



Public Transport Wi-Fi Usage

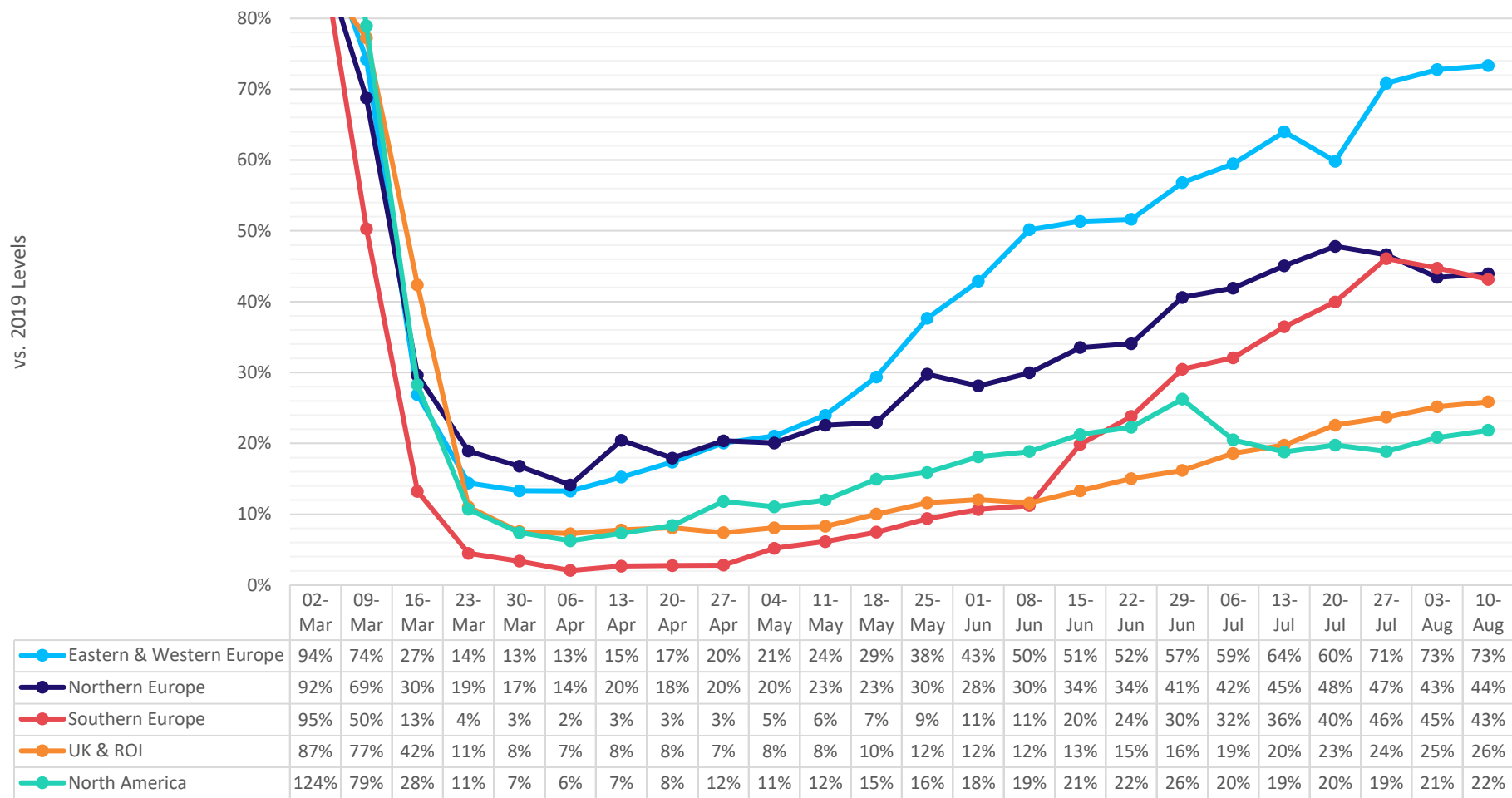


Public Transport's Rate of Recovery

Icomera Passenger Wi-Fi usage levels from 30,000+ trains, trams, buses, and coaches across Europe and North America have been combined to measure public transport's rate of recovery as COVID-19 restrictions are eased around the world.

As expected, all regions saw a dramatic drop-off in weekly Passenger Wi-Fi usage through March – tracked as a percentage of usage levels in the corresponding weeks in 2019 – reaching their respective low points between late March and late April. While all regions have clearly felt the impact, the session volume data illustrates that some fell further than others, and the subsequent recovery rates do vary.

Weekly Wi-Fi Sessions by Region vs 2019 Levels



Regional Analysis

- **Eastern and Western Europe** have shown the strongest recovery to date. Passenger Wi-Fi usage in these regions has made a +60 percentage point recovery from the lowest point (13%), to now sit at 73% of 2019 levels.
- **Northern Europe** (excluding the UK and Republic of Ireland) is up 30p.p. to 44%, but the gradual recovery made from the low point in April has been reversing in recent weeks, potentially a combination of recovery efforts being interrupted by the summer vacation period and less international travel.
- **Southern Europe**, up 41p.p to 43%, is seeing the second fastest recovery rate of any region, bringing it close to Northern Europe's level from a comparatively much worse starting position. Like Northern Europe, it has also seen a reverse in recent weeks, possibly for the same reasons.
- In the **United Kingdom** and the **Republic of Ireland**, government advice about avoiding public transport was relaxed at the start of the month and Passenger Wi-Fi usage levels in these regions are now up 19p.p. to 26% of 2019 levels.
- **North America** is up 16p.p. from its low point to 22% but has still not fully recovered from a -6p.p. setback in early July. As such, North America has now fallen behind the United Kingdom and the Republic of Ireland, making it the least positive recovery to this point.

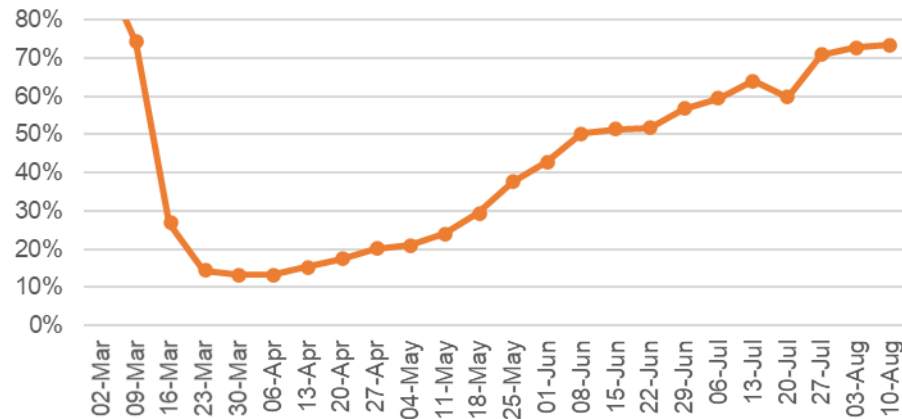
A Shift in Passenger Travel Habits?

Icomera is also reporting on the distribution of Wi-Fi sessions by day of the week, and by time of day. The latest data is taken from Week 33 in 2020 and compared with the same week in August 2019.

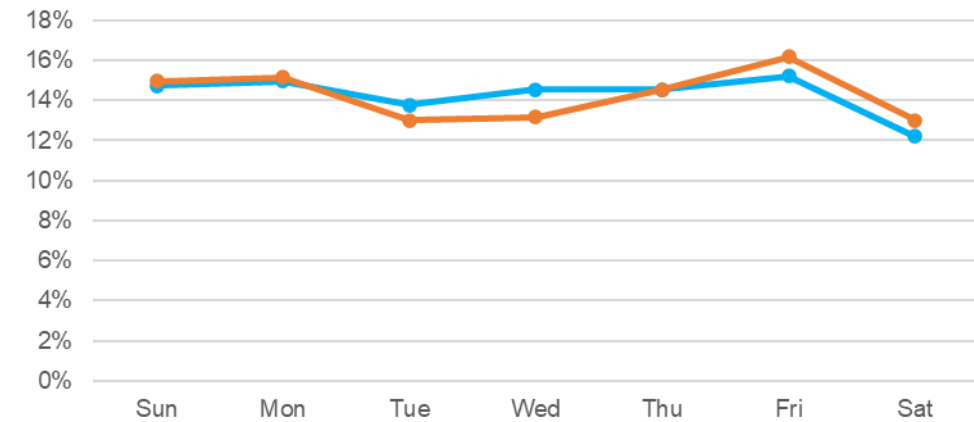
All data in the following slides is presented in local time. For example, Passenger Wi-Fi sessions that took place at 9am EDT on the east coast of North America (1pm UTC) are shown on the graph at 9am. Sessions that took place at 9am PDT on the west coast of North America (4pm UTC) are also shown on the same graph at 9am.

Eastern and Western Europe

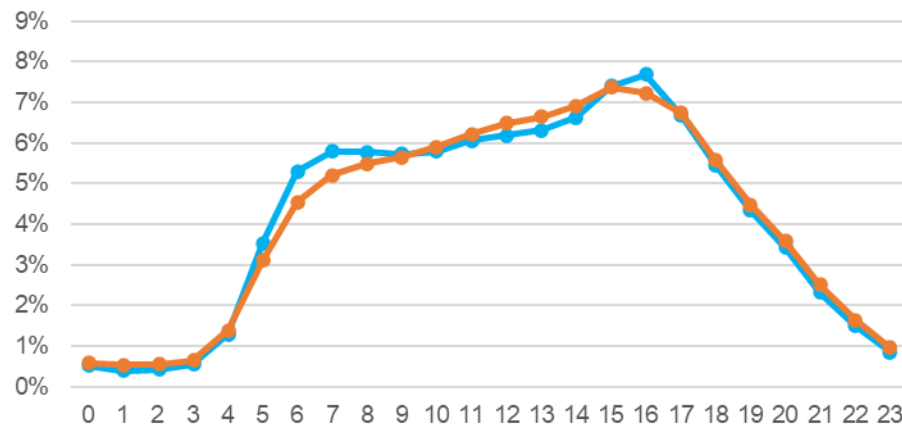
1. Weekly Wi-Fi Sessions vs. 2019 Levels



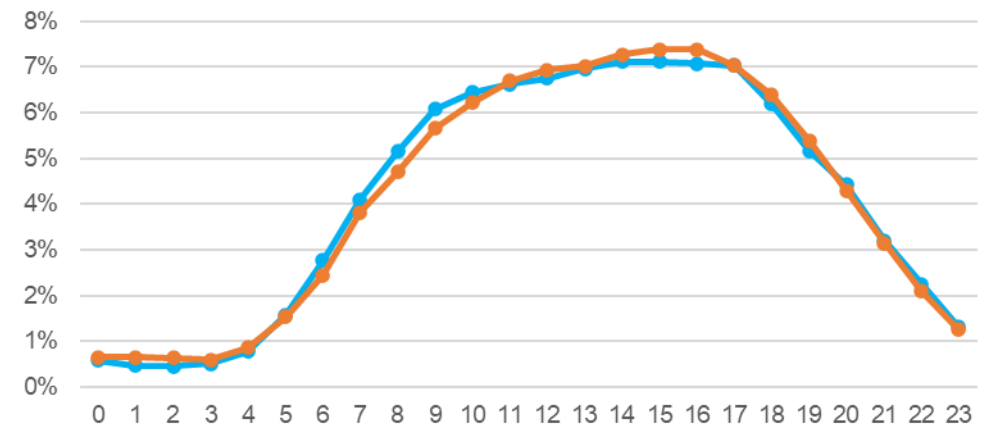
2. Distribution of Wi-Fi Sessions by Day of Week (Local Time)



3. Distribution of Wi-Fi Sessions by Hour of Day (Local Time) – Monday to Friday

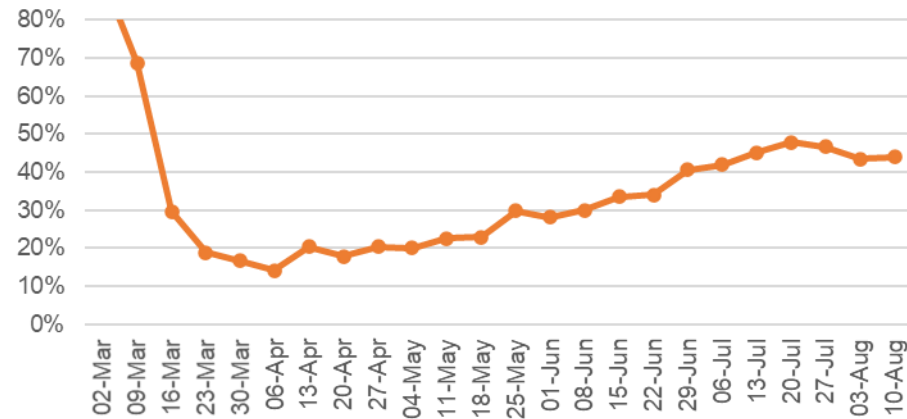


4. Distribution of Wi-Fi Sessions by Hour of Day (Local Time) - Saturday & Sunday

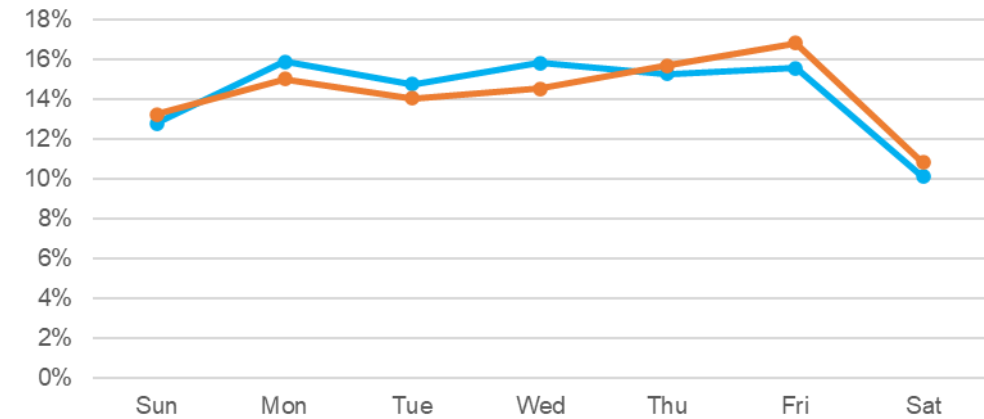


Northern Europe

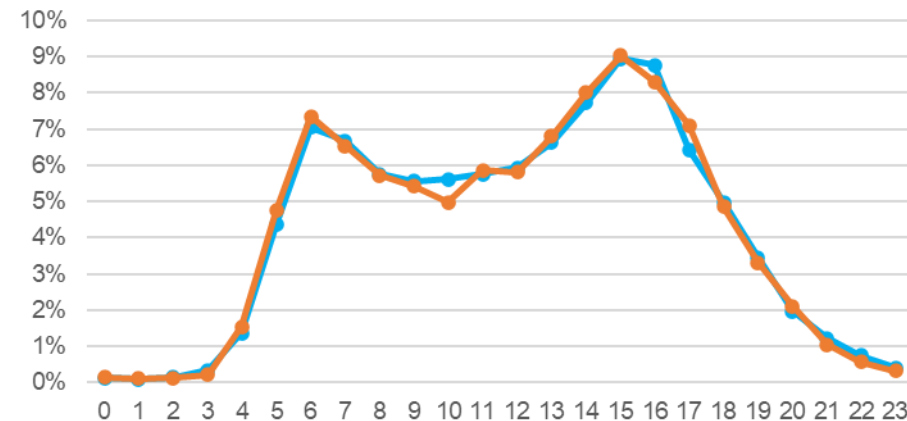
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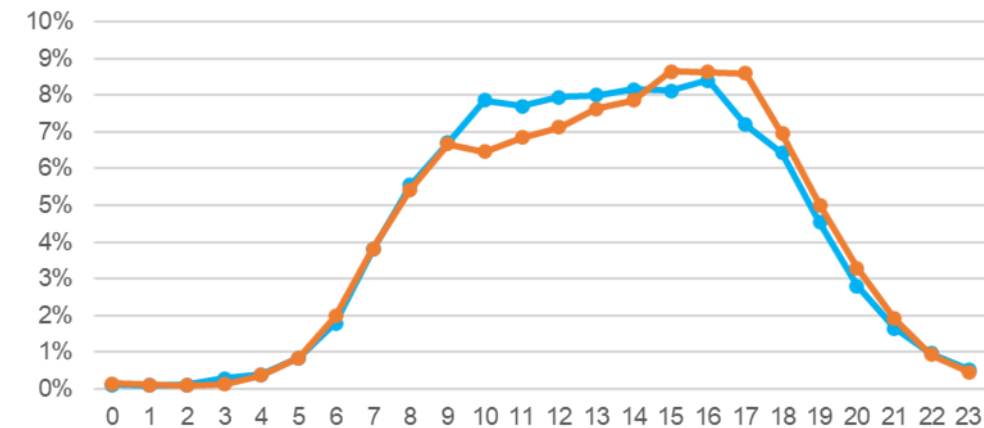
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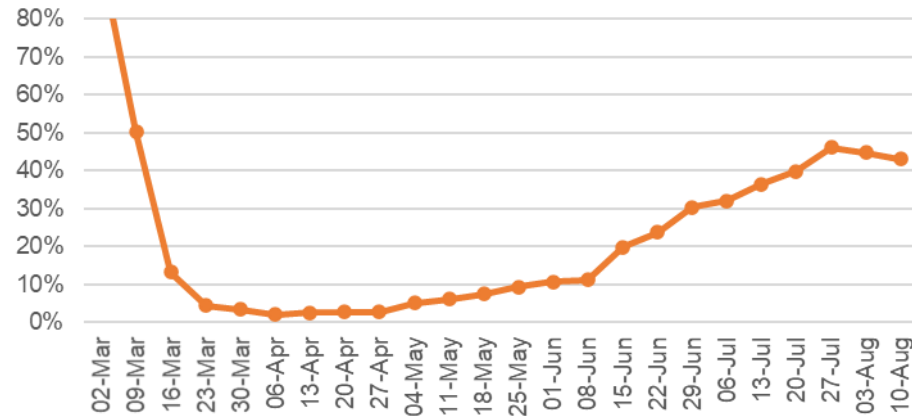


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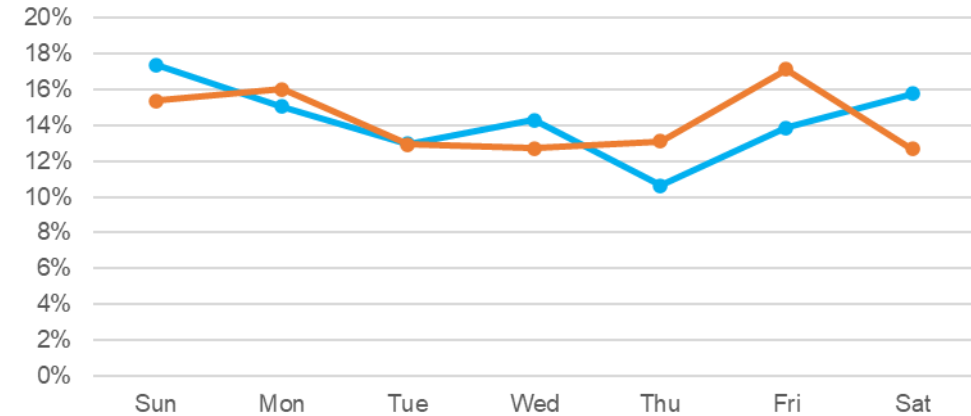


Southern Europe

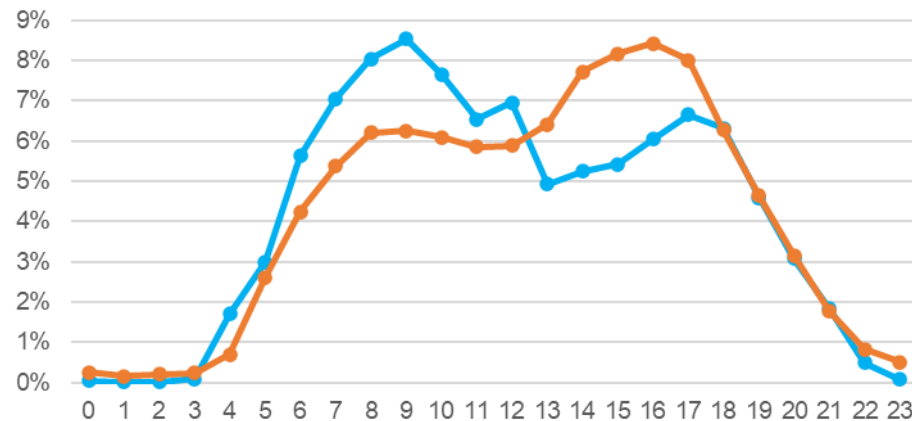
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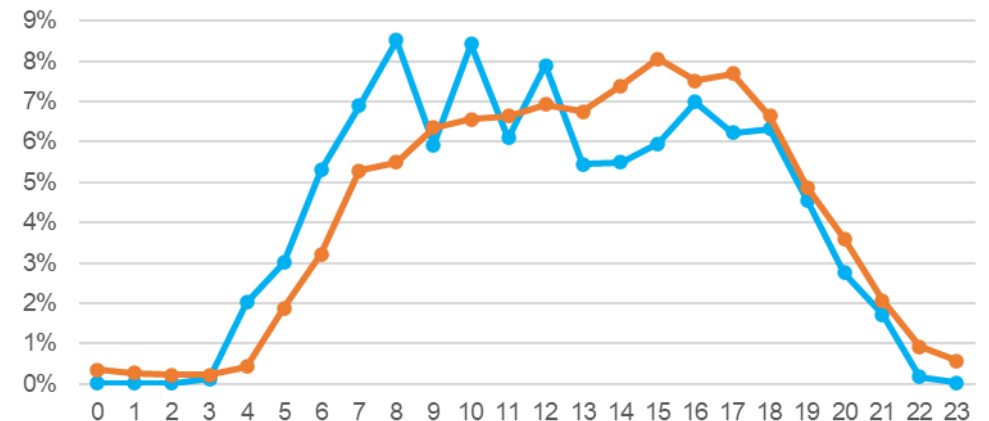
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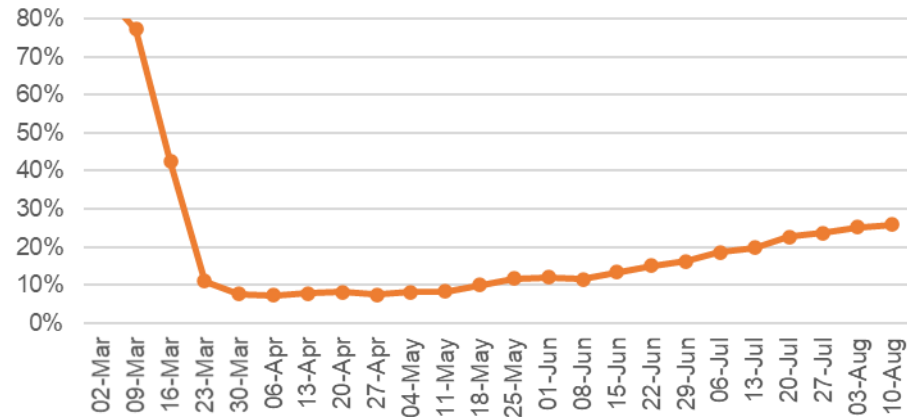


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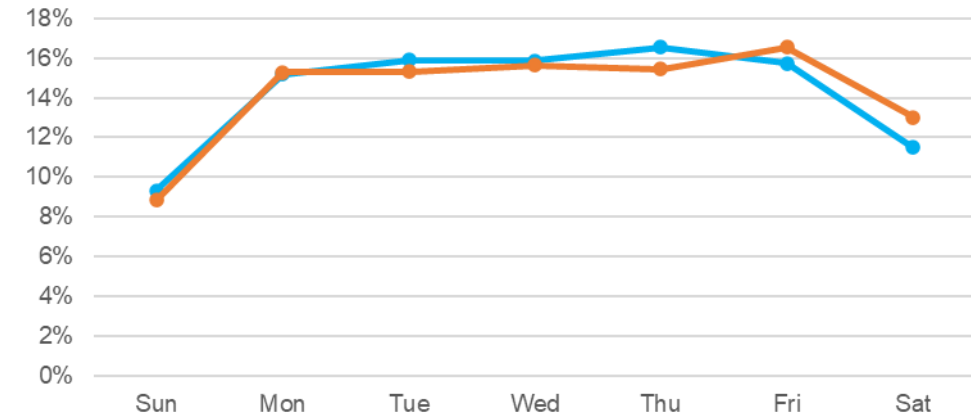


UK and Republic of Ireland

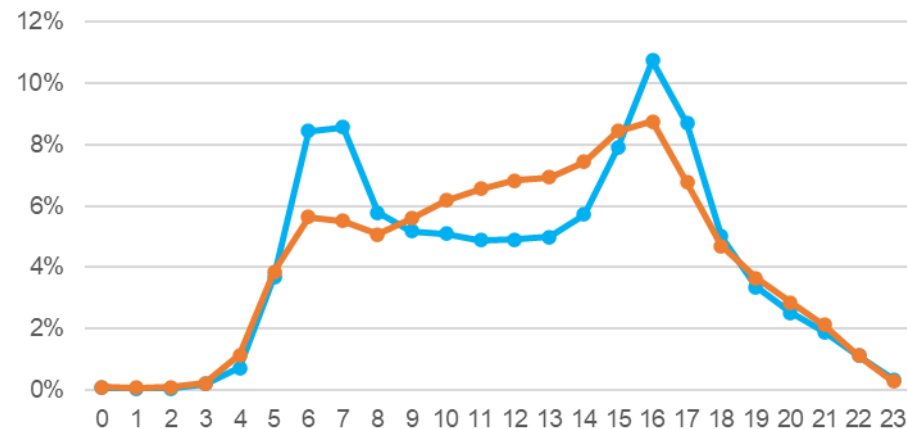
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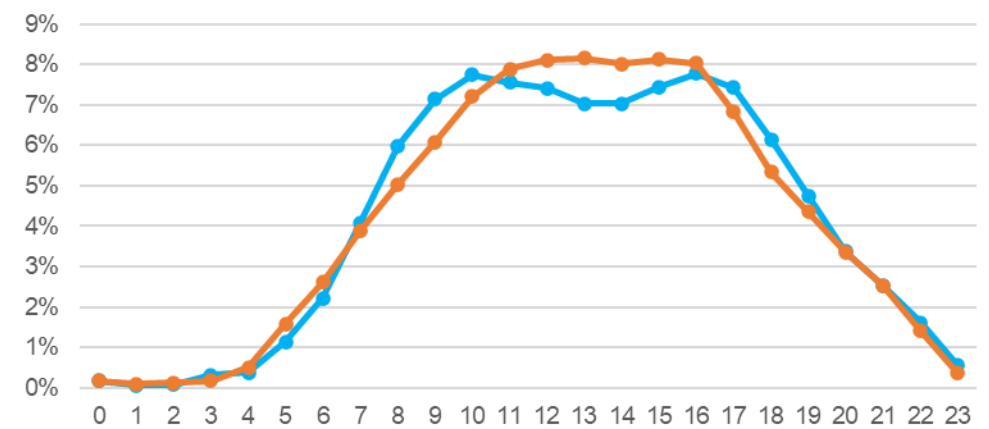
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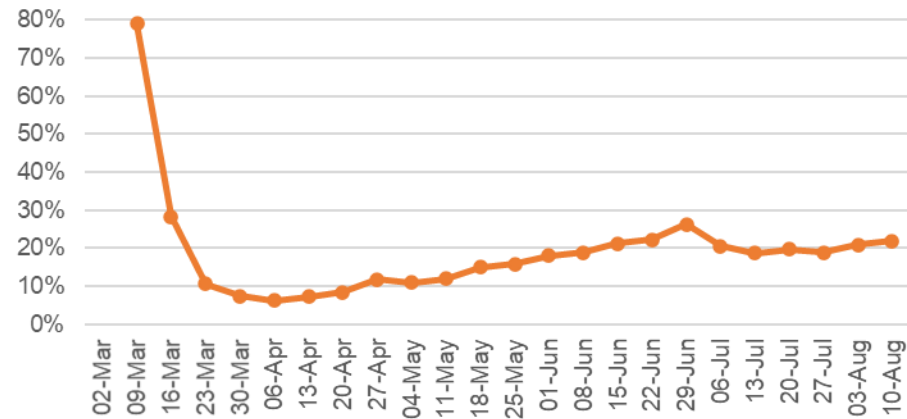


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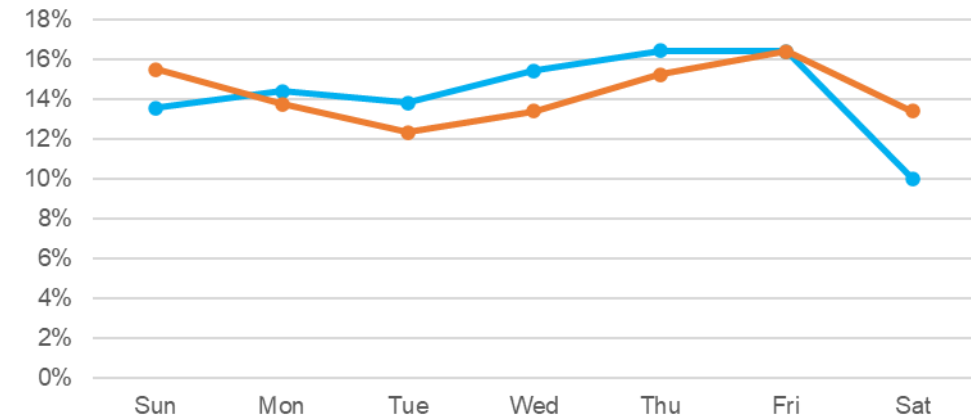


North America

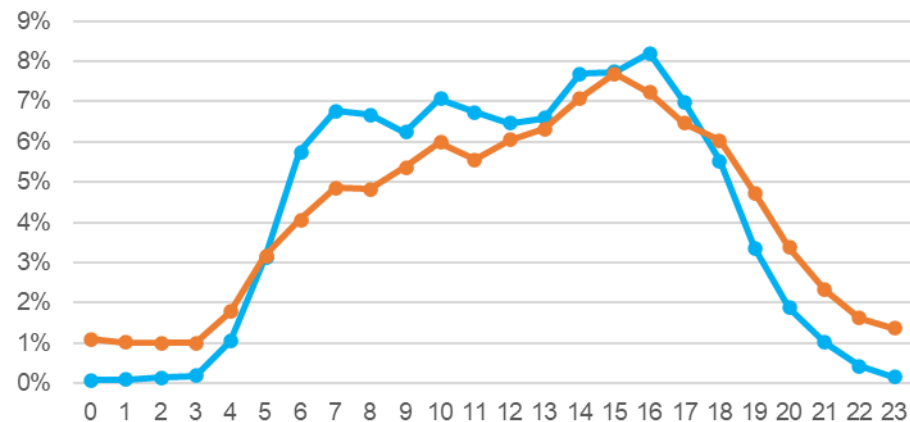
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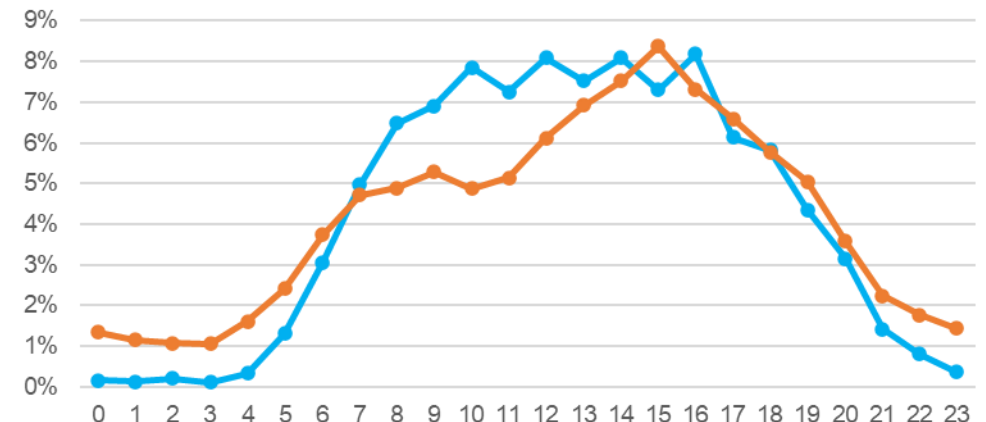
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Observations

- Generally, regions with the strongest recoveries are seeing less of a shift in travel habits. **Northern, Eastern and Western Europe** show only minor variances between daily and hourly Wi-Fi session distribution in 2019 and 2020.
- Looking at the distribution of Wi-Fi sessions by hour of day for Monday to Friday in the other regions, the obvious pre-COVID morning and late-afternoon peak hours have been replaced with quieter mornings and a more gradual ramp-up to mid - late afternoon peaks.
- We caution that in some cases, the data will reflect the service scheduling adjustments already made by public transport authorities and operators, while in other cases it will be due to travel choices made by the passenger themselves. Still, the data is a valid measure of when passengers are travelling, regardless of causality, and can be used to inform further service schedule adjustments where Wi-Fi session usage and public transport service capacity do not tally.
- This further highlights the value of fast access to operational data from onboard systems in the industry's mission to protect passengers, control the spread of the virus, and shift society's travel habits back towards sustainable, green mobility.



Thank-you

paul.barnes@icomera.com

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