

CORONAVIRUS: THE IMPACT ON MOBILE ROAMING FOR OPERATORS

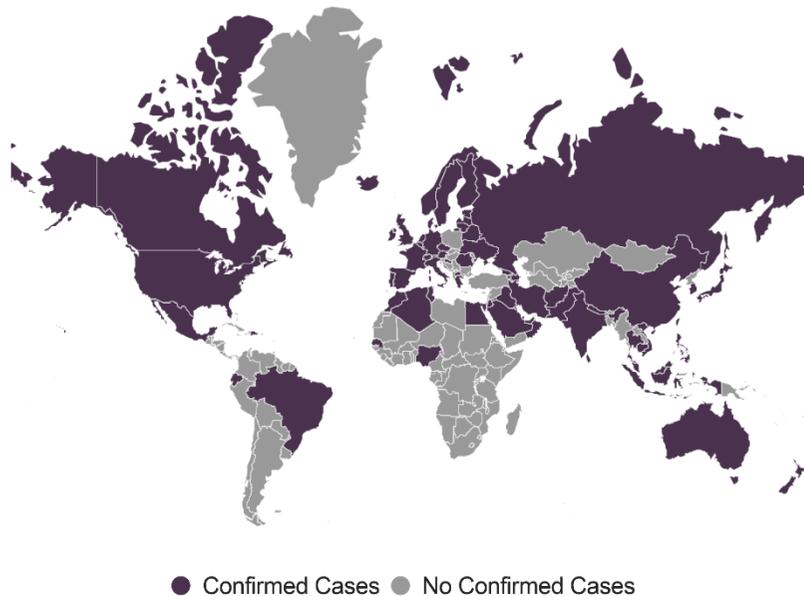


Whitepaper

1.1 Quantifying the Impact of Coronavirus

Coronavirus (COVID 19) was identified at the end of 2019. Currently there are over 175,000 reported cases of the virus globally. As a result, there is already significant disruption to technology device supply chains and international travel.

Figure 1.1: Confirmed Coronavirus Cases: 16th March 2020



Source: Juniper Research

As can be seen in figure 1.1, the virus has spread to over 70 countries since originating in China at the end of 2019. Countries include the US, UK, Japan, Germany and South Korea. Indeed, these countries are often vital to both the demand and supply of consumer technology devices.

In this whitepaper, Juniper Research will look to quantify the impact of the virus on technology supply chains and assess the potential impact it will have on device vendors. It will also look at the impact of diminishing demand for international travel on operators' potential roaming revenue.

However, Juniper Research acknowledges that conditions affecting the spread of Coronavirus are changing on a daily basis. As a result, there are a number of factors which could impact the forecasts outlined in this whitepaper. Therefore, we caution that these forecasts are done on a best-efforts basis and are based on a large number of assumptions and estimations on these impacts.

We will split these two aspects of the technology market into three scenarios:

- **Low Impact:** In this scenario, Juniper Research anticipates that efforts to contain the spread of the virus will be successful over the next 9 months. As a result, many of the virus' impacts will be minimal or non-existent by December 2020.
- **Medium Impact:** Here, Juniper Research believes that strategies to mitigate the risk of the virus will not be immediately successful. In turn, many of the impacts of the virus will still be present by December 2020, however they will have been significantly reduced.

- **High Impact:** In this scenario, efforts to reduce these threats will not be sufficient, leading to widespread impact on global supply chains over the next 9 months. At present, the spread of the virus is accelerating as efforts to minimise it continue to be outpaced. As a result, Juniper Research anticipates that impacts of the virus will still be accelerating by December 2020. Additionally, this scenario posits the possibility of a second wave of infections, or the inability to create a usable vaccine this year.

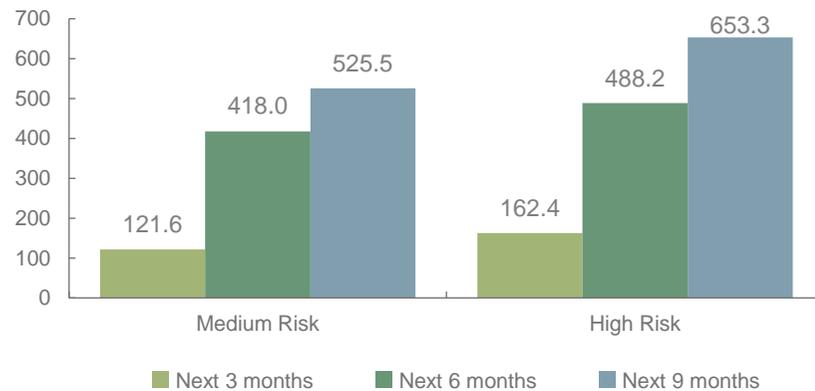


2. The Impact of Mobile Operators' Roaming Revenue

2.1 The Impact on Mobile Operators' Roaming Revenue

Mobile roaming allows customers of one operator (home network) to use the network of another operator (visited network) when coverage from the subscriber's home network is unavailable, such as when travelling abroad. The visited network is often referred to as the foreign network when the subscriber is outside the geographical coverage of the home network. One of the strategies implemented by governments and private institutions has been to limit travel, most particularly international travel. This is likely to have a large impact on operators' retail and wholesale roaming revenue.

Figure 2.8: Total Numbers of International Trips Cancelled Due to the Coronavirus (m) Split by 6 Months & 9 Months



Source: Juniper Research

As can be seen from figure 2.8, Juniper Research anticipates that the current disruption being experienced in the travel industry could continue to impact mobile operators' potential to secure roaming revenue over the next nine months as demand for international travel continues to fall.

The extent of Coronavirus' impact is wholly out of the operators' control, thus we believe there are no strategies that can be implemented to mitigate this risk.

Juniper Research anticipates that the majority of travel that would have likely occurred had it not been for Coronavirus is unlikely to be rebooked. As a result, Juniper Research believes that the missed roaming revenue should be considered lost revenue, rather than a shortfall in income that can be recovered at other points during the year.

Table 2.1: Cumulative Lost Operator International Mobile Roaming Revenue (\$m) Split by Quarter, March-November 2020

	Next 3 months	Next 6 months	Next 9 months
Medium Impact	\$4,807.7	\$16,529.9	\$20,779.9
High Impact	\$6,420.7	\$19,306.0	\$25,832.7

Source: Juniper Research

As can be seen from table 3.2, Juniper Research anticipates that operators could stand to lose as much \$25 billion in roaming revenue from Coronavirus in the high impact scenario.

International airlines including British Airways, Ryanair, Norwegian Air, Lufthansa, Virgin Atlantic, Singapore Airlines, KLM, Aeroflot, United

Airlines and Delta have all announced reductions in services to minimise the spread of the virus and decreasing demand for international travel.

On the 14th of March 2020, US President Donald Trump announced that the US would ban all travel between the US and 26 EU nations. This was later extended to include the UK and Republic of Ireland. The travel ban will last for 30 days.

2.1.1 Scenario 1: Low Impact

In this scenario, Juniper Research believes that efforts to minimise the spread of Coronavirus will be largely effective, with travel habits returning to a normal baseline relatively quickly. However, based on recent announcements regarding travel bans and advice on travelling, Juniper Research believes that we have passed the low impact on to the travel industry, and thus, the international mobile roaming market.

2.1.2 Scenario 2: Medium Impact

In this scenario, Juniper Research anticipates that there will be a prolonged impact on the travel industry. We therefore expect the impact to last until December 2020, at which time the travel industry should be beginning to witness a return to a normal level of demand for international travel.

Juniper Research posits that over 65% of travel will be cancelled over the next nine months in this scenario. As a result, Juniper Research anticipates that approximately \$20 billion of potential roaming revenue will be lost owing to the prevalence of Coronavirus.

Figure 2.2: Medium Impact Scenario: Lost Operator Roaming Revenue (\$m) March-November 2020. Split by Quarter



Source: Juniper Research

i. Juniper Research View: Medium Impact Scenario

In this scenario, Juniper Research believes that the peak of lost roaming revenue will occur between June and August 2020. This is due to the summer period being when the majority of travel is for holidaying purposes. Notably, Juniper Research believes that these travellers will also be more dependent on data roaming services, unlike those travelling for business. Indeed, as of March 16th 2020, the number of international flights per day has reduced by 25% over the previous 30 days.

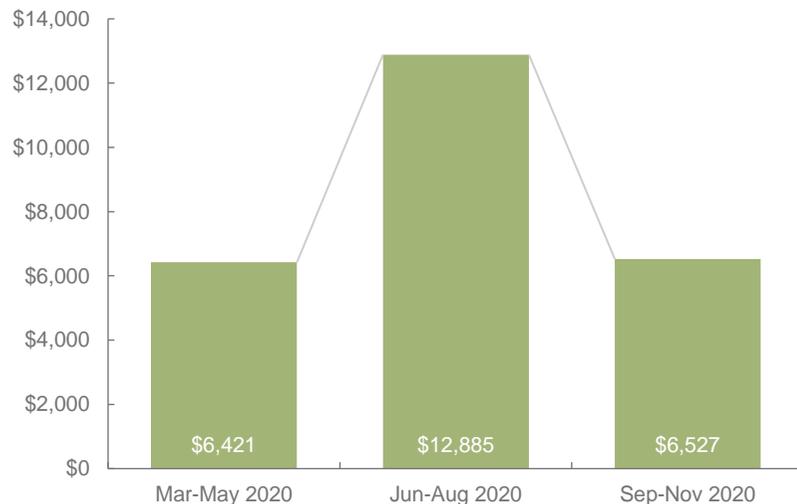
The roaming market is faced with 2 key issues; travel bans imposed by legislation makers and diminished demand for travel. However, given the

increased number of travel bans over the past week, we believe that these will be the primary cause of loss of roaming revenue.

2.1.3 Scenario 3: High Impact

Juniper Research believes that Coronavirus could have the largest impact on the mobile roaming market in this scenario. As a result, Juniper Research forecasts that operators will experience a sharp decrease in roaming revenue between July and August 2020, owing to summer being the period in which a large number of individuals undertake non-business-related travel.

Figure 2.3: High Impact: Medium Impact Scenario: Lost Operator Roaming Revenue (\$m) Split by Quarter, March-November 2020



Source: Juniper Research

In this scenario, Juniper Research anticipates that operators stand to lose over \$26 billion globally over the next nine months, with over 80% of passenger trips cancelled.

i. Juniper Research View: High Impact

In the most serious of instances suggested, Juniper Research anticipates that the impact on the travel industry will be severe over the next nine months with a total of over 650 million passenger trips cancelled over the next 9 months. In this scenario, Juniper Research believes that the travel industry will return to normal levels of international travel in 2021.

Juniper Research believes that this should be considered a worst case scenario and that efforts to mitigate the impact of Coronavirus are likely to be successful. As a result, Juniper Research urges caution in using leveraging these forecasts for anything other than speculation. What also should be noted is the seasonal increase in flights over the summer months (June to August). Indeed, Juniper Research believes that the mobile roaming industry could lose over \$12 billion in these months alone in our high impact scenario, given the large number of anticipated cancellations that could occur.

2.1.4 Related Research

Mobile Roaming: Regulations, Emerging Sectors & Retail Strategies 2019-2023

Mobile Operator Business Models: Challenges, Opportunities & Strategies 2019-2024