is seen in markets like South Korea and Australia, which are known for high-performing networks and mobile broadband speeds. While on average only 4 in 10 smartphone users in our survey think mobile broadband speeds are too slow, this proportion rises to half in these markets.

Expectations around consistent 4G speeds across different locations and times of day have not been met, according to 4 in 10 consumers. Many of these inconsistency issues are due to network congestion in crowded areas of cities: 43 percent of consumers indicate that they face most issues with 4G in such areas. However, these urban network

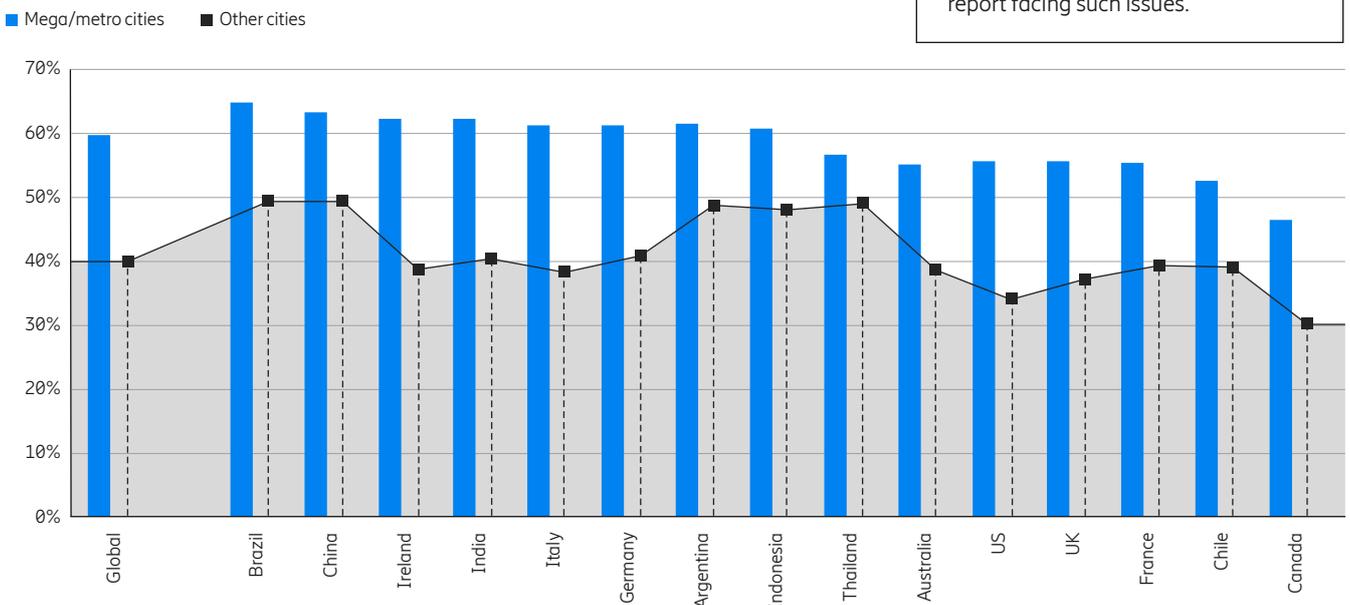
congestion issues are most intense in megacities. On average, 6 in 10 in the mega/metro cities shown in Figure 3 below report facing issues with 4G connectivity in crowded areas such as shopping streets, bus stations and concert and stadium venues, where large numbers of users are concentrated in one place.

Consumers expect to be able to stream videos seamlessly wherever they are, regardless of how many others are trying to do the same. Upgrading to 5G could bring rapid relief to consumers suffering from capacity constraints in their networks.

43%

Globally, 43 percent say they face most issues with 4G in crowded locations; however, as many as 6 in 10 in mega/metro cities report facing such issues.

Figure 3: Proportion of smartphone users facing issues in crowded areas



Base: Smartphone users aged 15–69 across 15 markets in the survey
 Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)

5G home wireless broadband to set consumers free

With consumers feeling locked into their current home broadband provider, could 5G emerge as a viable alternative that would set them free?

Capacity needs drive 5G rollout

Many of the mobile operators interviewed regard 5G as an addition to existing networks. Rollout will start where demand is highest – typically in dense urban areas and where signs of network congestion are most visible. Matt Stagg, Director of Media Strategy at EE, recommends that operators think about the customer experience: “Use 5G to augment the 4G experience in areas where you potentially have challenges in 4G today, such as train stations, commuter hot spots, stadiums and festivals.” Consumers expect operators to offer 5G in such key locations to start with.

Today, consumers demand perfect network performance and are even willing to switch providers if their own provider does not roll out 5G. More than half in China, one-third in South Korea and one in four in the US and Australia will change either immediately or within six months should this be the case. Thus, 5G has the potential to alter the competitive landscape for operators

in their own markets. But would it also change the home broadband landscape?

Home broadband woes trigger 5G consideration

The number of hyperconnected households is on the rise worldwide: 25 percent of households globally – and 1 in 3 in the US – have more than 10 connected devices. The number of household screens such as smartphones, tablets, smart TVs and VR headsets continues to increase. There are on average six connected screens per household globally, and one-third of households will add at least one more screen by next year. With multiple users, many screens and concurrent streamers, Wi-Fi home broadband seems to be under strain, with inconsistency of experience being a major issue.

Globally, one-third of fixed home broadband users are looking to switch providers in the next six months. The reasons for their dissatisfaction include

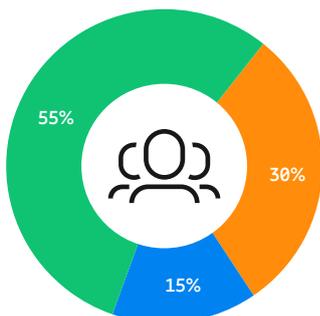
issues related to lower than advertised speeds and reliability, and bundled TV packages not being good value for money. In fact, one in five say that the bundled TV package has become rather unappealing. When presented with the idea of 5G home wireless broadband, 8 in 10 of those already looking to switch broadband providers would consider either replacing or supplementing their existing broadband with it. Of the consumers surveyed, 15 percent were discontent with their home broadband provider but are unlikely to switch to another, due to a lack of broadband choices or competition.

Among those looking to switch, 8 in 10 are interested in a 5G home wireless broadband offering to replace or supplement their existing home broadband.

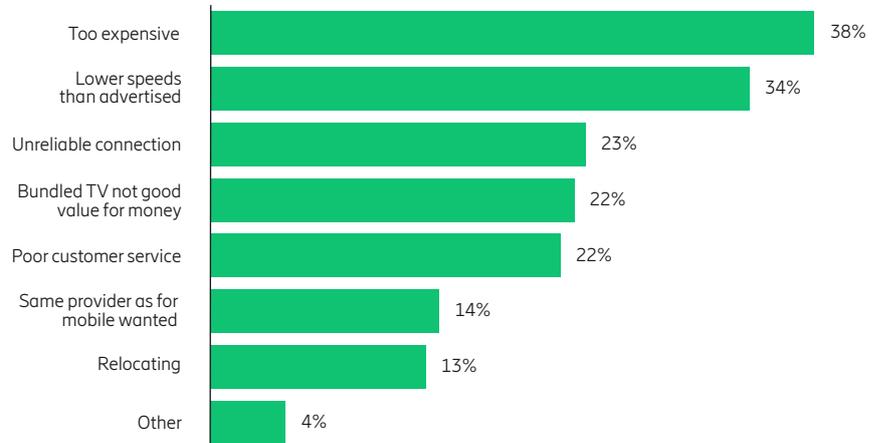
Figure 4: Consumer satisfaction with their home broadband

Likelihood of switching

- Unlikely to switch
- Likely to switch fixed broadband provider in the next 6 months
- Dissatisfied with home broadband, but unlikely to switch in the next 6 months due to limited broadband alternatives available



Reasons for switching fixed broadband provider

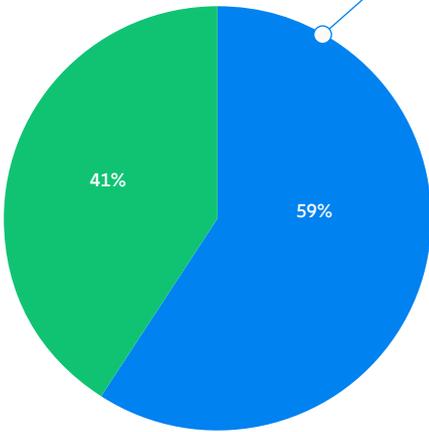


Base: Smartphone users aged 15–69 with broadband at home in Australia, Argentina, Brazil, Belgium, China, Canada, Chile, France, Finland, Germany, India, Indonesia, Ireland, Italy, KSA, South Korea, Singapore, Thailand, Uruguay, the UAE, the UK and the US
 Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)

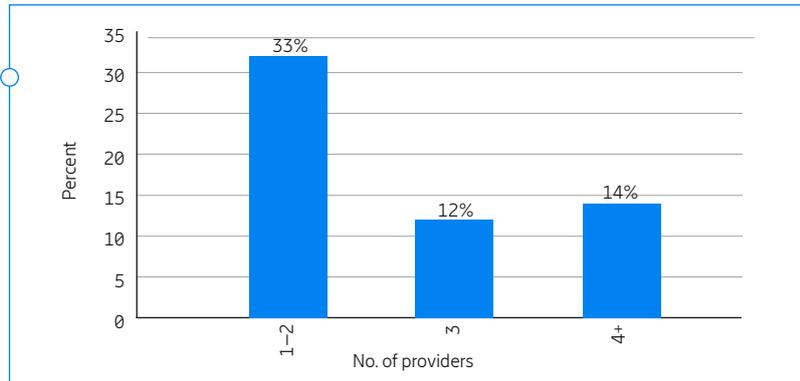
Figure 5: US consumer awareness of the number of home broadband provider options locally

Home broadband provider awareness

- Unaware of broadband providers serving their area
- Aware of broadband providers serving their area



Number of providers consumers are aware of



One in three in the US know no more than two fixed broadband providers serving their area, and 41 percent are not even aware of any other providers.

Base: Smartphone users aged 15–69 with home broadband in the US
Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)

In the US, one-third of smartphone users are aware of no more than 2 fixed broadband providers serving their area, and 41 percent are not even aware of any other providers serving their area.

In addition to being locked into their provider, these consumers do not see alternatives to their existing cable TV offerings. However, 4 in 10 state that 5G home wireless broadband would be a strong incentive to cut their ties with cable TV, as it would then come bundled in with streaming services. 5G home wireless broadband offers an additional broadband choice to users if consumers are made aware of this alternative.

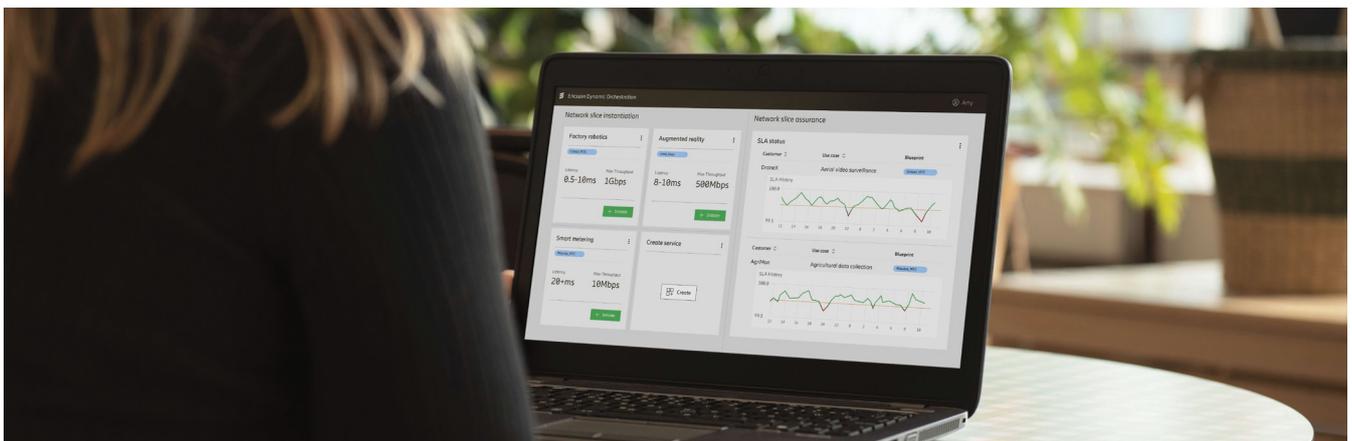
Many experts share the view that the first and most obvious use case for 5G is fixed wireless access, especially for those operators already offering a successful home broadband service over 4G but steadily running out of capacity. Jan Trionow, CEO of Three in Austria, explains: “The market is established and home 4G broadband connections are under pressure. Capacity is needed to continue the business, improve connectivity and to do this on a nationwide scale.”

Vesa-Pekka Nikula, Executive Vice President of Production at Elisa, goes on to explain that fixed line replacement will not happen in the entire market, only in certain areas.

Expert insights

“Does it make good business sense to put fiber into every cottage in Lapland? No, but fixed access based on mobile could make good business sense. But cities will be based on a mixture of technologies and hybrid solutions.”

Vesa-Pekka Nikula, Executive Vice President of Production, Elisa



The consumer wallet for 5G apps and services

Advantages of 5G include improved speed, lower latency, increased capacity and greater flexibility. The question is, will consumers eventually pay for these?

The industry seems to be trying to identify the key real-world use cases that will attract consumers. We specifically looked into the use cases involving consumers being asked if they would be willing to pay extra for these as part of their 5G mobile subscription plan. Our research assessed consumers' interest and asked what they would be willing to pay, as well as when they think the use cases will go mainstream. Consumers' willingness to pay should be interpreted as a stronger measure of their interest in 5G-enabled services. However, it should not be interpreted as a prediction of how much they will pay for a certain service. The end result is a consumer roadmap to 31 different applications and services, spread across 6 use

case categories: entertainment, enhanced mobile broadband (eMBB), gaming and AR/VR applications, smart home and fixed wireless access, automotive, and shopping and immersive communications.

A consumer use case roadmap to 5G
Smartphone users predict that most applications and services will go mainstream within 2 to 3 years of 5G's launch and an average 67 percent of all smartphone users were willing to pay for relevant apps and services that they were interested in. This differs across markets; in the US, for example, consumers expect this to happen within one year of launch, while in markets like Germany and Finland it is around two and a half years or more.

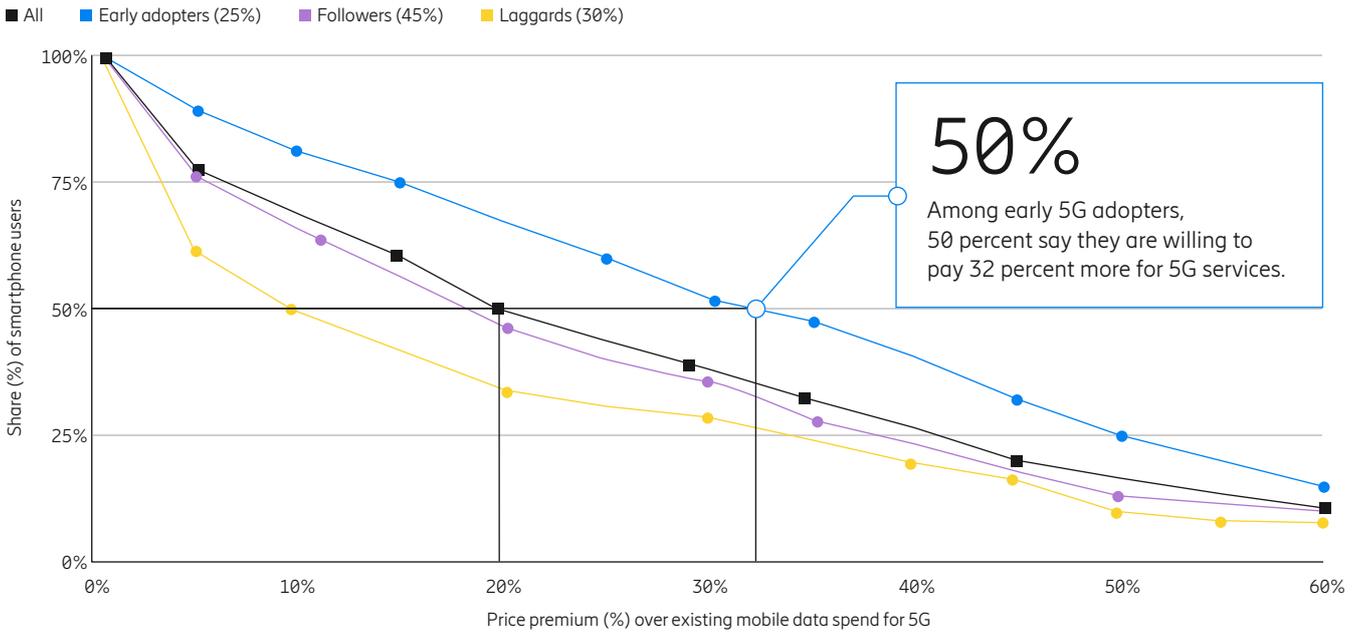
The 5G mobile subscription use case roadmap suggests three phases of 5G adoption. Home wireless broadband and premium smartphone experiences that allow content to be downloaded in seconds are expected to go mainstream within one year of 5G launch, and draw high interest and willingness to pay from consumers. The idea of moving away from traditional cable TV and opting for an ultra-high-definition TV service (5G TV) bundled with 5G home wireless broadband is most sought after by 74 percent of users in our survey globally. A similar proportion of smartphone users globally are interested in a 5G hot zone service that offers ultra-high speeds and reliability in demanding locations like airports, shopping streets and office spaces.

Figure 6: A consumer use case roadmap to 5G



Base: Smartphone users aged 15–69 in Australia, Argentina, Brazil, Belgium, China, Canada, Chile, France, Finland, Germany, India, Indonesia, Ireland, Italy, Saudi Arabia, South Korea, Singapore, Thailand, Uruguay, the UAE, the UK and the US
Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)

Figure 7: Share of smartphone users and price premium on 5G



Base: Smartphone users aged 15–69 in Australia, Argentina, Brazil, Belgium, China, Canada, Chile, France, Finland, Germany, India, Indonesia, Ireland, Italy, KSA, South Korea, Singapore, Thailand, Uruguay, the UAE, the UK and the US
 Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)

Gaming-related use cases, like cloud game streaming services with low lag and VR cloud gaming, are expected by consumers to go mainstream within one to two years of 5G launch. However, they see relatively low interest compared to other use cases. Notably, most automotive use cases – excluding 5G in-car entertainment – are still three to five years away in terms of mainstream adoption according to consumers, while others, like autonomous driving, might take even longer to be adopted.

There are variations in interest and willingness to pay for 5G use cases across different markets. US and UK consumers would prefer to attach 5G TV services to their plan, while Chinese consumers would select a 5G smart home, Korean consumers would opt for shopping in VR with tactile feedback and Saudi Arabian consumers would prefer to pay for an immersive entertainment experience like the diorama stadium tabletop AR experience.⁶

The study not only looked at the willingness to pay for these use cases as part of the 5G plan but also evaluated the value that consumers could derive from them. For example, consumers suggested the struggle of traveling to a store, perusing endless aisles of goods unrelated to their outing’s goals and waiting in lines to pay could easily be solved with a VR shopping experience involving tactile sensations and facial recognition payment systems.

A premium for the 5G promise

On average, smartphone users globally state that they are willing to pay a premium of 20 percent over and above what they pay today for the benefits of 5G. However, half of all early adopters who are familiar with 5G’s promises could pay as much as 32 percent more than they do today. These potential 5G early adopters constitute 25 percent of all smartphone users globally. Although consumer willingness to pay cannot be directly translated into what they eventually will pay for 5G, this is a much stronger indication of consumer attraction than just asking about their level of interest. In the US, consumers say they can pay a price premium for 5G of 15 percent, which translates to USD 9, while a premium of 35 percent in the UAE translates to USD 14. Verizon also recently announced that its next-generation 5G mobile service will cost USD 10 more per month on top of its 3 existing unlimited plans.⁷ This is in line with the average amount US consumers say they are willing to pay for the benefits of 5G; however, early adopters in the US say they could pay on average as much as USD 20 more for 5G. Others find the question of whether to charge for a premium or not less relevant, due to the network efficiencies that 5G will bring to operators, enabling them to lower the production cost of data and mobile services.

T-Mobile has launched a long series of un-carrier moves to remove customer

50%

Among early 5G adopters, 50 percent say they are willing to pay 32 percent more for 5G services.

6 in 10

For 6 in 10, 5G-connected home robots will be a status symbol, while 4 in 10 agree that 5G internet connectivity in the car will be as important as fuel efficiency and engine power in the next 5 years.

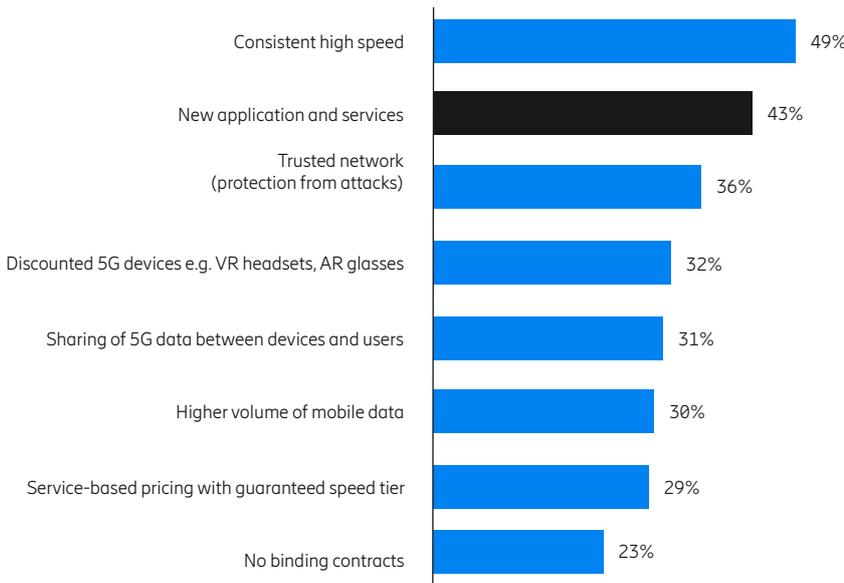
Half of all early adopters in the US say they could pay as much as USD 20 more if their selected applications and services were bundled in a 5G plan.

pain points one at a time, which has allowed them to stand out from the competition. “These un-carrier initiatives have been launched with no premium. That is what defines T-Mobile. We eliminated traditional customer pain points and caused our competitors to follow suit. It’s been disruptive,” explains Salim Kouidri of T-Mobile US. He believes it is important to maintain the level of trust the operator has built with its customers.

⁶ A diorama experience is where people wearing a headset or AR glasses view an AR image of the event arena displayed on a table-like monitor and enjoy three-dimensional AR views of the live event from any angle

⁷ www.theverge.com/2019/3/13/18263593/verizon-5g-service-price-location-launch-date

Figure 8: Important expectations from a 5G subscription plan



4 in 10
 New applications and services are expected as an important part of the 5G plan by 4 in 10 smartphone users who are willing to pay a significant premium for 5G.

Base: Smartphone users aged 15–69 who are willing to pay a significant premium (40%+) for 5G in Brazil, China, Canada, France, Finland, Italy, South Korea, the UK and the US
 Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)

Of those surveyed, 6 in 10 smartphone users say it's very likely that with 5G we will all be experiencing how responsive the network is, rather than its sheer speeds.

and the security and trustworthiness of the network to be important considerations in a future 5G subscription plan. Many industry experts understand this and argue that new use cases beyond sheer speeds will be the driving force behind 5G. While there will be early adopters willing to pay for anything that bears the 5G

name, the true revolution will come with completely new use cases, which are likely to justify a premium price in the eyes of the consumer. "Speed only attracts so many users. With clear and new use cases, they will be willing to pay more for them," says Francesco Radicati, Technology Analyst at State Farm.

Latency is the new speed

There is a general consensus that speed, latency and guaranteed quality of service are factors for which consumers might be prepared to pay slightly more, or a premium. O2's COO, Derek McManus, expects that it will take around three years to build ubiquitous coverage in London alone. During this time, he believes that it will be hard to charge for 5G as a bearer alone. With 5G there could well be both latency-tier and speed-tier related data plans, needing new ways to charge consumers. However, this would require changes to the current model of paying for a bucket of gigabytes.

Former head of Telenor Scandinavia and CEO of Telenor in Norway Berit Svendsen agrees that something has to change. She believes this is particularly relevant for some of the IoT use cases, such as connected homes and cars, but highlights the need to take net neutrality into account when developing such concepts.

Use cases beyond just speeds

Smartphone users who are willing to pay a premium of 40 percent or more for 5G consider new experiences to be very important; 4 in 10 consider new use cases

Expert insights

"Loyalty and attraction is the game for us. At an early stage, 5G technology would be especially appealing to early adopters, who have the ability to positively influence the rest of the industry."

Salim Kouidri, Vice President, Engineering and Operations (New York), T-Mobile US

"The challenge for every mobile operator is the consistency of experience. For a guaranteed quality of experience we will be able to charge a premium. For services that require low latency we will be able to charge a premium. For 5G as a pure bearer alone? Harder."

Derek McManus, COO, Telefónica UK

"If and when we can provide a lower latency service for our customers, there is definitely a premium they are willing to pay for it. Think of VR; if the latency goes beyond 10 milliseconds, people start feeling nauseous. In certain services, lower latency is a must. There is definitely a value in providing lower latency and customers will be willing to pay some of that value back to us, I am positive about it."

Vesa-Pekka Nikula, Executive Vice President, Elisa Finland

"Service-based pricing where the consumers buy a package that includes all the mobile data necessary for a specific use case is likely to come for consumers. It is too early to say how this will develop into a 5G world."

Berit Svendsen, former head, Telenor Scandinavia, and CEO, Telenor Norway

From smartphone screens to smart glasses

Smartphones were the iconic devices fundamental to 3G and 4G's success. What will it be for 5G?

The question is whether 5G will offer features that require the industry to move on to new types of form factors, or whether smartphones will be the silver bullet for 5G.

Despite owning new smartphones released in the past year, most consumers believe that smartphones as they are today cannot leverage the capabilities of 5G.

Could this new iconic device be a pair of smart AR glasses? Globally, 50 percent of consumers believe that smartphones will still exist but that perhaps we will all be wearing AR glasses by 2025, while one-third do not agree that AR glasses will be mainstream in the next 5 years. This conviction is strong in markets like China, Thailand, Indonesia and India, but less so in Finland, where consumers might not want to imagine the impact on the economy and job market with yet another cycle of uncertainty in the smartphone industry.

Consumers' predictions are echoed by industry experts. "The smartphone will be dead in five years' time," predicts Johan Hagegård at IMRSV, an AR/VR innovation house. "I will instead have smart glasses in front of me all the time." Matt Stagg of EE agrees with this bold prediction: "The smartphone as we see it now does not have anything on it. It can't take advantage of 5G, such as holographic apps, in the longer term."

Maybe it doesn't stop there. Maarten Ectors, Chief Innovation Officer of Legal & General, thinks that screens will be replaced altogether. "We will be going away from a world dominated by screens to other ways of projecting imagery; for example, three-dimensional projection or translucent types of screen. Glasses will come with projection capabilities for commercial usage."

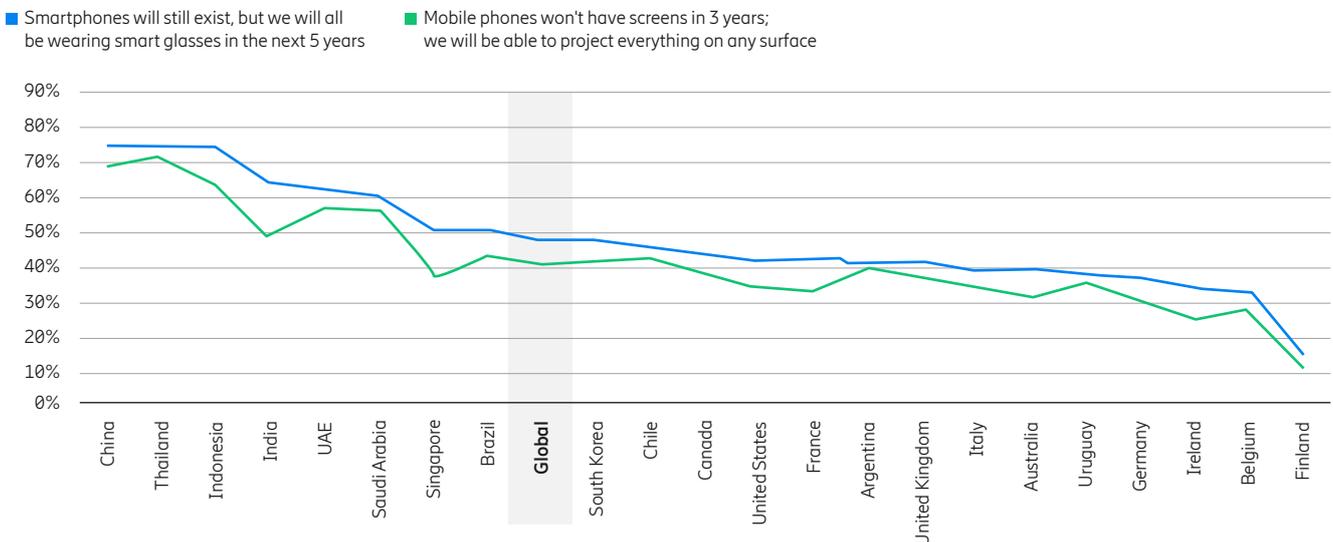
43%

43 percent of iPhone owners and 39 percent of Android users with new devices bought in the past year say the smartphone form factors and features of today are not capable of taking advantage of 5G promises.

50%

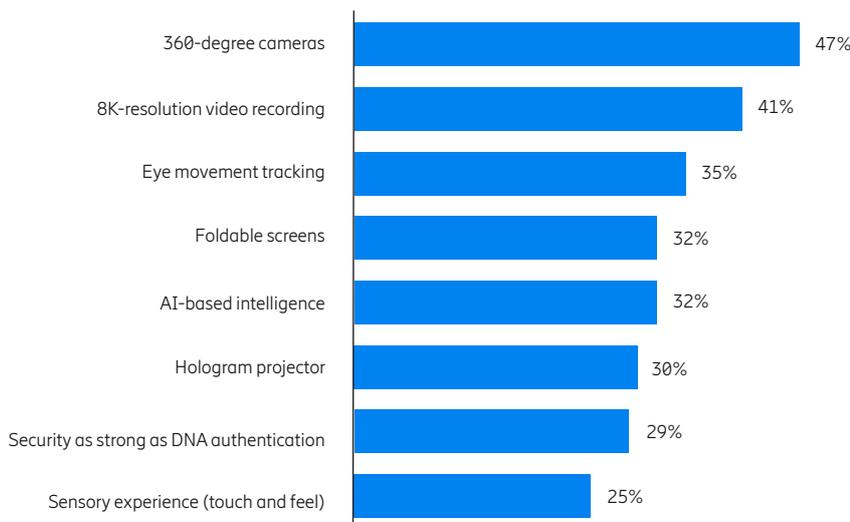
Globally, 50 percent of consumers believe that smartphones will still exist but we will all be wearing AR glasses by 2025.

Figure 9: Percentage of users across markets predicting the future of smartphones



Base: Smartphone users aged 15–69 across 22 markets
 Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)

Figure 10: Features expected from a 5G smartphone



4/10

On average 4 in 10 expect foldable screens, holographic projection and 360-degree cameras as features on upcoming 5G devices.

81%

At least one feature beyond battery life and extreme storage is expected by 81 percent of consumers.

Base: Smartphone users aged 15–69 in Australia, Argentina, Brazil, Belgium, China, Canada, Chile, France, Finland, Germany, India, Indonesia, Ireland, Italy, KSA, South Korea, Singapore, Thailand, Uruguay, the UAE, the UK and the US
Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)

Consumers agree with this prediction; 4 in 10 predict that there will be no need for mobile phone screens, as we will be able to project everything on any surface.

Others think that the smartphone will develop with 5G. “5G might become much more important for smartphone manufacturers than they currently understand,” says Kenneth Stewart, Chief Wireless Technologist at Intel. “Once the need for latency becomes prevalent, LTE will run out of options. 5G has the engineering potential to deliver enhanced experiences that will truly delight users. And – critically – be perceived by users to be adding invaluable services; something far more than just a marketing gimmick.”

Mikael Dahlkvist, Senior Manager of Sony Mobile, agrees. He sees the smartphone as the centerpiece and the remote control for other devices. He predicts that wearables will develop very quickly from the devices they are today – that typically don’t include cellular connectivity – to being capable of wide area access through technologies like 5G. “But that as such is not disqualifying the smartphone from being at the center – as a remote control to the wearables and devices.” Dahlkvist thinks consumers will still want their smartphone: “You don’t want to take away the experience of having something in your hand.”

Future 5G smartphones

While waiting for the next iconic device to emerge, consumers expect the current generation of smartphones to evolve and introduce new features and functionalities. Extended battery life and extreme storage were sought after by almost all respondents. While foldable screens are making their way into 5G smartphones, 47 percent expect not just multiple cameras but also embedded 360-degree cameras. Meanwhile, the expected features on a future 5G device also include 3D hologram projectors (wanted by 30 percent), security beyond just facial recognition ID that is similar to DNA authentication (29 percent) and sensory experiences that allow them to feel textures on the screen (25 percent).

The idea of turning a smartphone into a 5G-capable phone using a “snap-on” such as 5G Moto Mod,⁸ the add-on accessory for the moto z3 smartphone, in order to access a 5G network was tested in US, Seoul and London focus groups. Consumers expect 5G access not to be cumbersome when it comes to devices, but instead seamless and built-in.

Future 5G handsets could be even more radical, breaking long-held conventions around mobile phone design. However, smartphones alone are unlikely to be the only solution for 5G.

“I already need to carry battery packs with me for my smartphone, now you want me to add a chunky piece of snap-on to my phone to make it 5G capable and then ensure I have a phone that is compatible with this snap-on. Not happening!”

Male, 32, New York, US

Expert insights

“We had no clue what the smartphone would be able to do back when it was launched. It couldn’t even record video back then, just still images. I think it is the same thing with smart glasses – we have a hard time visualizing where we will end up. One vision of the future is that we will have our own metaverse, a digital overlay on the real world, and will enjoy the 3D experiences through our glasses.”

Johan Hagegård, Entrepreneur in AR/MR, IMRSV

“Consumers will still want their smartphones. You don’t want to take away the experience of having something in your hand.”

Mikael Dahlkvist, Senior Manager, Sony Mobile

⁸ www.motorola.com/us/products/moto-mods/moto-5g

The future of data usage – where will 5G take us?

Consumers were asked what will drive mobile data usage and the changes they expect in their usage behavior with 5G to find out if we have reached peak video consumption yet.

Average world smartphone usage in 2018 stood at 5.6GB per month and is expected to increase to 21GB per month in 2024, an increase of roughly 4 times from today's usage.⁹ Consumers were asked what will drive mobile data usage and the changes they expect in their usage behavior to find out if we have reached peak video consumption yet. Of today's mobile data usage, 60 percent comes from video consumption. 5G offers the capabilities for video to evolve from its current state into more immersive formats.

Peak video consumption still to come
Consumers expect to increase their video usage drastically with 5G. Half of smartphone users in our survey say they will start watching YouTube and Netflix in 4K and will download more HD video content once 5G is available. While one-third of all smartphone users say they already spend far too much time streaming videos, one in five say that they could spend more time doing so, provided that devices improve in screen size and battery life, data plan allowances are generous and they do not have to hold the smartphone throughout but could instead wear glasses that project video.

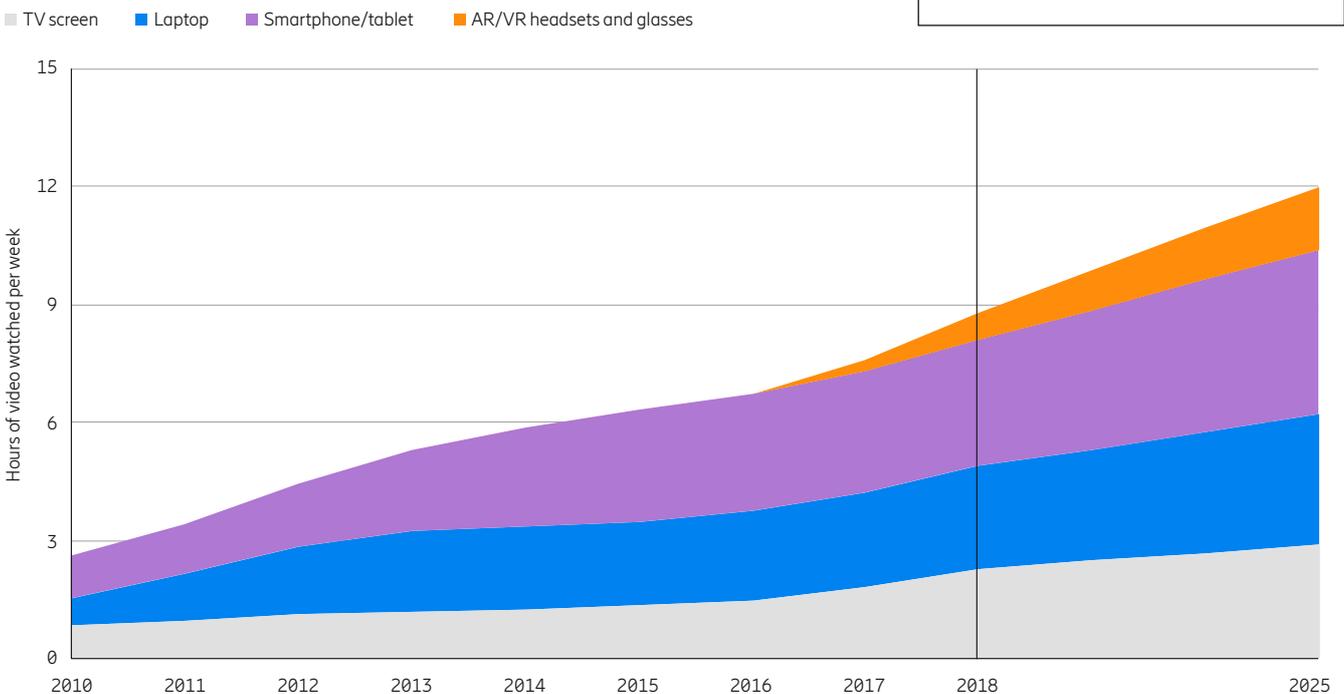
This suggests that if such limitations were removed, we could see continued video consumption growth in the future.

Smartphone users estimate that overall video viewing across mobile or portable screens while being out of home will increase by around 3 hours per week – from 6.5 to 9 hours – in the next 5 years, of which 1 hour will be on AR/VR glasses by 2025.

3 hours

Smartphone users say they will consume three hours' more video weekly on mobile devices away from home, of which one hour will be on AR/VR glasses in a 5G future.

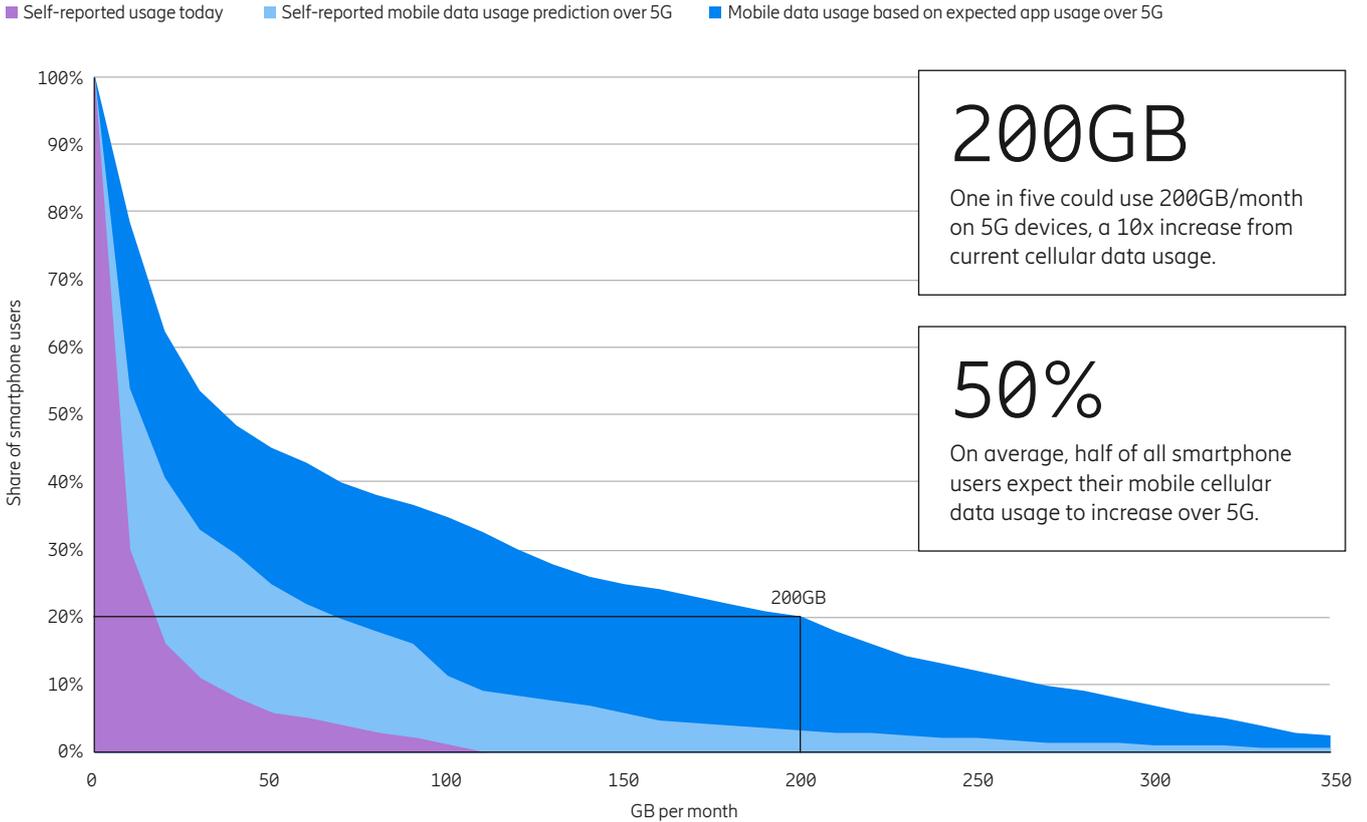
Figure 11: The rise of video consumption outside the home with 5G



Base: Population aged 16–59 with access to broadband at home and who watch TV/video at least weekly within 6 countries (Brazil, China, Germany, South Korea, the UK and the US)
Source: Ericsson ConsumerLab Analytical platform 2010–2015 (TV & Media Study) and 5G consumer potential (May 2019)
Note: Three years' moving average

⁹ According to the Ericsson Mobility Report Calculator

Figure 12: Consumer predictions on changes in mobile data usage per month due to 5G



Base: Smartphone users aged 15–69 in Australia, Argentina, Brazil, Belgium, China, Canada, Chile, France, Finland, Germany, India, Indonesia, Ireland, Italy, KSA, South Korea, Singapore, Thailand, Uruguay, the UAE, the UK and the US
 Source: Ericsson ConsumerLab, 5G consumer potential (May 2019)
 Note: Based on self-reported expected future usage of services combined with Ericsson Mobility Calculator data to estimate the future mobile data consumption per month on a 5G device

Mobile data usage surge with 5G

With immersive video usage set to rise on new screens and devices like AR glasses, it is likely to have a profound impact on the eventual mobile data usage. Average monthly cellular data usage for a smartphone user in North America today is 8.6GB and is set to reach 50GB by the end of 2024.¹⁰ However, just 10 minutes of AR app usage each day could translate to 50GB per month/user.

Consumers across 22 markets were asked to self-report and predict their increase in mobile cellular data usage in absolute gigabytes as a result of enhanced speeds and immersive video over 5G. The current self-reported mobile data usage among survey respondents averaged around 8GB a month. Consumers self-report an average increase of 4 times with 5G, resulting in approximately 39GB/month of cellular data traffic per user on a 5G device. On average, half of all smartphone users expect their mobile cellular data usage to increase over 5G.

However, when we look at the applications and services consumers expect to be using on 5G, especially immersive

video like AR and VR, and estimate the average monthly mobile cellular data traffic per user, it results in 83GB/month, an increase of 10 times from current usage of our survey respondents. This suggests that consumers underestimate the impact of immersive media usage on their own future mobile cellular data usage. With average global smartphone usage in 2018 at 5.6GB per month,¹¹ this could be an increase of 14 times compared to current usage.

With a 5G device, 1 in 5 could use 215GB of data per month in the US, while in South Korea this could reach 250GB, and around 140GB in the UK. Average usage of 200GB/month is easily possible if one were to assume current mobile cellular data consumed when using 1 hour of 360-degree video, 1 hour of VR on the move, 1 hour using AR maps and 4 hours of video streaming in 4K a month.

While there is no crystal ball to predict the growth of mobile cellular data usage with 5G, eventually it will become clear that current usage patterns over 4G are not indicative of the demand for mobile broadband in a 5G future.

200GB

One in five could use 200GB/month on 5G devices, a 10x increase from current cellular data usage.

50%

On average, half of all smartphone users expect their mobile cellular data usage to increase over 5G.

10–14x

Future 5G average mobile cellular data usage could be 10–14 times that of today if consumers undertake the activities they say they will.

The 5G consumer potential opportunity

Consumers see the potential in 5G. However, how the ecosystem will develop and capitalize on these consumer realities remains a mystery. Who will curate new 5G experiences, forge partnerships, create new devices and capture additional revenue as a result? Will new internet players, device makers or entities emerge, or will service providers drive this development? With the field opening up, it remains to be seen who will harvest the 5G consumer opportunity.

¹⁰ Ericsson Mobility Report (November 2018)

¹¹ Ericsson Mobility Report (November 2018)

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