The Mobile Economy Asia Pacific 2020

The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with almost 400 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces the industry-leading MWC events held annually in Barcelona, Los Angeles and Shanghai, as well as the Mobile 360 Series of regional conferences.

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Executive Summary

The mobile industry is stepping up to the Covid-19 challenge

Although there have been many international health crises before, the Covid-19 pandemic differs because of its scale and the worldwide efforts being taken to address it. Despite the telecoms industry's best efforts to cushion the impact, the outbreak will affect the development of the mobile ecosystem:

- The pandemic has highlighted the importance of a robust digital economy; in less developed markets, the crisis has exposed the weaknesses of low broadband penetration. Digitisation, which was already an important target, is therefore moving up the agenda for businesses and governments alike, with many accelerating their timelines because of Covid-19.
- Since 5G is at a crucial early stage and at the cusp of scaling across Asia Pacific, Covid-19 is clearly going to have an impact on deployments and uptake, affecting both supply- and demand-side economics. The impact of Covid-19 on 5G growth will be greater in Asia Pacific since the region is home to some of the first 5G networks, compared to other regions where many markets have yet to launch 5G. As a result, our revised forecasts show that the total number of 5G connections will be almost 20% lower in 2020 in Asia Pacific than previously expected.
- More positively, internet connectivity is allowing people to continue working remotely. While working from home has already been an option for office workers for some time, 5G can provide an enhanced experience for virtual meetings and, of course, higher network capacities, making it an important tool to help meet new traffic demands.

In the face of these challenges, the digital ecosystem has proved vital in the response to Covid-19. Participants from the entire digital value chain – including operators, vendors, internet players and governments – are pulling together to ensure the most positive outcome possible. And as a side effect of the pandemic, mobile operators have been granted a unique opportunity with a boost in the adoption of mature/quality-based services e.g. video calling for business, online collaboration tools, video streaming, e-commerce and mobile payments.

The outlook, therefore, is that the impact of Covid-19 on the mobile industry will be temporary. It would appear that 5G will experience a short-term dip rather than a long-term slump. However, the economic impact could be longer term, so governments should not raise taxes to offset the economic slowdown, which could jeopardise the recovery of the industry and the digital economy. As the world recovers from this crisis, wider connectivity and better networks will become a priority for consumers, enterprises and governments.

5G is growing, but not a priority everywhere

5G is gathering pace across Asia Pacific: nine markets have launched commercial mobile 5G services – including Japan in March – and 12 more have officially announced plans to do so. This makes the region home to some of the most advanced 5G markets in the world, with countries such as Australia, China, Japan, Malaysia, Singapore and South Korea all aiming to be global leaders in 5G. These markets will see relatively rapid 5G growth, while across developed Asia as a whole 5G will account for just under half of total mobile connections by 2025.

To support this generational shift and drive consumer engagement in the digital era, mobile operators in Asia Pacific will invest over $400 billion in their networks between 2020 and 2025, of which $331 billion will be spent on 5G deployments.

Meanwhile, in countries such as Bangladesh, India, Indonesia and Pakistan, the 5G opportunity is longer term, largely because there is still a lot of room to grow for 4G (which is the dominant mobile technology across Asia Pacific and will remain so for the foreseeable future). It is unclear whether consumers in many of the region's emerging markets will pay more for a 5G service, particularly when 4G will meet their needs in the majority of cases. The focus for these markets is on getting 4G right and pushing advancements in areas such as identity, digital commerce and payments, and cross-ecosystem collaboration to ensure 5G is launched at the right time under the right conditions to promote a sustainable and competitive 5G mobile industry, which is the foundation for an inclusive digital society.

Almost 700 million new mobile internet users by 2025

At the end of 2019, 2.8 billion people in Asia Pacific subscribed to mobile services, accounting for 66% of the population. With nearly 500 million new subscribers added since 2014, the region is one of the fastest growing in the world and home to over half of total global subscribers. While top-line growth is slowing, Asia Pacific will still account for around half of new subscribers globally by 2025: by this time, we forecast 266 million new subscribers to be connected across the region, bringing the total to just over 3 billion (70% of the population).

Meanwhile, the connectivity gap is closing. Over the next six years, 663 million people across Asia Pacific will start using mobile internet for the first time, bringing the total number of mobile internet users in the region to around 2.7 billion by 2025 (61% of the population). This growth in connectivity is helping the mobile industry increase its impact across all of the UN's Sustainable Development Goals (SDGs) and spurring adoption of mobile-based tools and solutions (e.g. in agriculture, education and healthcare) that aim to improve livelihoods in low- to middle-income countries and close the gender gap.

Mobile also continues to make a significant contribution to socioeconomic development across the region. In 2019, mobile technologies and services in Asia Pacific generated $1.6 trillion of economic value added (5.3% of GDP), with countries increasingly benefiting from improvements in productivity and efficiency brought about by the increased take-up of mobile services. The mobile ecosystem also supported around 18 million jobs (directly and indirectly) and made a substantial contribution to the funding of the public sector, with $180 billion raised through general taxation.

Policies for digital advancement

The current global health crisis has reinforced the need for mobile internet connectivity: it enables citizens to stay informed, educated and entertained; organisations to stay in business; and governments to provide essential services. However, around 240 million people in Asia Pacific lack mobile internet coverage and a further 1.9 billion people live within the footprint of a mobile broadband network but are not using mobile internet. With the immense impact of the pandemic on economies and societies, there is a greater need for collaborative leadership than ever before.

Cooperation between the mobile industry and policymakers is vital to ensure long-term digital resilience by improving mobile coverage and making the availability of digital services universal. There are a range of actions that policymakers can take:

- Assign sufficient amounts of mobile spectrum to operators in a timely manner, particularly in the sub-1 GHz 'coverage' bands, which are ideal for affordable rural coverage.
- Avoid inflating spectrum prices, as high auction reserve prices limit network investment by operators and drive up the cost of services.
- Simplify and standardise planning procedures and regulations for site acquisition, colocation and upgrades of base stations and small cells.
- Adopt policies that reduce costs in areas such as taxation, voluntary infrastructure sharing and fees.

There has never been a more relevant time for governments to implement policy measures to stimulate demand for internet services and address the barriers to internet use; this can be achieved by improving the affordability of devices and services, increasing digital literacy and skills, and providing locally relevant services. As governments decide on economic support packages that will shape societies for decades to come, digital strategies should be prioritised.

Mobile Economy Asia Pacific

UNIQUE MOBILE SUBSCRIBERS

2019-2025 CAGR: 1.5%

2019: 2.8bn

2025: 3.0bn

66% → 70%

Penetration Rate (% of population)

MOBILE INTERNET USERS

2019-2025 CAGR: 4.9%

2019: 2.0bn

2025: 2.7bn

48% → 61%

Penetration Rate (% of population)

SIM CONNECTIONS

Excluding licensed cellular IoT

2019-2025 CAGR: 1.6%

2019: 4.3bn

2025: 4.8bn

103% → 109%

Penetration Rate (% of population)

OPERATOR REVENUES AND INVESTMENT

2019

Operator revenues

$378bn

2025

Operator revenues

$406bn

Operator capex of $414 billion for the period 2020-2025 (80% on 5G)

INTERNET OF THINGS

2019

5.2bn

Total connections

2025

11.5bn

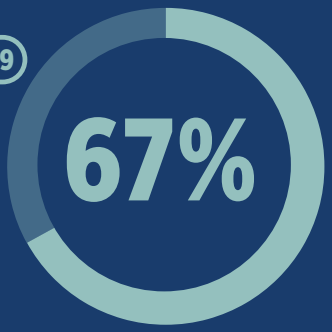
Total connections

SMARTPHONES

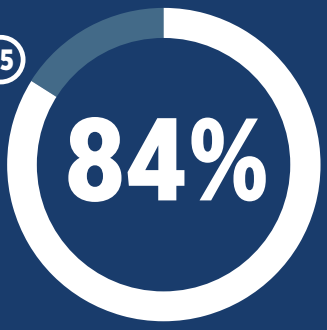
% of total connections

Excluding licensed cellular IoT

2019



2025



4G

2019

% of total connections

2025

Excluding licensed cellular IoT

5G

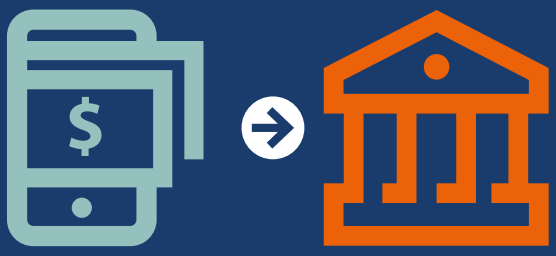
2025

1.1bn connections

% of total connections

Excluding licensed cellular IoT

PUBLIC FUNDING



2019

$180bn

Mobile ecosystem contribution to public funding

(before regulatory and spectrum fees)

MOBILE INDUSTRY CONTRIBUTION TO GDP

2019

$1.6tn

of GDP

EMPLOYMENT

2019

10m

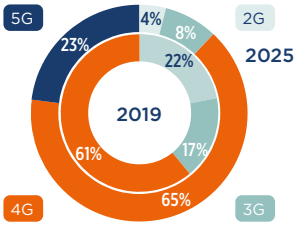
Jobs directly supported by the mobile ecosystem

+8m indirect jobs

Asia Pacific

Connections[1]

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

2019 103% → 2025 109%

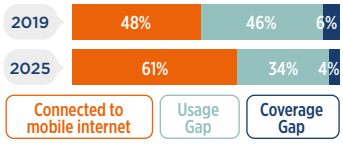
SMARTPHONE ADOPTION

2019 67% → 2025 84%

Subscribers[2]

SUBSCRIBER PENETRATION

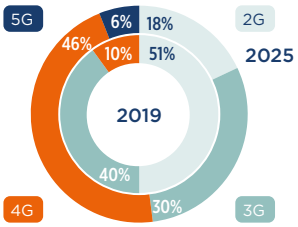
2019 66% → 2025 70%



"Leading Nations" programme[3]

Bangladesh

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

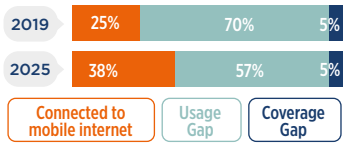
2019 100% → 2025 103%

SMARTPHONE ADOPTION

2019 40% → 2025 69%

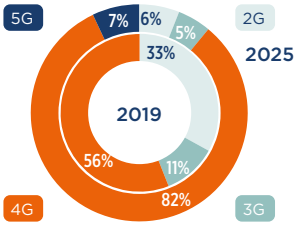
SUBSCRIBER PENETRATION

2019 54% → 2025 59%



India

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

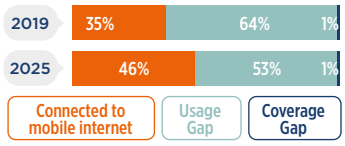
2019 78% → 2025 85%

SMARTPHONE ADOPTION

2019 67% → 2025 84%

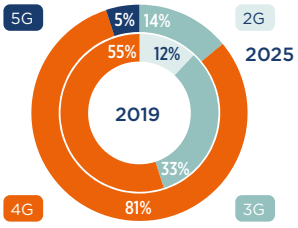
SUBSCRIBER PENETRATION

2019 52% → 2025 57%



Indonesia

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

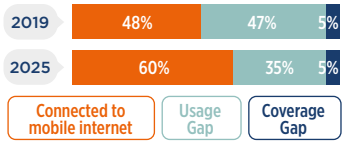
2019 124% → 2025 136%

SMARTPHONE ADOPTION

2019 74% → 2025 89%

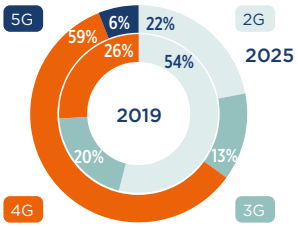
SUBSCRIBER PENETRATION

2019 65% → 2025 68%



Pakistan

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

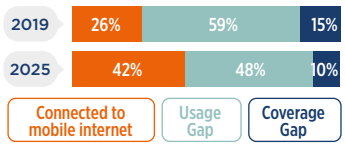
2019 76% → 2025 90%

SMARTPHONE ADOPTION

2019 49% → 2025 70%

SUBSCRIBER PENETRATION

2019 41% → 2025 48%



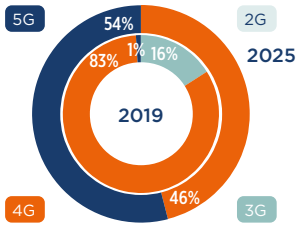
1. Unique SIM cards (or phone numbers, where SIM cards are not used), excluding licensed cellular IoT, that a mobile network has registered during the period of analysis. The number of subscribers differs from the number of connections because a unique user can have multiple connections.
2. Unique users who have used internet services on their mobile device during the period of analysis. We define mobile internet services as any activity that consumes mobile data, excluding SMS, MMS (multimedia messaging service) and cellular voice calls.
3. The GSMA Leading Nations engagement (comprising Bangladesh, India, Indonesia and Pakistan) seeks to accelerate the growth of the digital economy and advance the mobile industry's sustainability by lobbying for regulatory modernisation with relevant stakeholders.

APAC 5G Forum[4]

Australia

Connections

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

2019 129% — 2025 132%

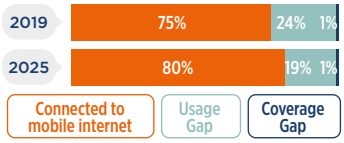
SMARTPHONE ADOPTION

2019 82% — 2025 84%

Subscribers

SUBSCRIBER PENETRATION

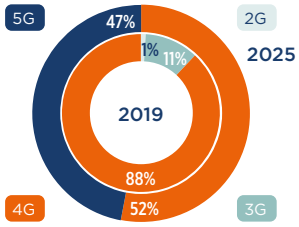
2019 83% — 2025 85%



Japan

Connections

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

2019 150% — 2025 162%

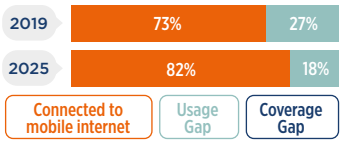
SMARTPHONE ADOPTION

2019 68% — 2025 83%

Subscribers

SUBSCRIBER PENETRATION

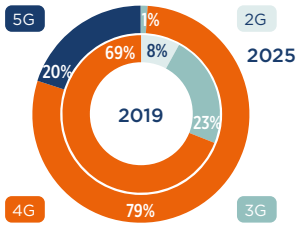
2019 87% — 2025 88%



Malaysia

Connections

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

2019 126% — 2025 126%

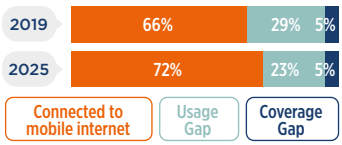
SMARTPHONE ADOPTION

2019 83% — 2025 87%

Subscribers

SUBSCRIBER PENETRATION

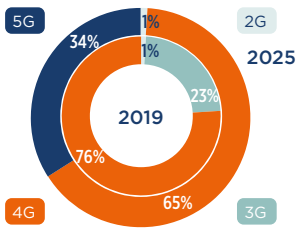
2019 80% — 2025 82%



Singapore

Connections

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

2019 147% — 2025 157%

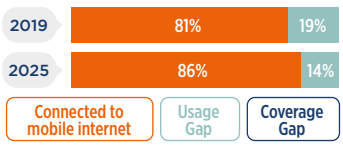
SMARTPHONE ADOPTION

2019 87% — 2025 89%

Subscribers

SUBSCRIBER PENETRATION

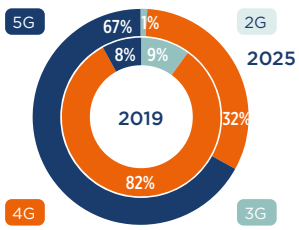
2019 88% — 2025 90%



South Korea

Connections

TECHNOLOGY MIX*



CONNECTIONS PENETRATION

2019 118% — 2025 119%

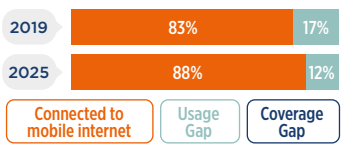
SMARTPHONE ADOPTION

2019 85% — 2025 90%

Subscribers

SUBSCRIBER PENETRATION

2019 87% — 2025 89%



4. GSMA APAC 5G Forum is a 5G industry engagement community platform to help operators and governments to collaborate, promote and foster the timely deployment and rollout of commercial 5G networks and services (B2C, B2B, B2G) through the promotion of active sharing of knowledge, experiences and know-how of best practices related to 5G technologies, commercial strategies and industry policies.

**% of total connections excluding licensed cellular IoT*

Note: totals may not add up due to rounding

01

The mobile market in numbers

1.1
Over 250 million new subscribers by 2025

Figure 1

Source: GSMA Intelligence

Growth is becoming harder to see, but total subscribers will surpass 3 billion by 2025

Million

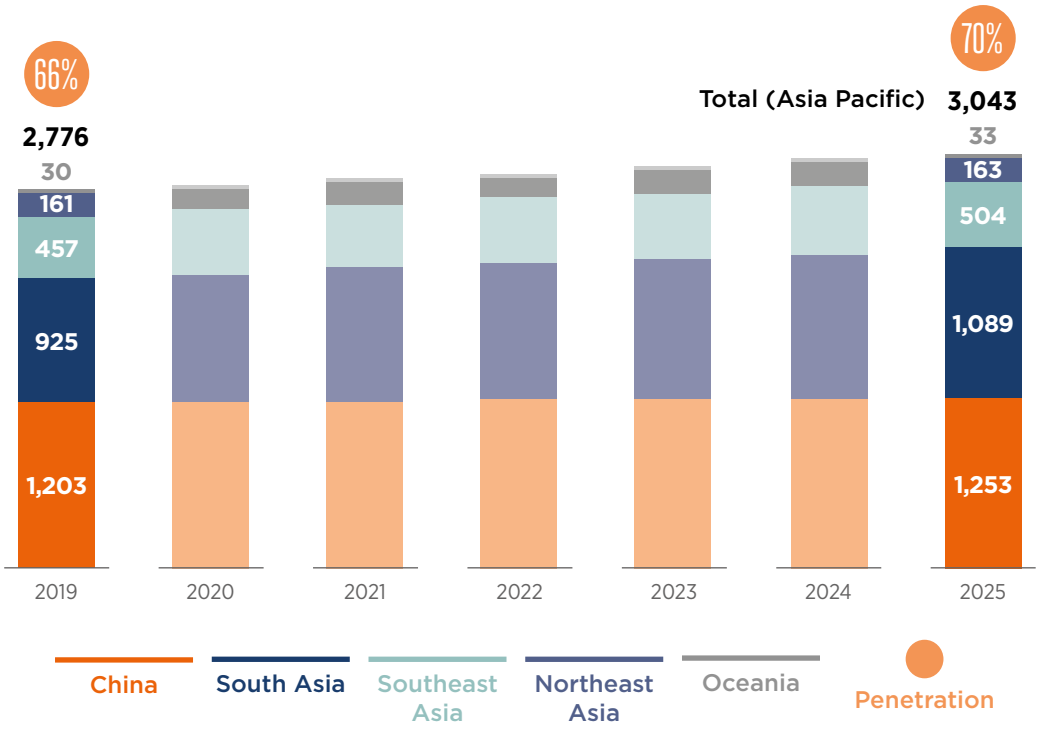
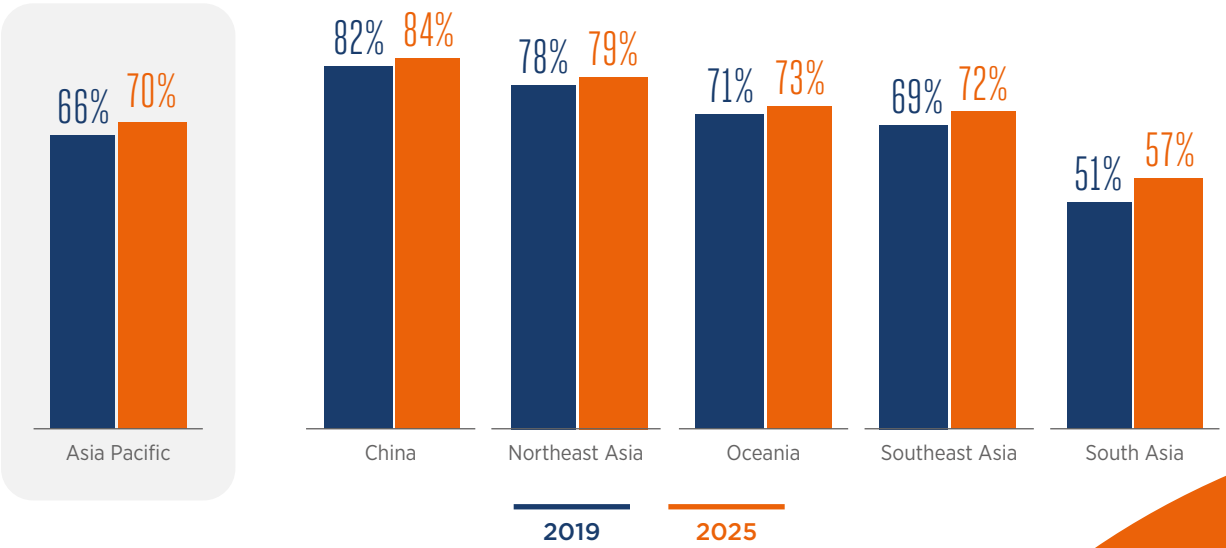


Figure 2

Source: GSMA Intelligence

Two thirds of the region's population subscribe to mobile services; China and Northeast Asia are the most advanced

% of population



1.2
5G starts to ramp up, while 4G dominates

Figure 3

Source: GSMA Intelligence

4G surpassed 60% of total connections in the region in 2019; 5G will overtake both 2G and 3G in 2022

% of connections (excluding licensed cellular IoT)

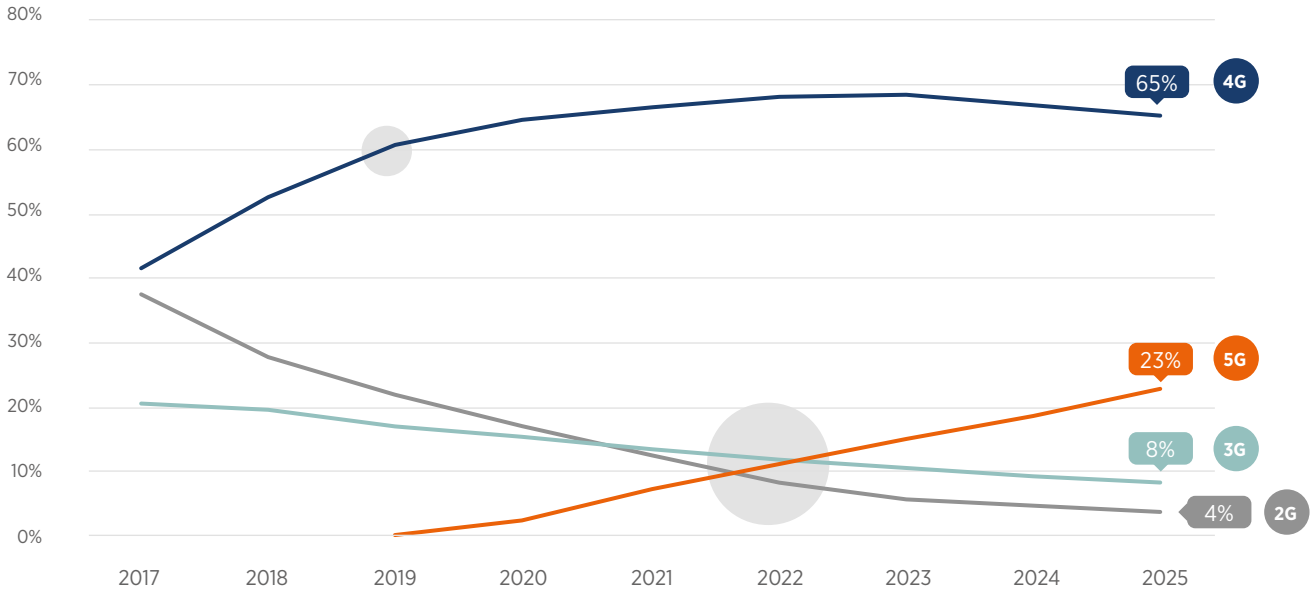


Figure 4

Source: GSMA Intelligence

Nine markets in Asia Pacific have launched commercial mobile 5G services; 12 more have officially announced plans to launch

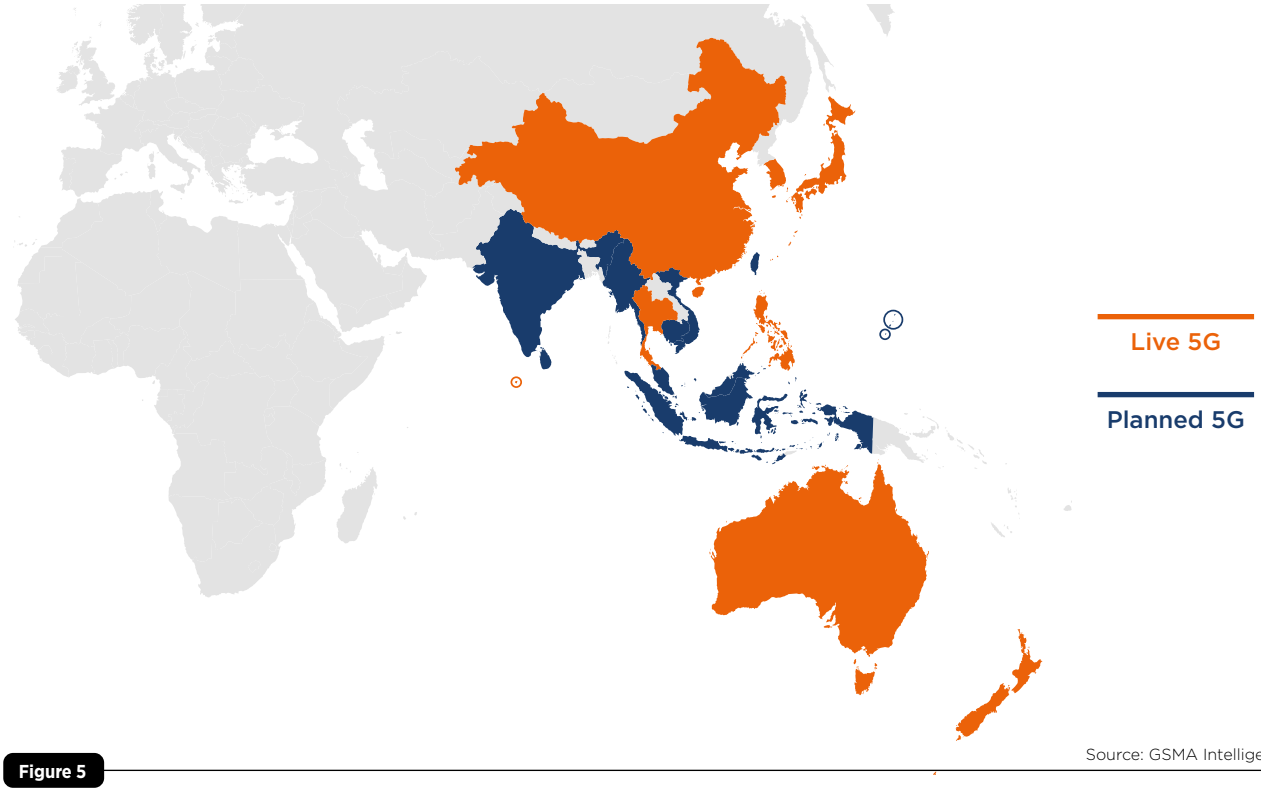
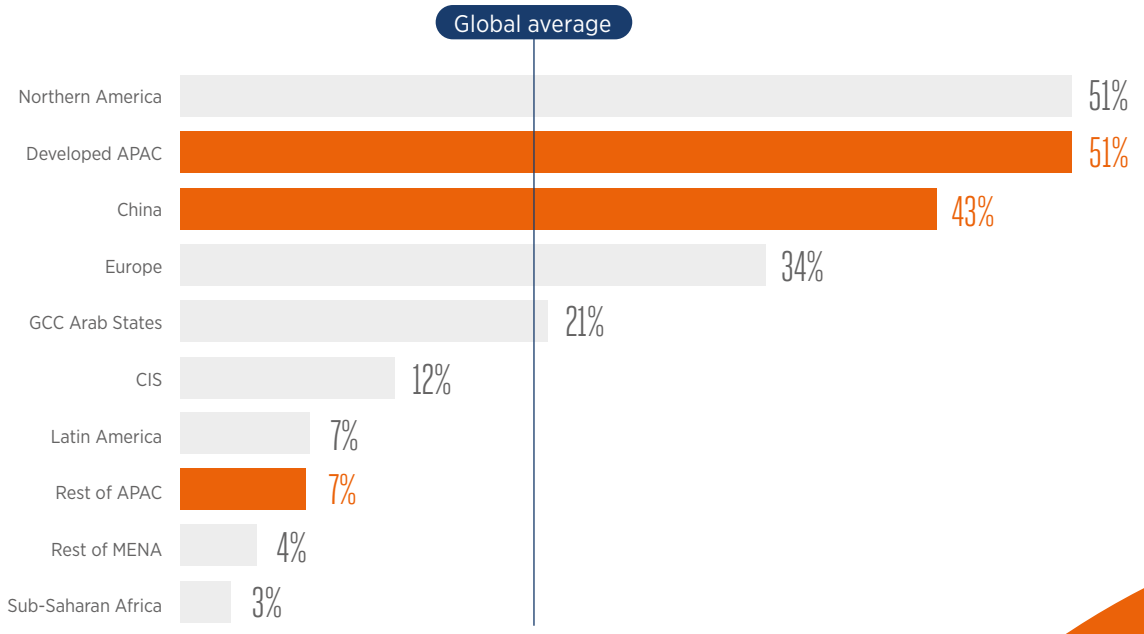


Figure 5

Source: GSMA Intelligence

Asia Pacific is home to some of the most advanced 5G markets, with South Korea, Australia, Japan and China leading the way

5G adoption in 2025 (% of total connections)



1.3
Increased connectivity for people and things

Source: GSMA Intelligence

Figure 6

Almost 700 million people across the region will start using mobile internet by 2025; two thirds will be from China and India

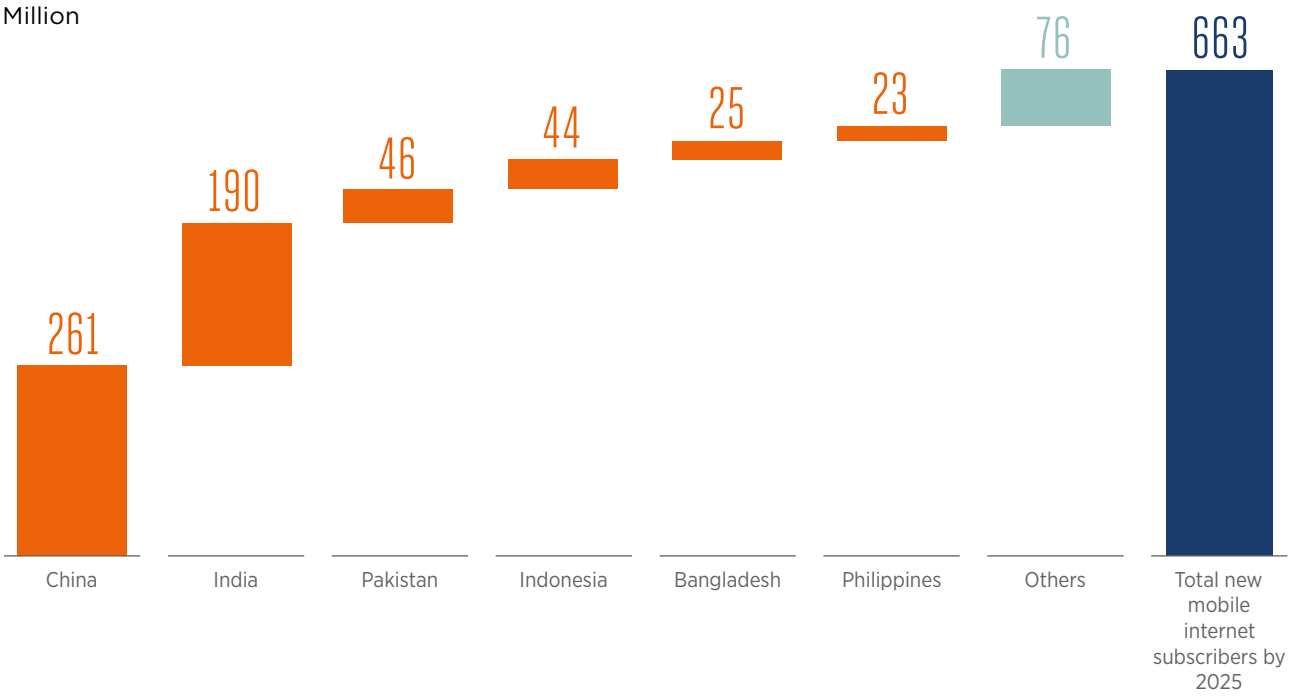


Figure 7

Source: GSMA Intelligence

Asia Pacific will have the three largest smartphone markets by 2025, which together will account for over 40% of global connections

Smartphones as a % of connections (excluding licensed cellular IoT)

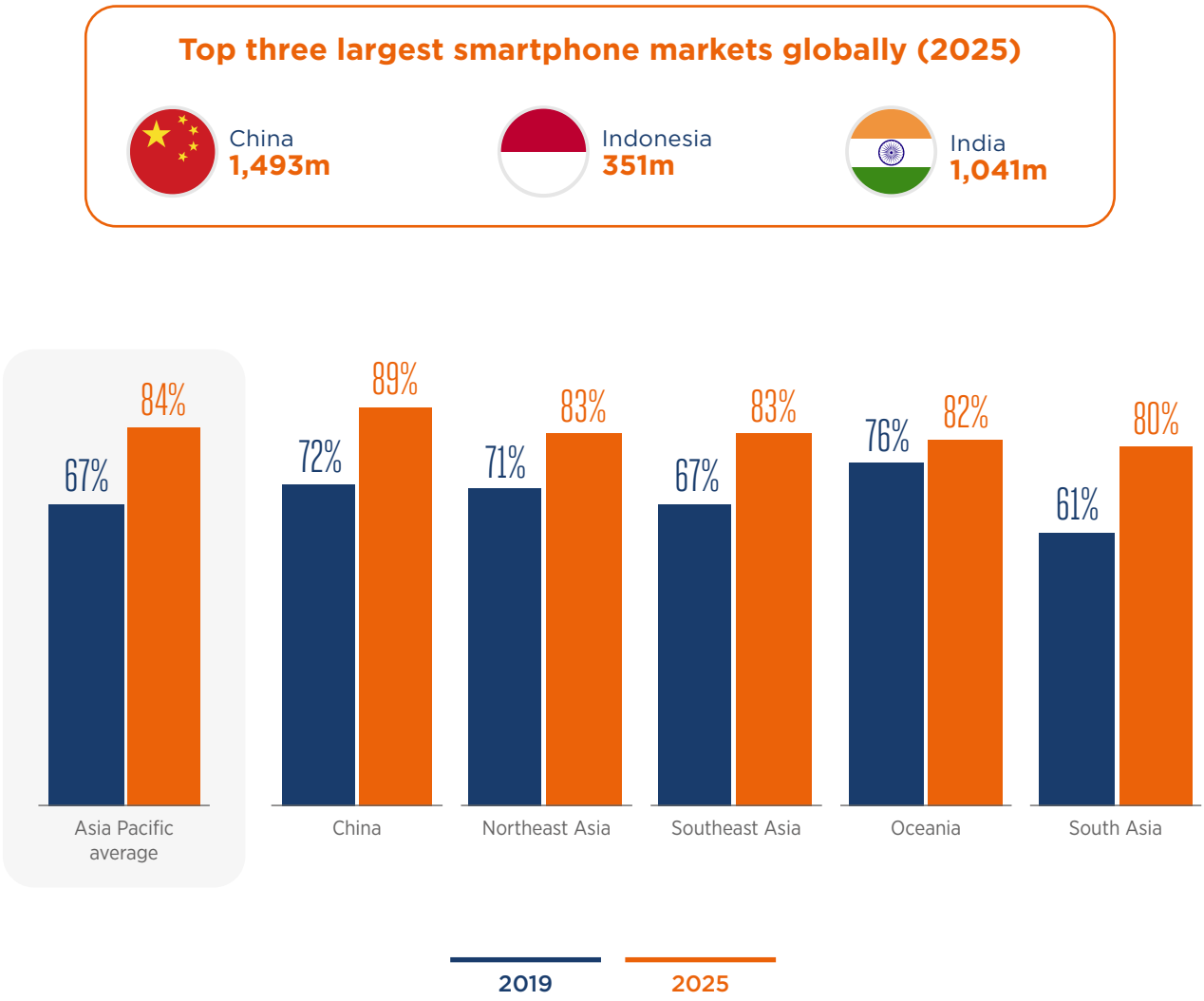


Figure 8

Source: GSMA Intelligence

Over 6 billion new IoT connections in Asia Pacific by 2025, accounting for half of global new additions – smart home and smart buildings are key growth verticals

Billion

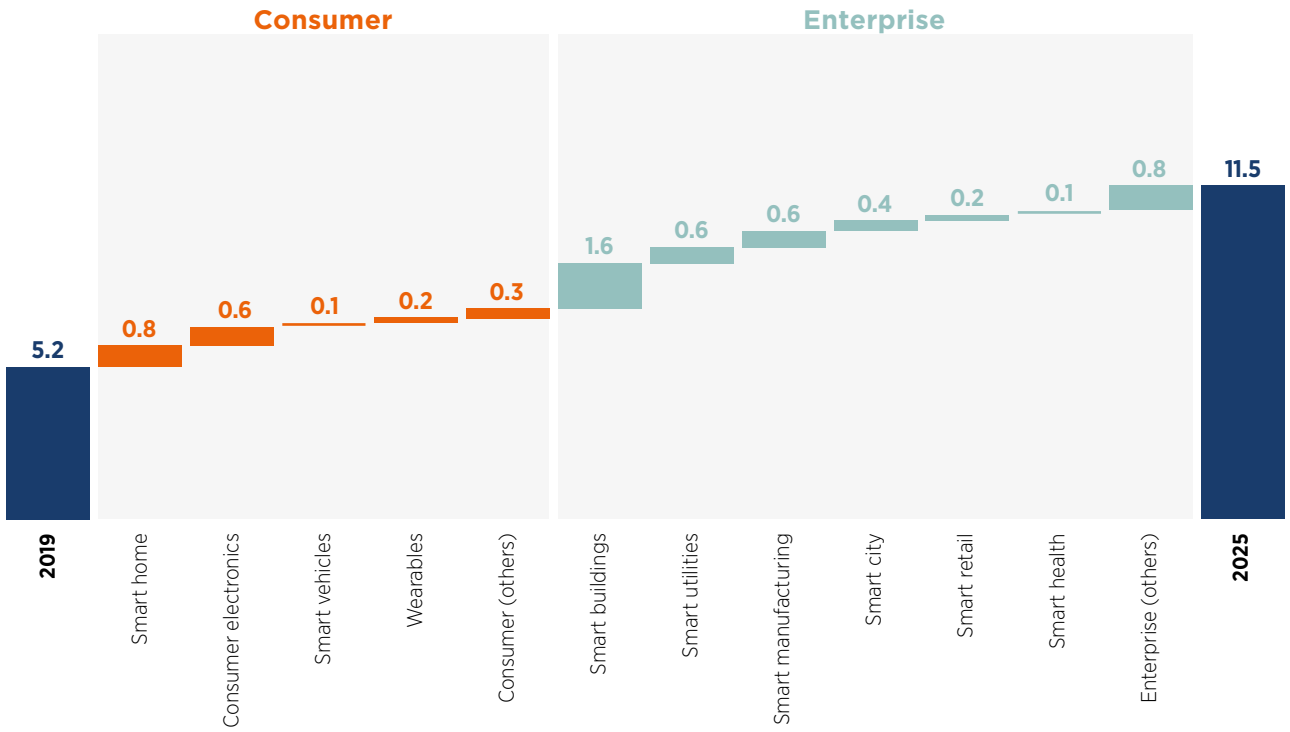
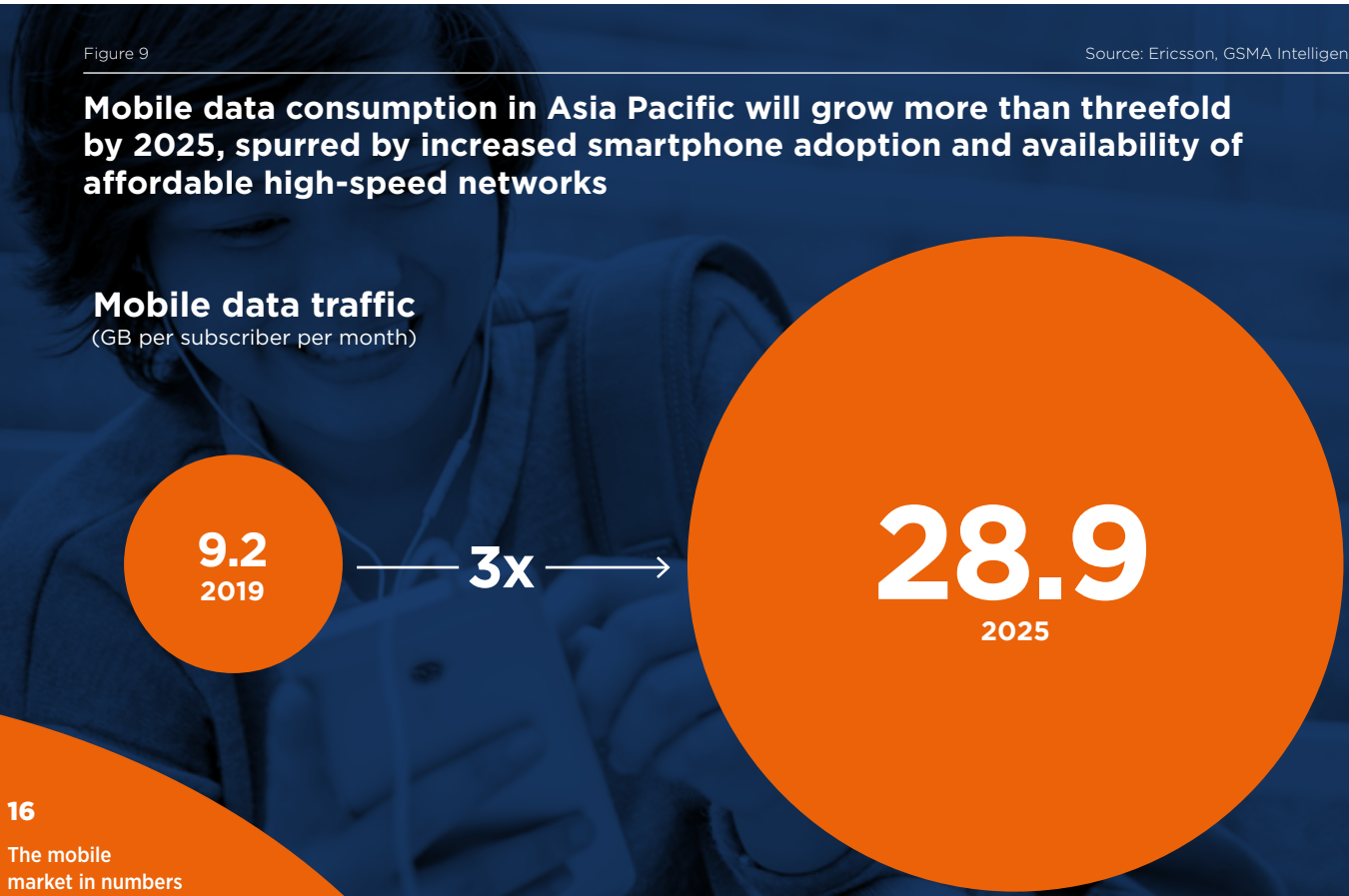


Figure 9

Source: Ericsson, GSMA Intelligence

Mobile data consumption in Asia Pacific will grow more than threefold by 2025, spurred by increased smartphone adoption and availability of affordable high-speed networks



1.4
Financial outlook improving, but challenges remain

Figure 10

Source: GSMA Intelligence

Covid-19 will lead to a dip in revenues to $377 billion in 2020; 2021 will see a recovery, followed by modest growth out to 2025

Mobile revenue (billion)

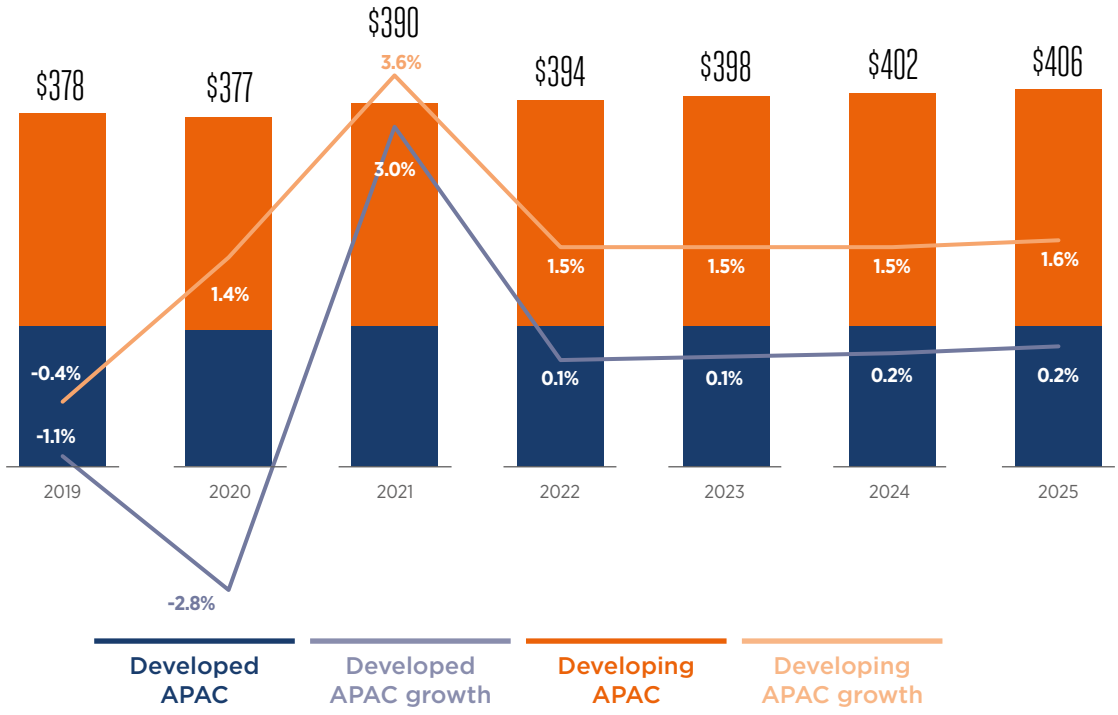
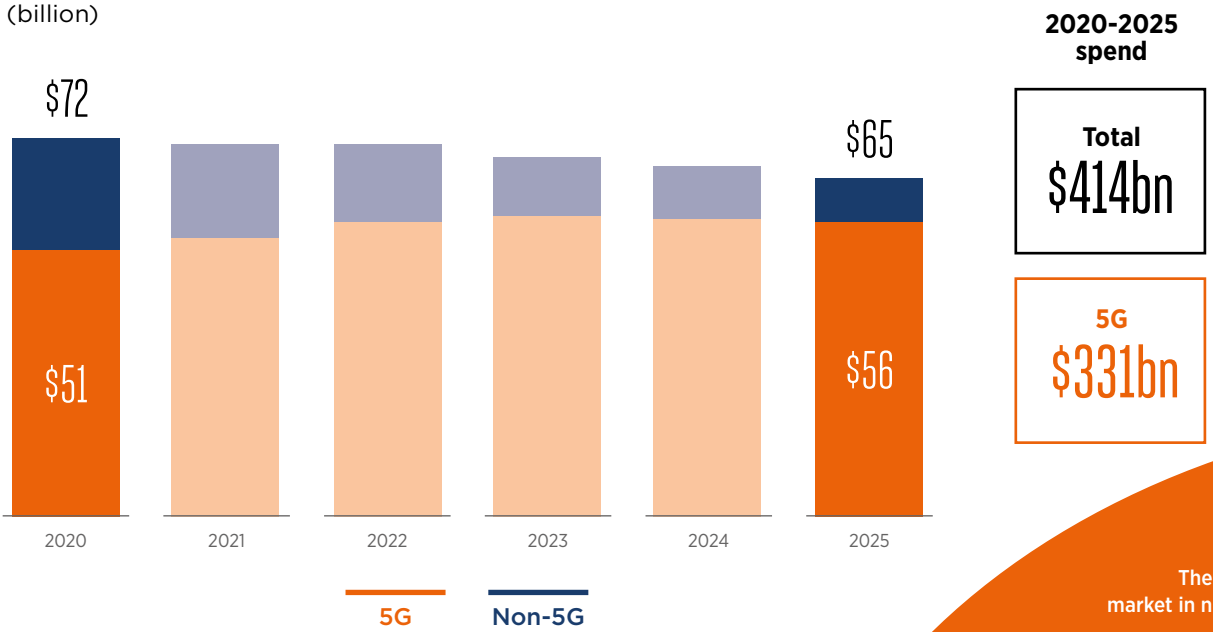


Figure 11

Source: GSMA Intelligence

Between 2020 and 2025, mobile operators in Asia Pacific will invest over $400 billion, 80% of which will be on 5G

Capex (billion)



India financials in focus: frontline gains mask underlying pains

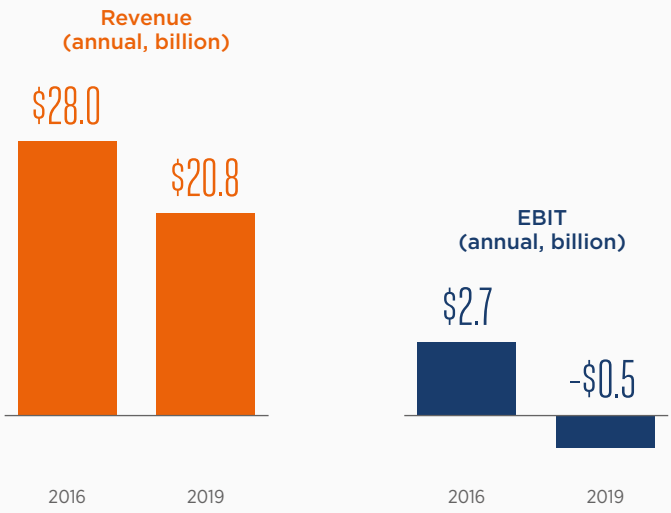
The Indian mobile market has been in a period of turbulence over the last few years, which can be traced back to the entrance of Reliance Jio in 2016. From a consumer perspective, things look good: the price war that followed Jio's entry has resulted in India having some of the cheapest mobile data pricing in the world, while the increased availability of affordable handsets from regional vendors has helped push 4G to almost 60% of total connections (compared to 25% and 10% in Pakistan and Bangladesh respectively).

However, the price war has had a significant impact on operator financials: annual revenues have declined by 26% since 2016, while annual EBIT has dropped from $2.7 billion to -$0.5 in the same time frame (a swing of over $3 billion).

Figure 12

Source: GSMA Intelligence, operator reports

Indian operator financials paint a sorry picture



While financials are steadily improving, Indian operators are under financial stress due to low average revenue per user (ARPU), substantial network investments, high spectrum costs and significant debt. This has been exacerbated by the Supreme Court AGR judgment (24 October 2019), which ruled that the leading mobile operators must pay approximately INR920 billion ($12.09 billion) towards licence fee and spectrum usage charges (plus interest, penalty and interest on penalty). The liability of some of the operators is significant, placing them in a precarious position – to repay the huge amounts owed in such a short time is a major, and potentially insurmountable, challenge.

The above factors could weaken the telecoms sector as a whole. Future network expansion and 5G plans could be put at risk, and there could be a domino effect on the entire digital value chain. This is particularly pertinent as India looks to enter the 5G era because a thriving mobile sector needs to be in place to help drive the creation and delivery of 5G products and services. The government should therefore seek to create an enabling environment for this to happen, encouraging operators to invest in the market and develop innovative services for the 5G future.

While subject to cyclical variation, falling investment levels (total operator capex declined by 22% annually in the second half of 2019) are a further indicator that the market is on an unsustainable path and in need of rebalancing, including an immediate implementation of the National Digital Communications Policy 2018 (NDCP-18), if India is to become a digital powerhouse.

02

Key trends shaping digital societies: Covid-19 focus

Fearing the impact of Covid-19 on healthcare systems and public wellbeing, governments across the globe have instated quarantines, travel bans and lockdowns, among other measures. Although there have been many international health crises before, the Covid-19 pandemic differs because of its scale and the worldwide efforts being taken to address it.

The Covid-19 outbreak has had wide-sweeping effects on all aspects of the economy due to falling commodity prices, reductions in international investment, decreased incoming remittances, rising foreign debt burdens and a disproportionate impact on the informal sector (especially important in Asia Pacific). Undoubtedly, the outbreak will affect the development of the mobile ecosystem as well, despite the industry's best efforts to cushion the impact.

That said, the digital ecosystem has proved vital in the response to Covid-19. Participants from the entire digital value chain – including operators, vendors, internet players and governments – are pulling together to ensure the most positive outcome possible. And as a side effect of the pandemic, mobile operators have been granted a unique opportunity with a boost in the adoption of mature/quality-based services e.g. video calling for business, online collaboration tools, video streaming, e-commerce and mobile payments. At the same time, the situation has brought to attention governments that have not taken the necessary steps to establish an inclusive digital economy.

2.1
Digitisation moves up the agenda for businesses and governments

Across Asia Pacific, and indeed around the world, the Covid-19 outbreak has highlighted the importance of a robust digital economy. In less developed markets, the crisis has exposed the weaknesses of low broadband penetration.

Digitisation, which was already an important target, is therefore moving up the agenda for businesses and governments alike, with many accelerating their timelines because of Covid-19. A range of businesses, particularly those in retail, transport, logistics, manufacturing and healthcare, are looking to potentially increase their investment in digital transformation to cope with the impact of the pandemic and build a stronger position for the future. Vendors of ICT solutions, especially those operating across the entire value chain, should take this as an opportunity to strengthen their role as key ICT partners to enterprises. But timelines will vary: some enterprise customers will escalate their ICT investments immediately, while others will have to balance addressing the short-term crisis with long-term opportunities.

For operators, decisions on network transformation strategies are more important than ever. Near-term challenges, such as spiking data usage, coupled with longer-term commercialisation of 5G, are driving operators to introduce innovations such as virtual RAN, edge networking, network automation and security enhancements into their networks.

Figure 13

Source: GSMA Intelligence Network Transformation Survey 2019

Operators prioritise revenue generation and customer experience over cost-cutting as the primary stimulus for network transformation

What is the primary goal driving your network transformation strategy? (% of respondents)

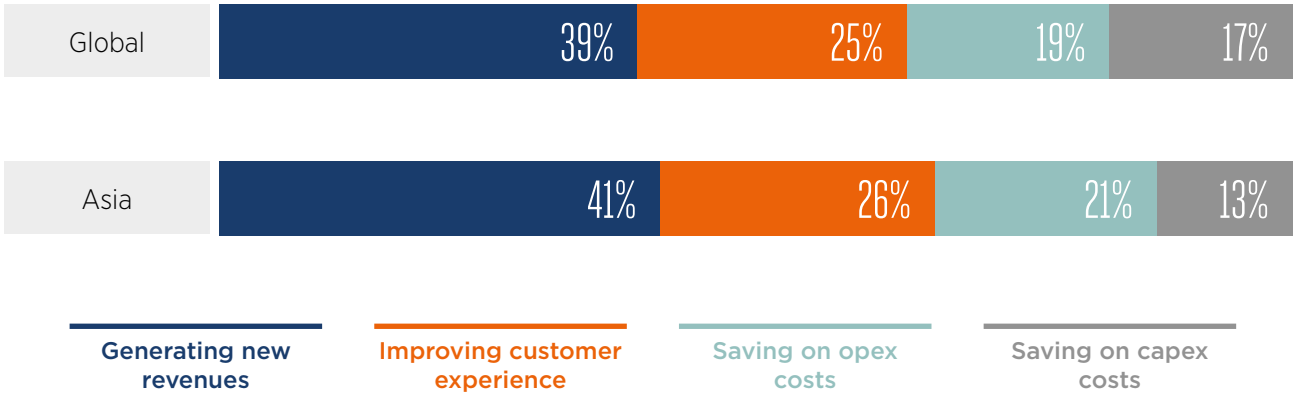


Figure 14

Source: GSMA Intelligence Network Transformation Survey 2019

Supporting new customers and network architectures are top priorities for RAN investments, while backhaul and virtualisation upgrades are crucial for the core network

Top-ranked priorities among operators for 5G investment in Asia

RAN	Core
1. In-building 5G coverage	1. Transport network upgrades
2. RAN automation and planning tools	2. Network security upgrades
3. New spectrum allocations	3. Virtualisation investments

2.2
Initial response to the pandemic

As Asia Pacific and the rest of the world adjust to the new norms of daily life, the importance of connectivity has never been more apparent. Operators are keenly focused on ensuring connectivity to keep people connected to their family and friends, work places, and sources of health and emergency information.

Mobile operators are reaching out to customers and working with governments to provide a range of vital services at this challenging time. They are also exploring how to leverage their big data capabilities to help monitor and limit the spread of Covid-19.

Work is being done in several key areas:

- **Maintaining network stability** – Networks will inevitably feel the strain from the surge in online activities, especially because of the large number of people suddenly working from home. Operators are investing in added capacity (or reconfiguring capacity profiles as loads move to domestic areas) to ensure their networks remain robust and secure. In some markets, such as New Zealand, networks are being given temporary access to additional spectrum.
- **Disseminating vital information** – The ability to keep citizens up to date with the latest advice and prevent the spread of disinformation is of paramount importance in fast-developing situations. As such, operators are working with governments to deliver timely information directly to mobile devices.
- **Connecting emergency services** – In a global health emergency, connecting health centres and hospitals is a top priority, as it enables services such as remote diagnostics and telemedicine. It is expected that regulations may be relaxed in some markets so that operators can ensure the prioritisation of connectivity for emergency services.
- **Helping with financial hardship** – Operators are offering a range of solutions to those suddenly facing financial problems: these include flexible payment options, the lifting or extending of data caps to enable increased usage, and free public Wi-Fi. A number of operators in developing markets have introduced zero rating of mobile money transaction charges and the expansion of transaction and mobile account limits.
- **Facilitating remote working** – In addition to a secure connection, many workers need additional tools and support in order to work from home. Operators are providing productivity tools, such as free conference-calling software and training plans, to support home working. And many are providing or enabling access to additional content and services for children at home too, often for free.
- **Leveraging the power of mobile big data** – The use of mobile big data analytics and AI has a key role to play in monitoring and containing disease outbreaks. There are several projects currently underway that involve operators working with national authorities to use aggregated and anonymised movement data to anticipate the spread of Covid-19.

Figure 15

Source: GSMA Intelligence

The Asia Pacific mobile industry's response to Covid-19 (selected initiatives)

Country	Coordinated response	Selected operator initiatives
Bangladesh	The government has used big data analytics to create a digital map of Covid-19 cases and determine susceptible areas. By responding to an SMS sent to them by their operator, mobile users can self-report symptoms and related information during a 90 second free-of-charge automated phone call.[5]	**Robi Axiata** • Offered basic health awareness information on its app and website. • Launched three Special Assistance Packs of 100 MB, 1 GB and 25 GB to cater to growing connectivity needs. **Grameenphone** • Launched an awareness campaign and toll-free helpline through its app and website. • Added a cautionary "Stay Home" message next to the signal bar on phones. **Banglalink** • Offered toll-free calls to coronavirus hotline numbers for its subscribers to facilitate preventive measures. • Launched a social awareness campaign on Twitter.

5. "Govt drawing on big data analytics to contain pandemic", The Daily Star, March 2020

Country	Coordinated response	Selected operator initiatives
India	The Telecom Regulatory Authority of India asked telecoms service providers, including Reliance Jio, Bharti Airtel, Vodafone Idea and BSNL, to ensure uninterrupted voice and data services for all users by increasing prepaid plan validity during lockdown. Operators also began to warn users of the spread of Covid-19 by greeting subscribers with a pre-recorded message before the regular phone ring when they attempt to make a call.[6]	**Reliance Jio** • Doubled 4G data on all prepaid plans. • Developed the Reliance Foundation Covid-19 India tool, analysing users' health and travel history to determine infection risk. It also provides access to the national and state helpline numbers, lists test centres in each state, hosts statistics and contains an FAQ section to improve people's understanding of the pandemic. **Vodafone Idea** • Offered free home delivery of SIM cards. **Bharti Airtel** • Launched Coronavirus Risk Scan, a self-diagnostic tool to check for symptoms and determine infection risk levels by asking questions about health and travel history.
Malaysia	The country's operators came together as part of the government's Prihatin Rakyat initiative to ensure customers stay connected and supported. Telcos provided free internet (1 GB per day) to their customers during the movement control order (MCO), offered zero-rated calls to important hotline and emergency numbers, and worked with authorities to disseminate health, emergency and public interest announcements via daily SMS broadcasts.[7]	**Maxis** • Encouraged customers to use its MyMaxis and Hotlink RED apps. These include a free 3 GB mobile internet pass for all Maxis, Maxis Business and Hotlink Postpaid plans; free data for Skype, Zoom and Microsoft Teams; easy digital top-ups with up to 30% cashback; and SOS top ups for every customer in need. **Celcom** • Offered free unlimited access to WhatsApp and Microsoft Office 365 applications. • Allowed seven-day extensions on postpaid bill payments. **Digi** • Offered an additional 1 GB of data daily for postpaid subscribers. • Significantly reduced the cost of accessing e-learning app Classruum and provided free 24/7 data access to JomStudi (a national curriculum digital learning hub).

6. "Telecom operators in India warn people of coronavirus outbreak, share tips", TechCrunch March 2020
7. "Telcos get on board government's Prihatin Rakyat initiative", New Straits Times, March 2020

Country	Coordinated response	Selected operator initiatives
Pakistan	In partnership with the Pakistan Telecommunication Authority and Ministry of National Health Services, all four local operators sent SMS alerts to people who might have come into contact with infected individuals; they also replaced the standard ringback tone (heard by the caller when a call is being made) with messages about preventive measures. Additionally, all the operators launched new packages and offers (giving additional data and on-net voice minutes) at low prices to help people to stay and work from home, along with free calls to emergency numbers.	**Zong** • Provided zero-rated access to Covid-19-related web pages of the World Health Organization and the National Disaster Management Authority. • Offered free calls to 4343, which provides access to local government hospitals and doctors. **Jazz** • Launched an "Assistance for Free" service, whereby free calls can be made to selected government offices, doctors and laboratories. **Ufone** • Made calls to the Pakistan Red Crescent Society helpline 1030 free of charge for its subscribers. **Telenor Pakistan** • Changed its network name to ''Stay Home''.
South Korea	South Korea's Centers for Disease Control and Prevention ran a contact tracing system that uses data from 28 organisations (including police, financial firms and smartphone companies) to analyse the movements of individuals with Covid-19 and get in touch with anybody who has come into contact with them.[8]	**SK Telecom** • Provided the Gyeongbuk Provincial Police Agency access to its Geovision population analysis service to analyse mobile geolocation data across the country in real time.[9]
Australia	The government launched three apps to help people stay up to date and protected: The COVIDSafe app finds close contacts of Covid-19 cases, then helps officials to quickly contact people who may have been exposed; the Coronavirus Australia app helps the public stay up to date with official information and advice; and the Australian government Covid-19 WhatsApp channel provides the latest news, case numbers, guidance on symptoms and stopping the spread, and support for those affected.	**Telstra** • Offered 25 GB extra data on consumer and small business postpaid mobile and mobile broadband tariffs, plus reduced-rate data offers for enterprise customers. • Provided 26,000 free SIMs for students without a home internet connection. • Allowed unlimited local, national and mobile calls for eligible pensioners.

8. "Koreans know where it was, helping contain coronavirus outbreak", The Economic Times, March 2020
9. "Coronavirus: How South Korea 'crushed' the curve", BBC, May 2020

2.3
Impact on 5G rollout

Since 5G is at a crucial early stage and at the cusp of scaling across Asia Pacific, Covid-19 is clearly going to have an impact on deployments and uptake, affecting both supply and demand-side economics.

- **Supply: signs of normality returning**

  China seems to be past the worst of the outbreak, with China Unicom and China Telecom planning to reach their target of 250,000 5G base stations in Q3 2020 – even earlier than originally planned. However, factory closures and pressure on the domestic workforce across Asia Pacific will take their toll on planned rollouts. In India, for example, the Department of Telecommunications has delayed its 5G spectrum auction, meaning the earliest possible date for 5G rollout is likely to be 2021–22.[10]

  More positively, Japan managed to launch its mobile 5G service at the end of March 2020, while in Australia, Telstra has announced it has reached over 50% 5G coverage across 40 Perth suburbs.[11]

- **Demand: a heavy toll on consumer spending**

  Despite extreme government countermeasures, it is inevitable that disposable income for both consumers and enterprises will fall. According to Ipsos, 56% and 40% of consumers in Japan and Australia respectively believe that the pandemic will have an impact on their personal finances. Consumers are not going to stop using mobile phones, but it may now be more difficult for operators to persuade people to spend more on services and devices to upgrade to 5G.

  The consequence of this has already been seen in China, where iPhone sales in February 2020 dropped to 490,000 (down from 1.27 million in the previous year). The reopening of stores in the Chinese market will reignite some interest, but the huge decline is a sign of what may be to come for markets at earlier stages of the crisis. It seems likely, therefore, that the Covid-19 pandemic will slow sales of the first 5G iPhone, which is expected to be released later in 2020. Meanwhile, in South Korea, first-day sales of Samsung's latest 5G-enabled Galaxy S20 devices (launched in February) were around half that of its previous S10 series.[12] A high asking price with fewer subsidies/discounts could be one reason for this – the entry-level S20 costs KRW1.248 million (over $1,000) – but a drop in the number of visitors to stores due to infection fears certainly didn't help.

Taking these factors into account, our revised forecasts show that the total number of 5G connections will be almost 20% lower in 2020 in Asia Pacific than previously expected. This is a larger reduction than the global average (-15%), mainly due to a downward revision of 22% in China, which has a significant regional impact given that the country accounts for almost 90% of the region's 5G connections. The impact of Covid-19 on 5G growth will also be greater in Asia Pacific since the region is home to some of the first 5G networks, compared to other regions where many markets have yet to launch 5G.

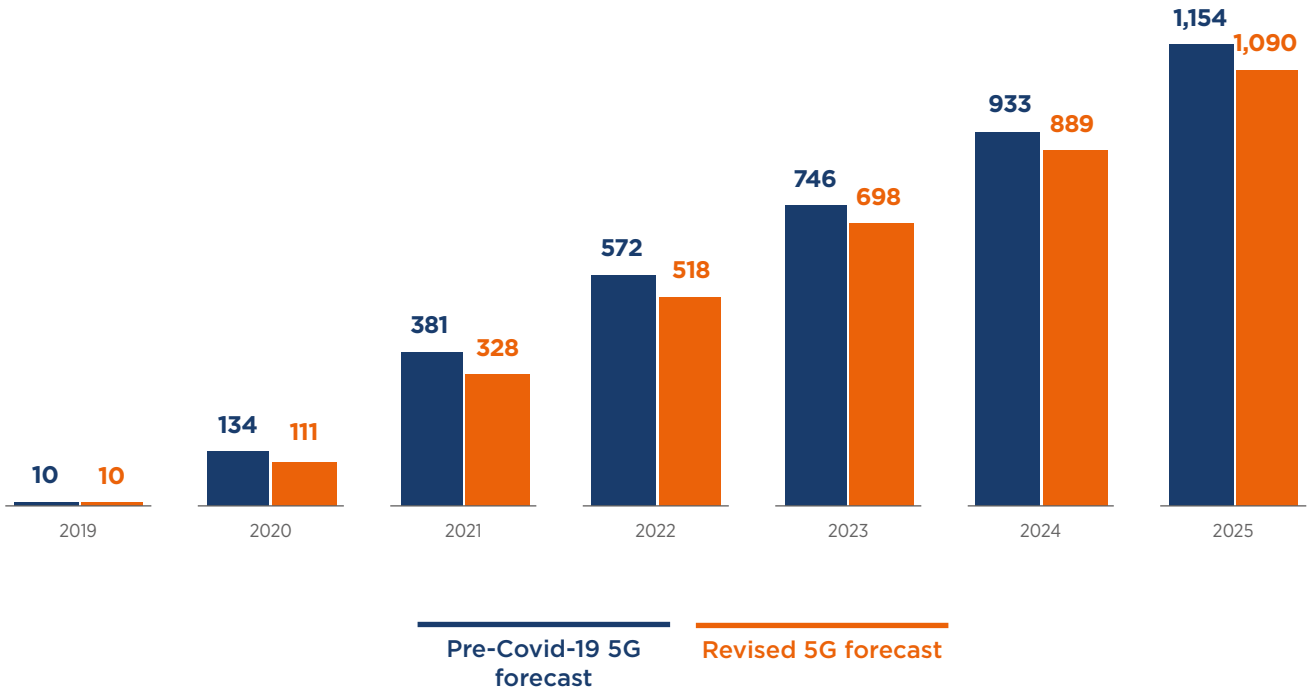
10. "Coronavirus lockdown delays 5G auction", Telegraph India, April 2020
11. "Forty Perth suburbs now have more than 50 per cent 5G coverage: Telstra", WAtoday, May 2020
12. "Initial sales of Galaxy S20 series downbeat amid virus fears", The Korea Herald, February 2020

Figure 16

Source: GSMA Intelligence

Covid-19 will result in 18% fewer 5G connections in Asia Pacific in 2020 than previously expected

5G connections (million)



Times of crisis can drive technological advancement

There is reason to be optimistic, though. Operators in South Korea have seemingly been unaffected, having reported 5G numbers largely as expected in their Q1 2020 results. One of the key use cases for 5G in the country is mobile gaming, which has become even more appealing given that people are staying at home during the pandemic and looking towards entertainment services.

Chinese operators also have cause to celebrate, with China Mobile and China Telecom claiming almost 50 million 5G customers by the end of March 2020 (China Unicom has yet to disclose 5G numbers). Of course, not all of these customers will actually be using a 5G service since they won't have a 5G-enabled phone. But at this rate, China could have close to 100 million 5G connections by the end of 2020.

Despite the challenges facing the industry, times of crisis can also serve as a driver of technological advancement and, in some cases, 5G is already proving its worth:

- Telekom Malaysia deployed 5G fixed wireless access base stations at two Covid-19 quarantine centres, allowing frontline staff, medical teams and patients admitted to the facilities to access enhanced mobile broadband services free of charge.[13]
- In Cambodia, Cellcard announced a 5G-enabled telemedicine service at four locations across Phnom Penh to help the nation's most critically ill during the crisis. The service will allow Phnom Penh's leading doctors to assess patients via video conference link to mobile phones and devices anywhere in Cambodia.[14]

More broadly, for those in isolation, internet connectivity is allowing people to work remotely. While working from home has already been an option for office workers for some time, 5G can provide an enhanced experience for virtual meetings and, of course, higher network capacities, making it an important tool to help meet new traffic demands.

Work aside, 5G will also play a key role in entertaining and connecting people. Mobile internet connectivity allows people to keep in touch with loved ones who would otherwise be isolated. It is also worth considering that with the cancellation or restriction of sports and TV shows, people will look for new ways to entertain themselves, some of which could be enabled by 5G.

The outlook, therefore, is that the impact of Covid-19 on the mobile industry will be temporary. The next few quarters will show whether the potential pent-up demand outlined above is enough to put 5G back on its previous growth trajectory. But for now, it would appear that 5G will experience a short-term dip rather than a long-term slump. As the world recovers from this crisis, wider connectivity and better networks will become a priority for consumers, enterprises and governments.

13. "TM deploys 5G base stations at 2 Covid-19 quarantine centres", New Straits Times, April 2020
14. "Cellcard announces Cambodia's first 5G use case to help the Kingdom during Covid-19", Cellcard, March 2020

03

Mobile contributing to economic growth and addressing social challenges

3.1
Mobile contribution to economic growth

In 2019, mobile technologies and services generated 5.3% of GDP across Asia Pacific – a contribution that amounted to over $1.6 trillion of economic value added. The mobile ecosystem also supported almost 18 million jobs (directly and indirectly) and made a substantial contribution to the funding of the public sector, with $180 billion raised through general taxation.

Source: GSMA Intelligence

Figure 17

The Asia Pacific mobile ecosystem generated just under $500 billion of economic value in 2019, with mobile operators accounting for around half

Billion, % of 2019 GDP

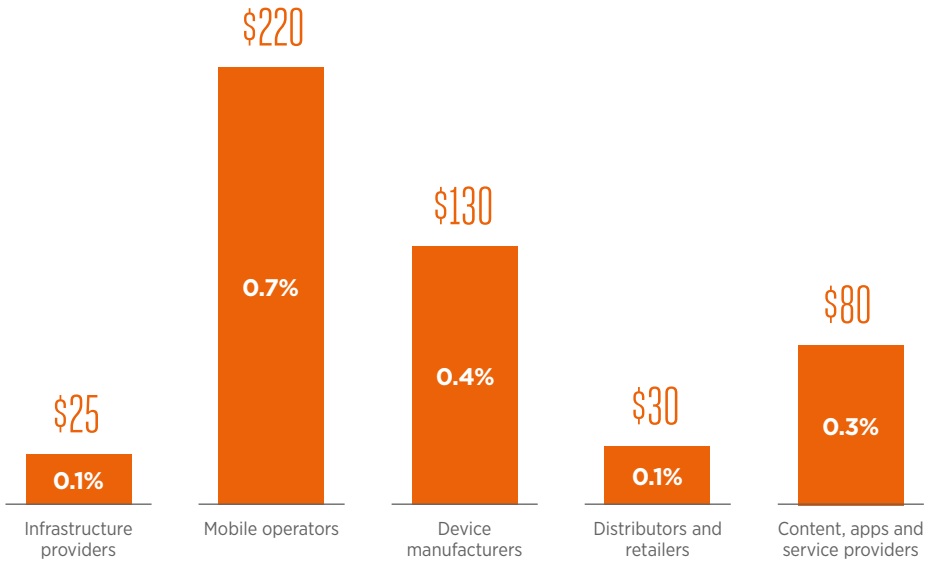


Figure 18

Source: GSMA Intelligence

Additional indirect and productivity benefits bring the total contribution of the mobile industry to over $1.6 trillion

Billion, % of 2019 GDP

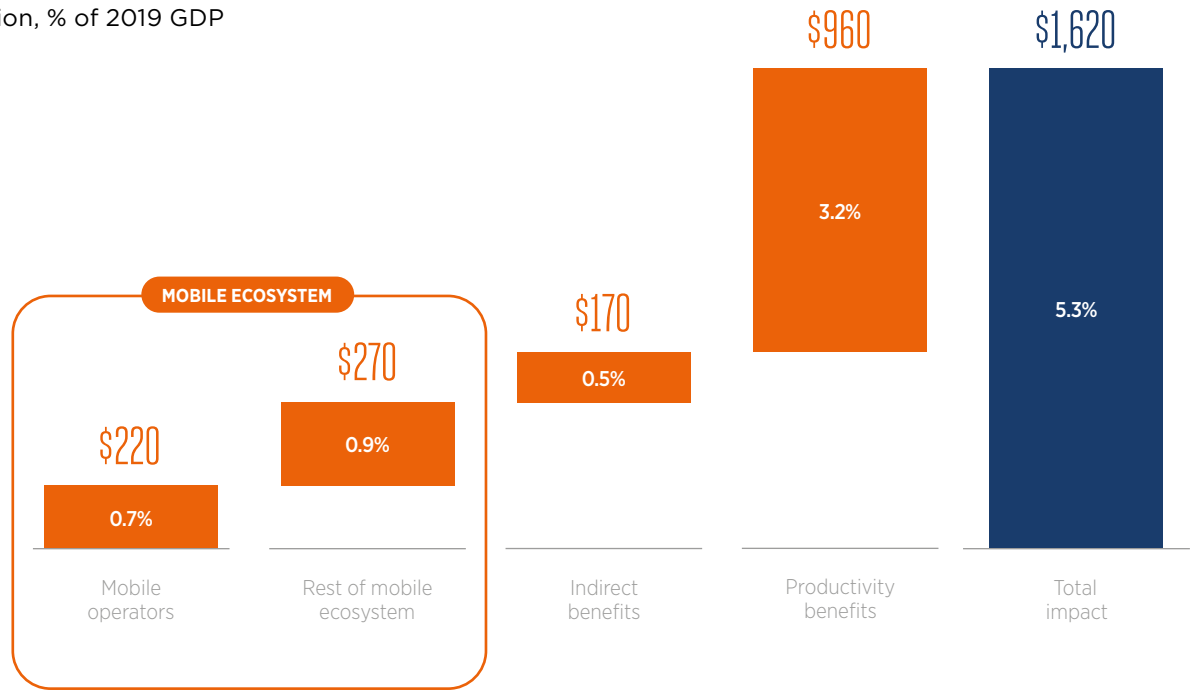
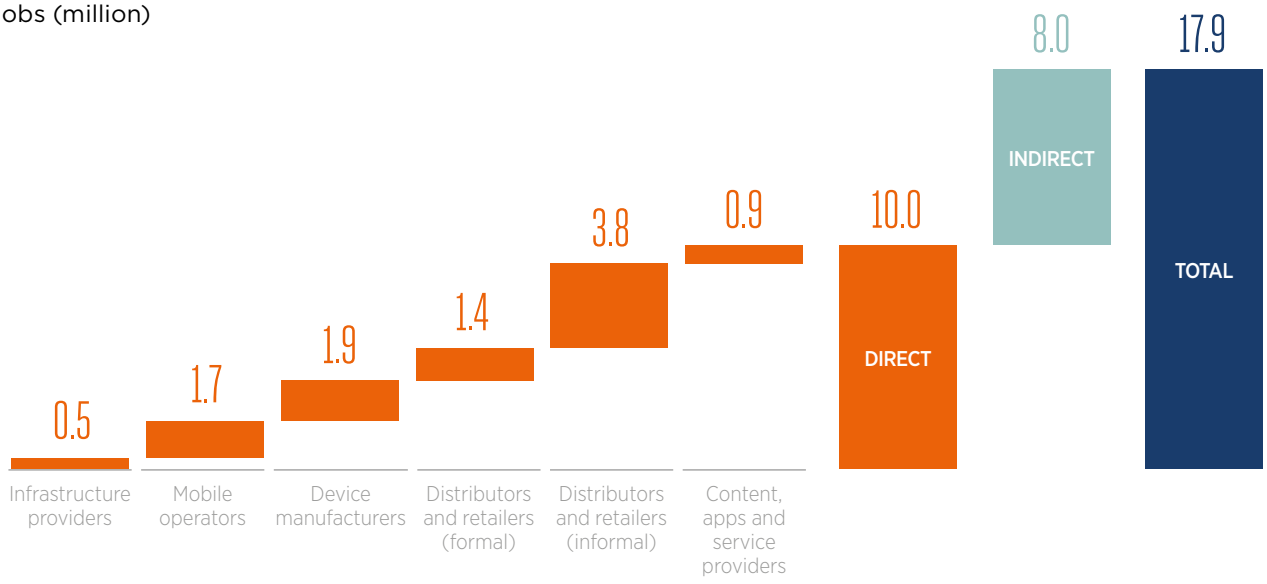


Figure 19

Source: GSMA Intelligence

The Asia Pacific mobile ecosystem directly and indirectly employs around 18 million people

Jobs (million)



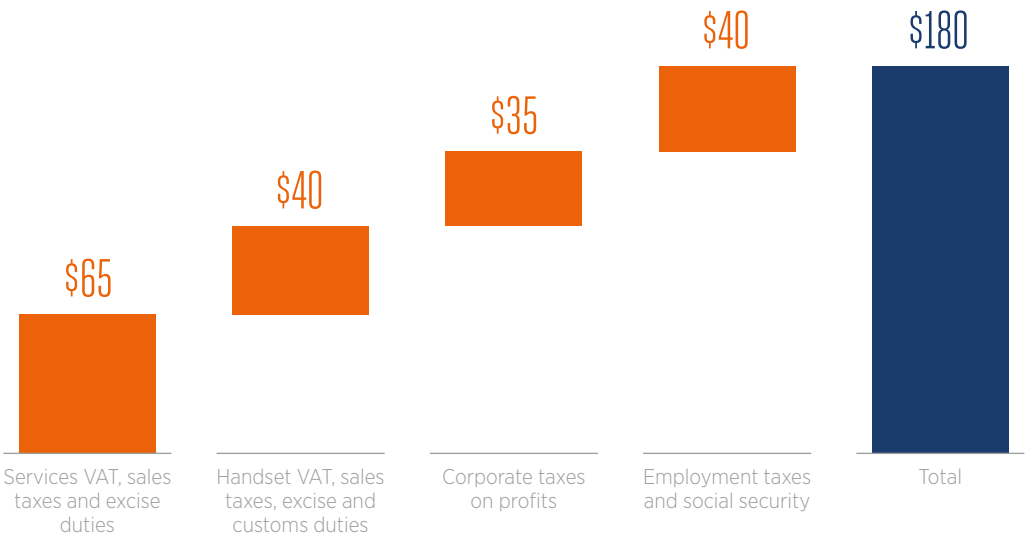
Note: totals may not add up due to rounding

Figure 20

Source: GSMA Intelligence

In 2019, the Asia Pacific mobile ecosystem contributed $180 billion to the funding of the public sector through general taxation

Billion



3.2 Expanding the benefits of mobile internet

At the end of 2019, 2 billion people across Asia Pacific were connected to the mobile internet, representing an increase of 160 million compared to the previous year. However, roughly 2.2 billion people remain offline. Given that mobile broadband networks (3G and above) cover 94% of the region's population, the 'coverage gap' is not the main issue. This is reflected by the fact that Asia Pacific's infrastructure score within the GSMA's Mobile Connectivity Index improved significantly over the last year; the region achieved the largest regional increase in average index score between 2016 and 2018.[15] For the 1.9 billion people who live within the footprint of a network but do not use mobile internet (the 'usage gap'), other barriers are much more pressing, such as affordability, consumer readiness (including gender equality) and availability of content/services.

Nevertheless, over the next few years, as these enablers of mobile internet adoption continue to improve, almost 660 million people across the region will start using mobile internet for the first time. By 2025, around 2.7 billion people in Asia Pacific (61% of the population) will be mobile internet subscribers.

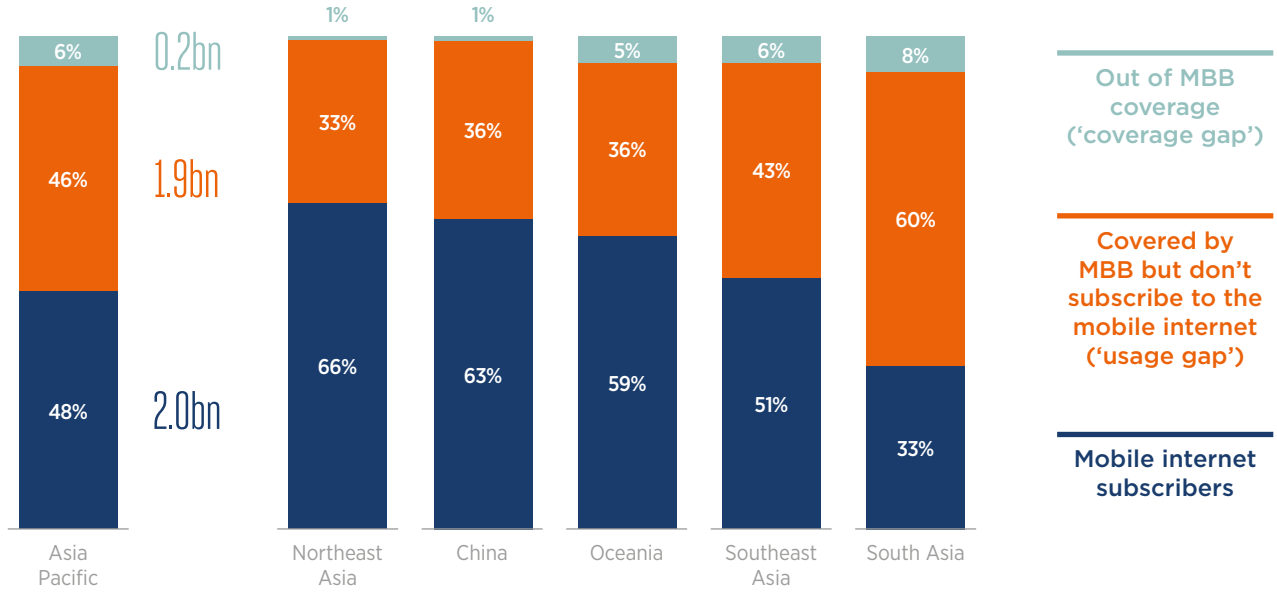
15. For more information see the GSMA report State of Mobile Internet Connectivity 2019 and the Mobile Connectivity Index website

Figure 21

Source: GSMA Intelligence

Around 2.2 billion people across Asia Pacific don't use mobile internet; for most, coverage is not the issue

% of population (2019)



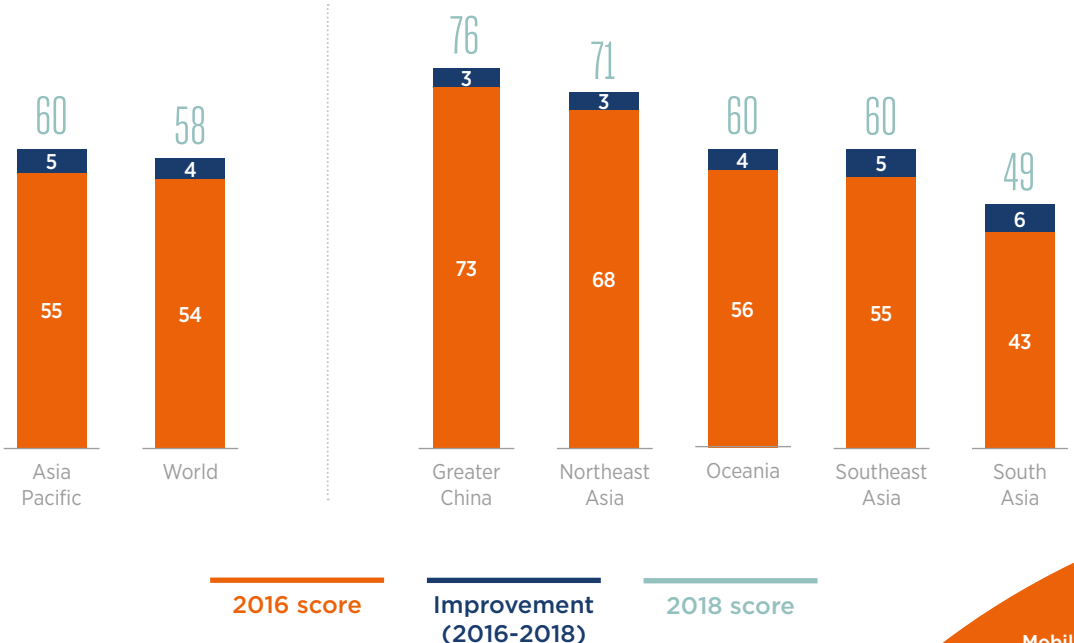
Note: totals may not add up due to rounding

Figure 22

Source: GSMA

Asia Pacific is the most improved region in the Mobile Connectivity Index over the last two years, primarily due to improved infrastructure; affordability in South Asia also greatly improved

GSMA Mobile Connectivity Index scores



3.3
Digital inclusion is key, particularly in difficult times

As a result of lockdowns, many have turned to the internet to maintain a sense of community, access education or crisis information, and safeguard a limited level of economic activity.

However, billions of people are still unfamiliar with the internet or find themselves in a digital desert, especially in low- and middle-income countries (LMICs), where many are struggling with the effects of lockdown. This lack of internet use not only excludes individuals from opportunities to overcome the social and economic limitations of self-isolation, but also hinders the ability of governments to effectively manage the pandemic and the associated economic fallout.

By extension, the limited use of mobile internet services, particularly in South Asia and Southeast Asia, worsens the impact of lockdowns:

- Following the closure of schools and other educational institutions, millions of students now depend on remote learning. Although 630 million mobile subscribers in Asia Pacific already use a phone to improve their education or that of their children,[16] the shift to online solutions for remote learning is leaving many behind. Some governments have had to turn to non-interactive technology, such as radio and television, to provide a minimum level of educational continuity for those unable to use the internet.[17]
- The limited uptake of digital services in LMICs is preventing businesses from moving to e-commerce or other online platforms to maintain a level of continued consumption. It is also complicating the distribution of potential financial support programmes, despite a recent surge in uptake of mobile financial services.[18]
- The effective distribution of crisis communications largely depends on digital channels and the capability of individuals to discern trustworthy sources and advice apart from manipulated information, posing a challenge for those who have not been online before.

3.4
Closing the mobile gender gap

Growth in mobile internet access has been remarkable in Asia Pacific. However, although it is the primary way most people access the internet in Asia Pacific, mobile access and use remain unequal, particularly across the region's LMICs. In South Asia for example, women are still 23% less likely than men to own a mobile phone and 51% less likely to use the internet on a mobile: the largest mobile gender gap in any part of the world.

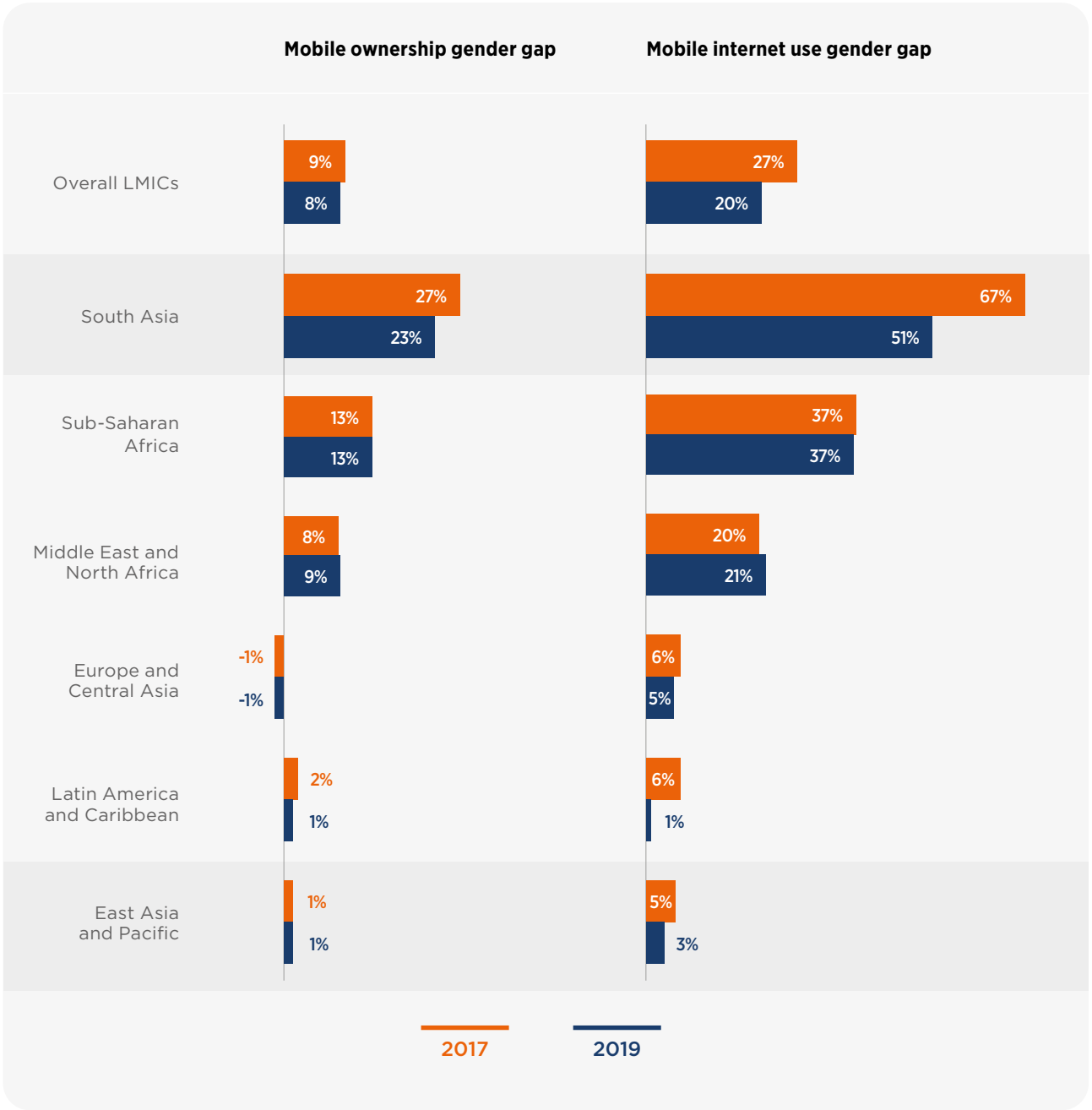
There is, however, promising evidence that the widest gender gaps are beginning to close. In South Asia, the mobile internet gender gap has narrowed from 67% to 51% since 2017, bringing another 78 million women online. Much work remains to be done, but this highlights that mobile gender gaps can be reduced and the benefits of connectivity can be distributed more equally.

16. 2019 Mobile Industry Impact Report: Sustainable Development Goals, GSMA, 2019
17. "How countries are using edtech (including online learning, radio, television, texting) to support access to remote learning during the Covid-19 pandemic", World Bank
18. State of the Industry Report on Mobile Money 2019, GSMA, 2019

Figure 23

Source: GSMA Intelligence

South Asia has the biggest gender gap in mobile ownership and mobile internet use; however, it has seen the largest gap reduction since 2017



Note: Low- and middle-income countries only. The gender gap in mobile ownership and mobile internet use refers to how much less likely a woman is to own a mobile or to use mobile internet than a man.

While changing market dynamics and price erosion have likely contributed to the reduction of the mobile internet gender gap in South Asia, the mobile industry has also taken concerted action to address the issue in the sub-region. 10 operators, collectively representing 70% of mobile connections in South Asia, made formal commitments as part of the GSMA Connected Women Commitment Initiative to reduce the gender gap in their mobile internet customer base between 2015 and 2020. This includes operators in the three largest markets in South Asia – India (Airtel India, Reliance Jio and Vodafone Idea), Pakistan (Telenor Pakistan) and Bangladesh (Grameenphone and Robi Axiata).

Examples of operator initiatives in South Asia to reduce the gender gap

Reliance Jio (in partnership with KaiOS) launched JioPhone, an LTE-enabled feature phone, in India in August 2017. Available for under $10, some 100 million devices have been sold since launch. While it is not meant to appeal exclusively to women, the low cost helps to address the affordability barrier that disproportionately affects women's access to the internet.

In Bangladesh, Robi Axiata (in partnership with Bank Asia and Cignifi) launched Joyeeta, a handset financing service that aims to make smartphones more affordable with preferential rates for female customers, who are charged BDT499 ($5.9) per month over 15 months, compared to male customers, who are charged BDT599 ($7.1) per month over 12 months and require a minimum 20% deposit.

For more information, see the GSMA's The Mobile Gender Gap Report 2020.

04

Policies for digital advancement

Reinforcing the need for mobile internet connectivity

Social distancing measures have put the spotlight on mobile internet connectivity: it enables citizens to stay informed, educated and entertained; organisations to stay in business; and governments to provide essential services. However, around 240 million people in Asia Pacific lack mobile internet coverage and a further 1.9 billion people live within the footprint of a mobile broadband network but are not using mobile internet. With the immense societal and economic impacts of the pandemic, there is a greater need for collaborative leadership than ever before.

Working with stakeholders and governments, operators have implemented a wide range of measures to help mitigate the effects of the crisis and ensure business continuity. Cooperation between policymakers and the mobile industry is vital to ensure long-term digital resilience by improving mobile coverage and making the availability of digital services universal. To expand the reach of commercially sustainable, next-generation networks, there are a range of actions that policymakers in Asia Pacific can take:

- Assign sufficient amounts of mobile spectrum to operators in a timely manner, particularly the sub-1 GHz 'coverage' bands, which can cover wide areas with a small number of base stations making it ideal for affordable rural coverage.
- Avoid inflating spectrum prices, as high auction reserve prices limit network investment by operators and drive up the cost of services.
- Simplify and standardise planning procedures and regulations for site acquisition, colocation and upgrades of base stations and small cells.
- Adopt policies that reduce costs in areas such as taxation, voluntary infrastructure sharing and fees.

There has never been a more relevant time for governments to implement policy measures to stimulate demand for internet services and address the barriers to internet use; this can be achieved by improving the affordability of devices and services, increasing digital literacy, and skills and providing locally relevant services.

In past global crises, governments used technologies such as radio and TV to communicate with their citizens. Now, communication via smartphones is critical, so governments need to help people gain access to smartphones in order to make economies and societies more resilient. Thus, as governments decide on economic support packages that will shape societies for decades to come, digital strategies should be prioritised.

Achieving 5G's full potential

Asia Pacific is leading the way in the rollout of 5G. There has been much progress in 5G, but further investments in network capabilities are required to establish the ubiquity, reliability, throughput and latency that will unlock the full value of 5G. Governments in Asia Pacific have taken steps to foster infrastructure investment in 5G, though more can be done by making additional affordable spectrum available, facilitating access to site locations, enabling small cell deployment, facilitating deployment of backhaul, permitting the establishment of network sharing agreements, and harmonising power density limits.

5G's role in the healthcare response to the pandemic, which utilised technologies such as telemedicine, remote ultrasound and thermal imaging, together with the benefits from the digitisation of supply chains/Industry 4.0 in Asia Pacific, underscore the importance of the B2B segment. Policymakers will need to provide regulatory flexibility for B2B partnerships so that operators have the freedom to innovate to realise 5G's full potential.

Ensuring trust and promoting innovation

There has never been a greater need for governments to develop policies that foster trust in the digital environment. Economies are increasingly relying on financial technology and digital financial services to stay afloat, and demand for services such as mobile and digital payments, telework platforms, food delivery and e-commerce have grown exponentially during this pandemic. In addition, trust is essential for overcoming fake news and conspiracy theories, which spread particularly fast in times of crisis. Data privacy frameworks that protect citizens' data, together with a national digital identity system, can provide a foundation of trust.

Rules for the protection, management and processing of consumers' personal data vary greatly by sector, technology and country. Governments in Asia Pacific must ensure data privacy frameworks provide effective protection for individuals. At the same time, these must allow organisations the freedom to transfer data within and between countries so that they can innovate and comply in a way that makes sense for their businesses and secures positive outcomes for society.

Without an identity, citizens cannot participate in and reap the benefits of a digital society. Governments in Asia Pacific should strive to establish digital identity systems that are underpinned by an enabling policy environment. Mobile phones and other connected devices can then verify and authenticate those identities while allowing access to a variety of online transactions and services that support digital and financial inclusion.

These kind of systems will also be essential for managing the Covid-19 response going forward. Integration of data to allow the real-time assessment of risk will be crucial. For example, TrustScan, a free smartphone-based service that captures and certifies genuine Covid-19 test results, makes it simple to confirm the Covid-19 status of places that users seek to enter. Similarly, SafeEntry is a digital check-in system that logs individuals' entry into a venue and informs them whether there may be a confirmed Covid-19 case at that location.

Several countries in Asia Pacific have launched innovation centres and regulatory sandboxes. Heavily regulated sectors of finance, telecommunications and healthcare are ripe for experimentation. Governments in Asia Pacific should encourage creativity while removing the regulatory risks of untried business models by enabling operators, internet players and startups to develop new products and services in a safe setting that would boost growth of the digital economy across the region.

Adopting a more agile and flexible approach to policymaking

Intelligent connectivity – the combination of 5G, AI, big data and IoT – is the key component of services in the new digital era. There is a huge opportunity for policymakers and the mobile ecosystem to work together to ensure that Asia Pacific economies can capture value, boost economic growth and deliver benefits to society.

Siloed ICT sector regulation isn't viable in the current digital world and there is a need to adopt a more agile and flexible approach to policymaking. The pandemic has provided the potential for governments in Asia Pacific to pursue greater cross-sectoral collaboration and develop interoperable regulatory frameworks for digital-data governance, e-commerce rules, taxation of digital services, cybersecurity, and innovative but ethical usage of AI technology.

Mobile operators can work together with different government departments via a whole-of-government approach (WGA) to simplify or expedite the rollout of advanced digital services. Countries in Asia Pacific that have adopted a WGA are implementing cross-cutting policies that allow businesses to enter new or unrelated industries – for example, mobile operators and internet players moving into payments, delivery of utility services and virtual banking without physical bank infrastructure, or banks moving into healthcare.

In order to learn more about the importance of a WGA, the GSMA is conducting a survey to create an understanding of how policymakers, regulators and the mobile ecosystem are positioned to deliver Industry 4.0 in selected countries in Asia Pacific. The findings of this study will be published in the GSMA Digital Societies report that will be launched during GSMA Thrive APAC, our virtual event produced in partnership with Mobile 360 Digital Societies.

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