

The New Normal for Mobile Communications Under COVID-19

The Leap into the Video and Gaming Age

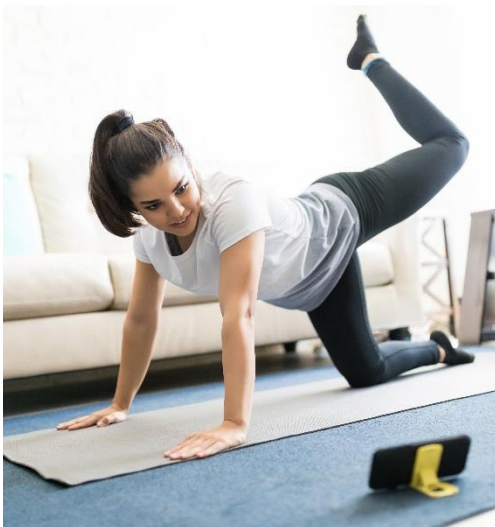
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Introduction

#StayConnected! As the hashtag says, ensuring seamless connectivity for a variety of services is one of the main priorities for mobile operators during the COVID-19 outbreak. With the pandemic spreading rapidly throughout the world, the only way to keep it under control is to stay isolated in our homes as much as possible. But this isolation brings changes to our daily routines in terms of the way we live our daily life and conduct our business. These changes have had a knock-on effect in the way we consume mobile services and the investment priorities for the telecom industry.

Our key findings are summarized below.

Changes in our daily routines have had a knock-on effect in the way we consume mobile services and the investment priorities for the telecom industry.



- **Shifts in the Consumption of Mobile Services:** There is a clear shift in the usage of various services due to the changes in our daily routines. In many of the countries we analyzed, there was significant increase in both fixed and mobile broadband usage - fixed broadband having the highest increase. There was up to 75%¹ increase in online gaming which has driven both fixed and mobile data traffic. Mobile data traffic showed an increase at different levels depending on the country and user behavior. Voice services also faced an increased demand. Voice traffic showed increases up to 50%², whereas mobility needs of the users started to diminish in countries that announced a lockdown or curfew.
- **The State of 5G Rollouts and Deployments:** In some regions, especially in Europe, we would expect some delays in frequency auctions and 5G deployments. Standard bodies also give similar signals. Yet, on the other hand, the slowdown in 5G rollouts will be compensated by the increased investments in the efficiency of the existing 3G and 4G networks. Some operators reiterated that they will drive their Zero Touch vision more aggressively, since it will bring significant operational efficiency gains while preparing for 5G.
- **Operators' Approach to Capacity Planning and Network Investments:** The changes in location of the users has clear implications on the utilization of the network. The shift in mobile data from non-residential to residential areas has affected the short-term capacity investment decisions of mobile operators. Operators are now revisiting their investment plans and looking into how they can organize their financial and physical resources more accurately.

¹ <https://www.hollywoodreporter.com/news/gaming-usage-up-75-percent-coronavirus-outbreak-verizon-reports-1285140>
² <https://www.fiercetelecom.com/telecom/spanish-carriers-see-a-40-spike-network-traffic-due-to-covid-19>



- **Operator Driven Initiatives to Support Customers:** Operators around the world have implemented focused programs to enable customers to access educational and entertainment contents, while providing flexible payments options for small businesses to ensure the continuity of economic activities.

Further details can be found in the following sections.

Shifts in the Consumption of Mobile Services

Isolation against Covid-19 has driven the use fixed broadband, FWA along with various mobile services, creating capacity related challenges.

The mobile data and voice traffic had a notable increase over the last two months. Yet, if we look at the mobile trends alone, it will not give us the whole picture. The lockdown in certain countries and the increase in the number of people who stay home for self-isolation against Covid-19 have driven the use of fixed broadband services. Additionally, as a second alternative, Fixed Wireless Access (FWA) devices started to be demanded - a trend that is likely to continue. For example, China used 5G FWA to quickly deploy necessary wireless broadband infrastructure at the Wuhan Leishenshan Temporary Hospital for 25,000 users³. The deployment was completed in less than 24 hours. On the other hand, in some of the developing countries, lacking sufficient fiber optic infrastructure has hampered FWA deployments over the past few years, which would have been a viable option during the outbreak for broadband access in residential areas.

Mobile data usage has increased between 5% to 15% for most of the operators. As a result, some of these operators are now dealing with the capacity related challenges. Of course, residential and non-residential areas face significant differences in the voice and data consumption due to their demographic characteristics. Below you can find a summary of typical traffic changes.

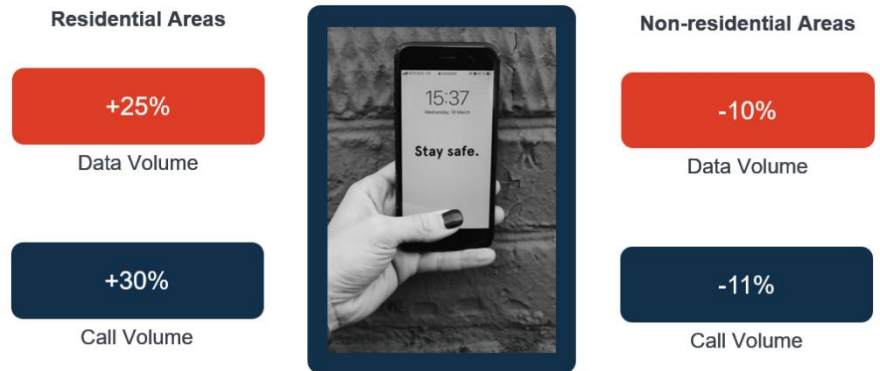
- In residential areas including urban, sub-urban and rural areas, data traffic increase seems a lot higher and has gone up to 25%. In general, voice calls have increased around 30%. Yet, as mentioned in the introduction section, we have seen operators which have reported up to 50% increase in the voice traffic.

³ <https://www.mobileworldlive.com/huawei-updates/addressing-current-connectivity-challenges-by-accelerating-the-deployment-of-fixed-wireless-broadband-solutions/>

- In non-residential industrial areas and point of interest locations such as coffee shops, shopping malls, and school districts, we've seen an opposite trend. As much as 10% decrease in mobile data and more than 11% decrease in voice calls have been noted. Yet, this doesn't change the fact that there is a clear increase in the overall voice and data traffic.

Up to 25% increase has been observed in mobile data traffic in residential areas, mainly due to work from home, online education, and online gaming.

Figure 1, Traffic Comparison for Residential and Non-Residential Areas



Source: Combination of data from P.I. Works and online sources

In Europe and APAC, we've seen 10 to 30% increases in 3G and 4G downlink data volume across Tier-1 operators. As expected, voice call volumes have shown an increase up to 30% during this period in residential areas.





















In North America, like Europe, broadband traffic has increased, driven by gaming and streaming services. T-Mobile and Verizon reported 45% and 75% increase in online gaming respectively. Additionally, Americans started to spend more time on mobile voice calls. T-Mobile in the US reported that the amount of time people spend on calls has increased 17%⁴ nationwide. This indicates that people are now spending more time on their phone.

Google's Community Mobility report, combined with P.I. Works' own analysis, shows a clear decline in the mobility activities around the world - Americas region showing relatively lower decline. This means, for example, more users are mobile in the Americas region compared to Europe.

⁴ <https://www.t-mobile.com/news/keeping-customers-connected-24-7>

Table 1, Mobility Comparison Report Based on Google Maps Data

	Retail & Recreation	Workplace	Residential
United States	 -47%	 -38%	 +12%
United Kingdom	 -85%	 -55%	 +15%
Italy	 -94%	 -63%	 +24%
Mexico	 -45%	 -20%	 +11%
Indonesia	 -47%	 -15%	 +15%
Hong Kong	 -35%	 -24%	 +16%

Source: Google's Community Mobility report

Although mobility trends differ from country to country, at a high-level, operators' coping mechanisms with the demand shift show similarities across the world.

When we analyze the country-specific trends, it will be fair to say that, in some cases, even operators in the same country might face slight differences in mobile voice and data consumption trends. This is due to the demographic structure of their subscribers and the type of services demanded by them. Also, as shown in table 2, mobility trends differ from country to country, which would result in differences in operators' response to the outbreak. Yet, at a high-level, country specific mobile traffic trends and operators' coping mechanisms show similarities across the world.

The mobile traffic spike is expected to reach plateau in April, since this will be our new normal, hopefully for a short period of time.

It is important for operators to monitor their networks on a real time basis and take automated actions to support the unexpected traffic changes dynamically. This way operators can manage the demand shift between residential and non-residential areas more effectively. For example, countries that build hospitals to help the growing number of patients, creates traffic spike that has never seen before in a specific location. Such drastic changes can only be managed through dynamic and automated management of the network.

The State of the 5G Rollouts and Deployments



Operators' focus will temporarily shift from 5G rollouts to driving efficiency and quality of the 3G / 4G networks and dealing with the congestion problems.

5G investments have been continuing at a steady pace since 2018 and some of the Tier-1 operators in South Korea, China, US, Europe and Middle East have already started deploying 5G NSA (non-standalone) into their networks. We were expecting more deployments in 2020. But due to the pandemic, it seems that the 5G investments will have to be delayed by another year.

Standards bodies like 3GPP have already announced⁵ three months of delay for the latest two batches of 5G protocols. It seems that 5G SA (standalone) standardization will be pushed back to the end of the year. P.I. Works, being a part of the 3GPP SA5 working group, will continue to contribute to the standardization efforts of the 5G protocols and keep mobile operators informed on the progress.

Regulatory bodies are also experiencing a similar delay. Most of the European telecoms regulators have delayed the 5G frequency auctions that would normally take place in April 2020 or over the next couple of months. Those countries include French, Spain, Netherlands, Austria⁶ and Poland so far⁷. Along with the Europe, US is taking a similar step. US Federal Communications Commission (FCC) postponed⁸ the auction of spectrum in the 3.5GHz band from 25 June to 23 July.

These delays will result in a change in operators' investment plans as they will focus more on resolving the capacity related issues and driving efficiency of their existing 3G and 4G networks. This means operators must manage their network capacity more effectively and use advanced automation techniques to deal with the demand shift in a dynamic manner.

⁵ <https://www.mobileworldlive.com/featured-content/home-banner/latest-5g-standards-delayed-by-pandemic/>

⁶ <https://www.reuters.com/article/us-health-coronavirus-austria-5g/austria-to-postpone-5g-frequency-auction-rtr-idUSKBN21D1F6>

⁷ <https://www.telecompaper.com/news/more-eu-5g-auctions-face-delays-netherlands-and-poland-to-go-ahead-by-june-1332664>

⁸ <https://www.mobileworldlive.com/featured-content/top-three/fcc-delays-3-5ghz-auction/>

Operators' Approach to Capacity Planning and Network Investments

The lockdowns and self-isolations have changed the way consumers behave, which consequently increased use of various mobile services, and the locations of the users. For operators, this trend has triggered the need for revisiting the capacity investment plans.

Some operators' networks have seen up to 30%⁹ decline in the number of handover actions, which reflects the slowdown in the mobility of users. And as mentioned, the source of the traffic shifted to urban and rural areas. These locations face an enormous spike during work hours and almost none of the capacity expansion plans have been made based on today's reality.

Now it's time for operators to shift from typical, long-term planning approach to proactive planning.

Some operators have already started to increase their investment budget for 2020. For example, Australian operator Telstra¹⁰ is bringing forward \$500 million of capital expenditure planned for 2021 into 2020. Same as Telstra, Verizon has also increased 2020 investments by \$500 million.

Additional investment budget will certainly help operators to solve some of the capacity problems, however there are three key elements that should be considered for using this budget more effectively.

- It is recommended to implement capabilities that will enable dynamic, automated management of the existing network capacity. This will be the starting point as the capacity expansions would only make sense if you are using your network in the most efficient way possible.
- Sometimes a network audit would also help operators in the initial stage, which is the second key element. Based on the results of the audit process, you can decide the need for additional capacity investments.
- Last but not least, operators who need to invest in their network can use a third-party solution and / or a service, to identify capacity requirements and prioritize the capacity expansion areas based on the available budget and the customer behavior.

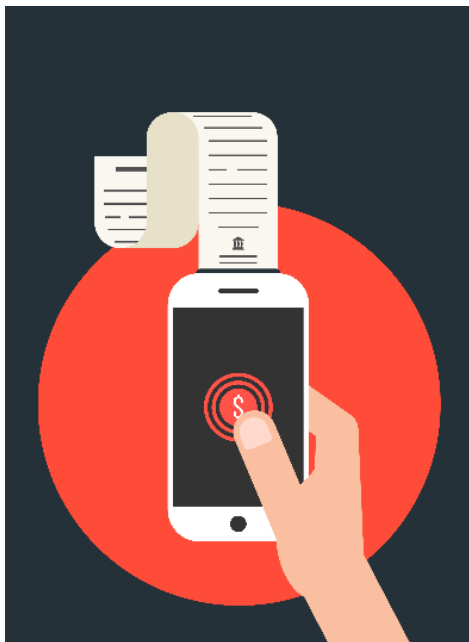
Some operators, such as Verizon, Telstra, have increased their investment budget for 2020 to support their subscribers and the society during the outbreak.

⁹ Calculated by combining various operators' data

¹⁰ <https://exchange.telstra.com.au/getting-through-covid-19-together/>

Operator Driven Initiatives to Support Customers

Changing customer behavior has also transformed users' needs and we see that some operators doing their best to support their customers. Below you can see some examples of the operator driven initiatives.



- Operators from all around the world have renamed their network to “Stay Home”, have been running online campaigns to raise public awareness.
- Veon Group introduced group-wide measures in ten markets including free access to emergency health care and in specific markets they are offering free access to remote educational system or free access to their IPTV platform for the quarantined people¹¹.
- DISH has announced that it is providing its entire portfolio of 600 MHz spectrum to T-Mobile at no cost for 60 days. The step was taken to support mobile users, as they increasingly turn to mobile networks for work and personal use¹².
- Ooredoo Group has implemented number of initiatives across the group. For example, to support business customers in their efforts to work efficiently and effectively, Ooredoo Myanmar is accelerating the launch of online video conferencing solutions and a Work-From-Home Internet solution, while Indosat Ooredoo has designed a special mobile package for businesses¹³.
- In coordination with the UK government, O2 UK, Vodafone UK, 3UK and EE have pledged their commitments to removing data caps and to enable all customers to connect the internet whenever they want. And they also agreed to support customers who are struggling to pay their bills¹⁴.
- Similar to the UK, US Federal Communications Commission (FCC) launched the “Keep Americans Connected” initiative to support people and small businesses to stay connected even if they are having difficulties in paying their bills. More than 550 companies have joined the initiative so far¹⁵.

¹¹ <https://www.veon.com/>

¹² <https://www.prnewswire.com/news-releases/covid-19-response-dish-lends-critical-spectrum-to-t-mobile-in-effort-to-bolster-nationwide-wireless-capacity-to-help-consumers-301023321.html>

¹³ <https://www.ooredoo.com/en/social-responsibility-esg/our-response-to-covid-19/>

¹⁴ <https://www.mobileworldlive.com/blog/covid-19-industry-impact-february-to-march/>

¹⁵ <https://www.fcc.gov/keep-americans-connected>

Solutions to Tackle the Challenge



The COVID-19 pandemic has forced us all to change our routines and become more digital to ensure continuity. Even after the pandemic, the use of digital productivity tools and other communication services are not expected to turn back to their initial state. Mobile networks should be autonomous and dynamically adapt to such changes to ensure availability of critical communication services, business continuity and operational agility.

In order to support mobile operators and their customers, P.I. Works is ready to provide the following solutions to enable remote, flexible operations of mobile networks:

- ✓ 24/7 automated network optimization to handle traffic increases in network layers
- ✓ Multi-vendor network monitoring with dashboards and alarms
- ✓ Remote network audit and optimization services to solve quality issues and ensure efficient utilization of the network resources
- ✓ Smart network planning for more accurate & dynamic investment decisions

Mobile operators who are interested in adopting such capabilities, please do not hesitate to contact us at: contact@piworks.net

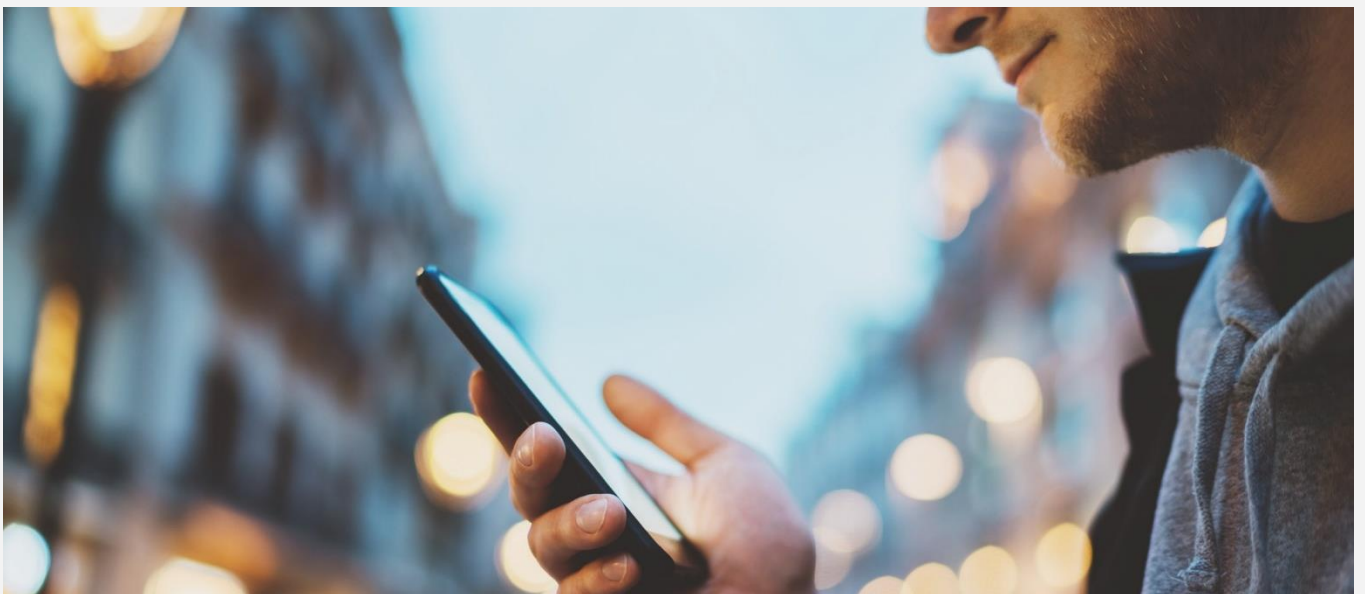
About P.I. Works

P.I. Works is the leading provider of AI-driven mobile network planning, management and optimization solutions. P.I. Works combines field-proven expertise with its award-winning product portfolio and services. These solutions empower Mobile Operators to accelerate network transformation, improve network quality and reduce network management costs on the way to 5G. P.I. Works has deployed its solutions at 49 mobile network operators in 36 countries. P.I. Works also plays an important role in the development of key standards that define the future of mobile networks. We actively contribute to the ETSI, GTI, 3GPP standardization forum and Open Source initiatives.

For more information, please visit <http://www.piworks.net/> or send e-mail to sales@piworks.net

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