



Public Transport's Journey Through the Pandemic

The Internet-Enabled Recovery Plan

23rd March 2021

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for the connected journey



Foreword

A year. A measure of time that compels us to reflect on what has come before, and predict what lies ahead.

On March 16th 2020, I informed my team in the UK that we would be working from home for the next three months, in order to exercise social distancing as a precautionary measure. While we count ourselves fortunate that this was an option available to us, fast-forward to March 2021 and we have shared an office space for just 15 out of a possible 252 working days.



Naturally, we are all curious about the future - of office work, and the implications for travel. As the world's leading provider of mobile Internet connectivity for public transport, Icomera is uniquely positioned to offer some insight.

It has been two decades since Icomera created the Passenger Wi-Fi segment. Today, it is a standard component of the contemporary passenger experience. In the same period, we have established a track record of consistently identifying and meeting the future needs of your customer – the passenger.

“...Our timeline projections for mass adoption have been accelerated, and there will now be more emphasis placed on making health and safety measures more visible...”

In many cases, the industry's recovery plan, which is heavily based on digitalisation, will utilise the same technologies that Icomera has been advocating for the past few years; albeit our timeline projections for mass adoption have been accelerated, and there will now be more emphasis placed on making health and safety measures more visible to travellers.

Through our access to quantitative and qualitative data generated from onboard systems - and influencers in the transport and technology spheres - Icomera compiled the following report for public transport authorities and operators, offering insights gleaned from the past 12 months, and guidance for the journey ahead. Working together, we can set the pace of the industry's Internet-enabled recovery plan.

Paul Barnes, Chief Marketing Officer, Icomera

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Section 1

Using Passenger Wi-Fi Figures to Track Ridership Trends

Icomera Passenger Wi-Fi usage figures provide an international view of public transport ridership trends since the onset of the global COVID-19 pandemic.

The data presented overleaf has been made available to public transport authorities and operators throughout the pandemic, supporting short-term operational decision-making – such as service schedule adjustments where Wi-Fi session usage and public transport service capacity do not tally – and longer-term strategic planning.

Methodology

Icomera's data is taken from 30,000+ trains, trams, buses, and coaches equipped with our technology, in operation across Europe and North America between March 2019 and March 2021.

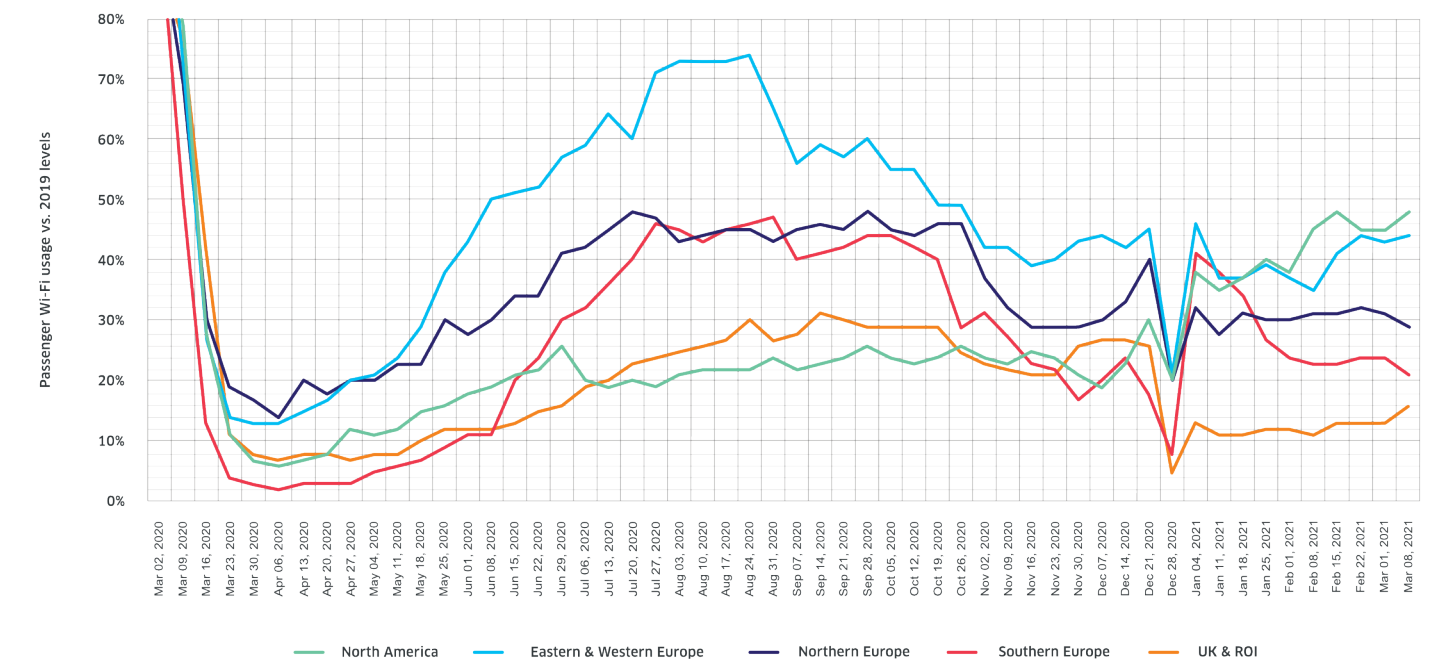
Regional transportation authorities, such as the American Public Transport Association (APTA)¹ and the Department for Transport (DfT)² in the UK, have made ridership data available to support operators in their respective countries. However, the differing approaches to data collection (through ticket sales or passenger app “opens”) across modes of transport and between countries, makes it difficult to report consistently on international trends.

Passenger Wi-Fi usage is a reliable indicator that a passenger is physically travelling on a vehicle, at a specific point in time. Icomera's large data set of Wi-Fi session statistics from 30+ countries, recorded using a consistent methodology over the previous 24 months, corroborates the trends reported by authorities in each country, while also allowing for valid analysis of public transport ridership at an international level.

The data presented here is grouped by region. This simplifies the presentation of similar observations that apply to multiple countries in close geographic proximity. This also serves to obscure the data of individual operators who provide a significant share of their country's public transportation services.

Passenger Wi-Fi usage is measured by session and presented weekly as a percentage of the corresponding week in 2019. Sessions from vehicles where the Wi-Fi service was added after 2019 are not included, to avoid artificially inflating figures for 2020 and 2021 (i.e. by flooding the data with vehicles that did not contribute to the 2019 figures).

Regional Analysis



Public transport ridership has undoubtedly been hit hard by the COVID-19 pandemic. All regions included in Icomera's report saw a dramatic drop-off in weekly Passenger Wi-Fi usage through March 2020, as governments and businesses across the world issued social distancing guidelines. Although some fell further than others, each regions' first wave low point occurred in the w/c April 6th 2020.

Similarly, the subsequent recovery rates through the (Northern Hemisphere) summer period varied as initial restrictions were eased, but all regions had seen a first wave recovery peak by late September.

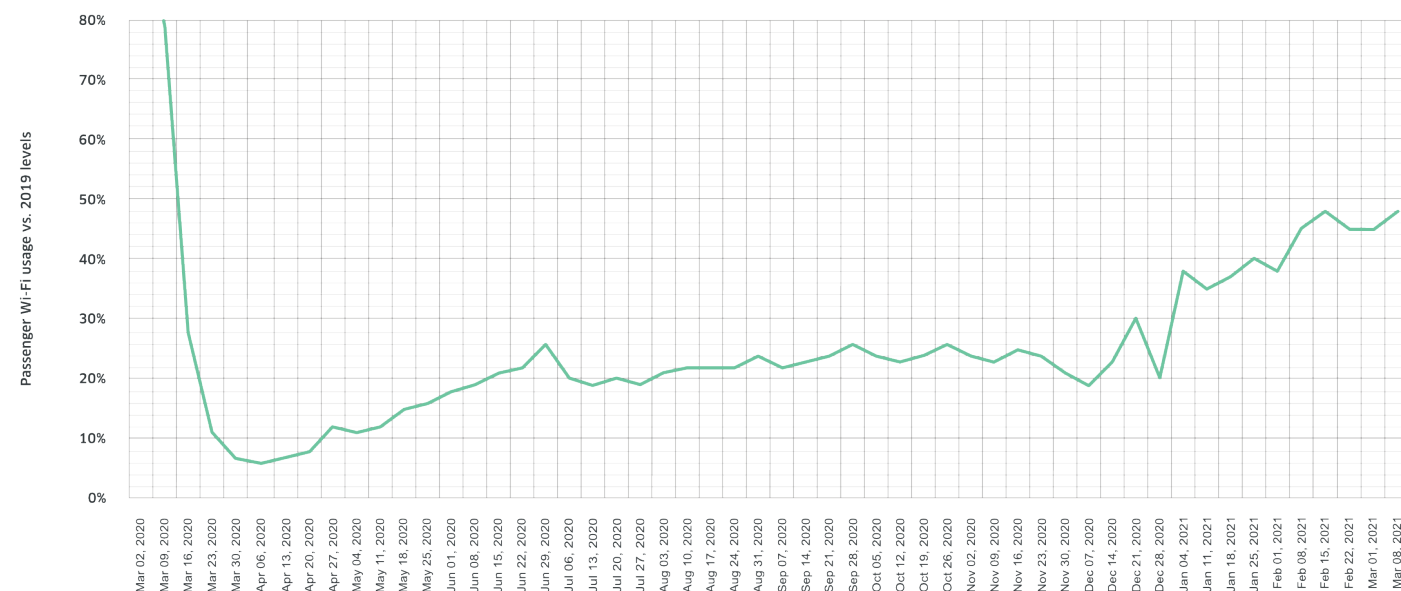
Any optimism that the end of the summer vacation period could herald a positive step change in the recovery rate via a return to office working en masse, was short lived. In the second half of 2020, Passenger Wi-Fi usage levels in all regions either stabilised or declined in the face of a second wave of the virus, and the new restrictions brought in to control it. Data from the last week in December reflects the very different winter holiday period that many experienced – staying home, isolated, away from family and friends.

The vaccination rollout appears to be having some impact in the early months of 2021. Regions with more vaccination doses administered per capita are generally seeing the stronger recoveries at present. Where the balance between vaccination rollouts and easing restrictions is less optimal, recoveries have plateaued.

¹ American Public Transport Association. (n.d.) *APTA Ridership Trends*. Retrieved February 17, 2021, from <https://transitapp.com/APTA>

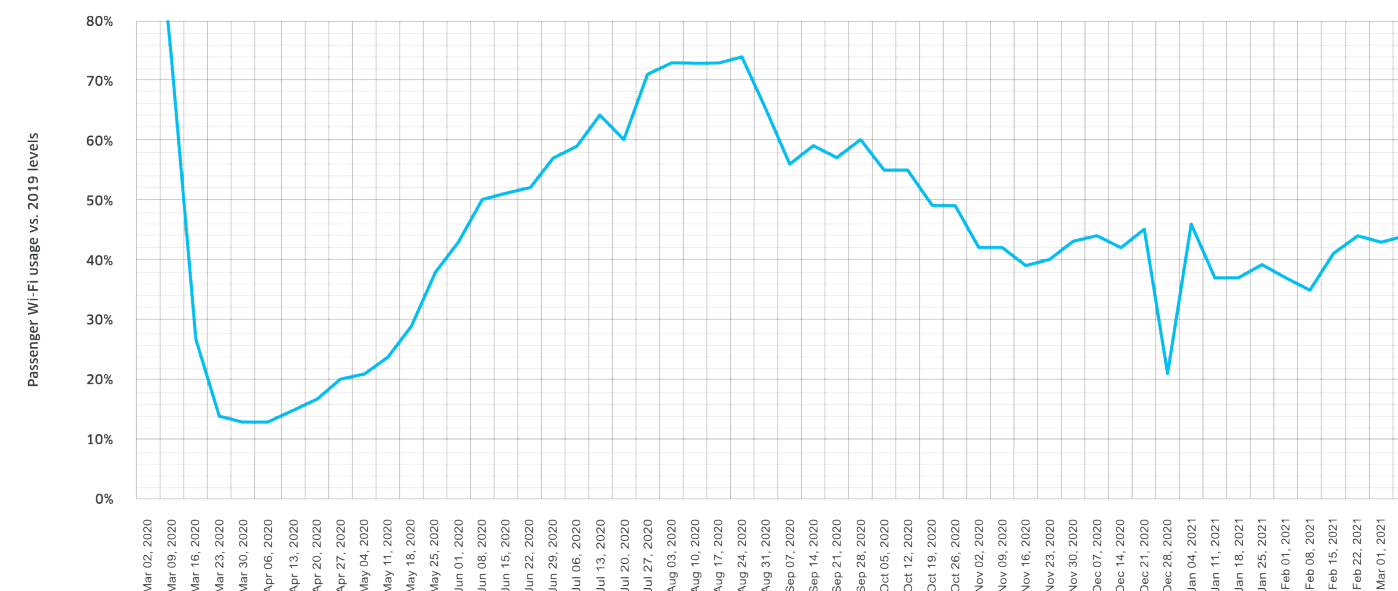
² Department for Transport. (n.d.) *Transport use during the coronavirus (COVID-19) pandemic*. Retrieved February 17, 2021, from <https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic>

North America



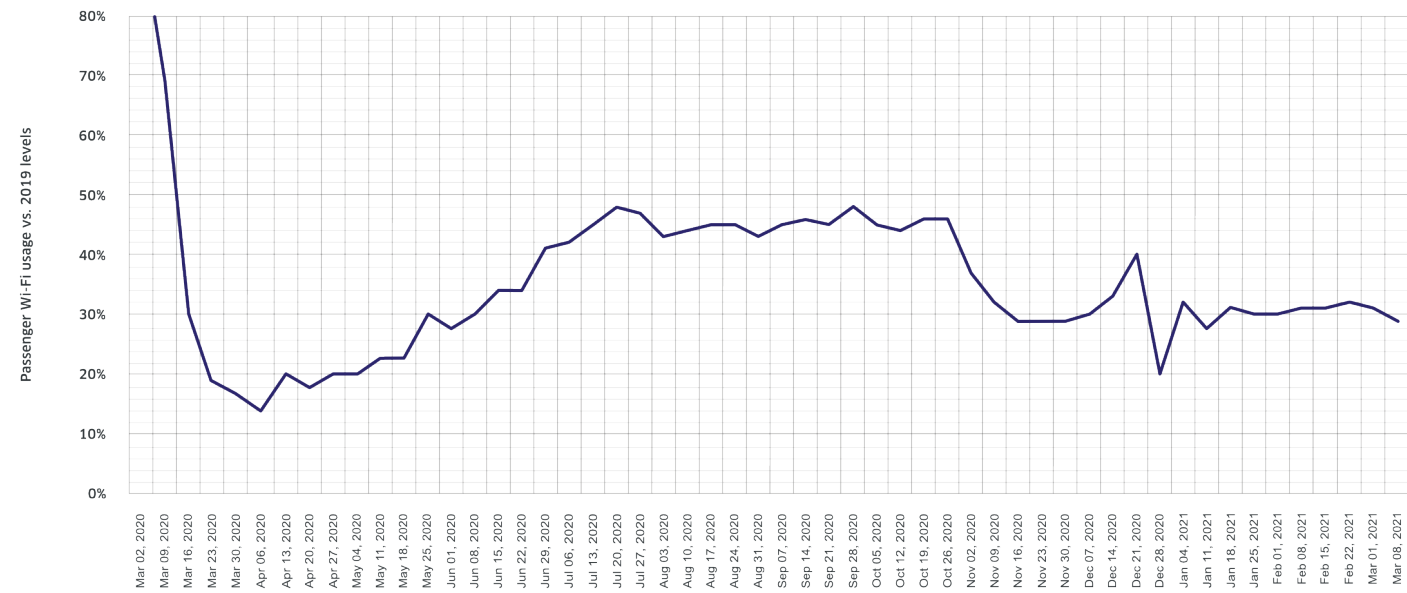
- **In North America**, Passenger Wi-Fi usage is currently sitting at 48% of 2019 levels, the highest it has been since the start of the pandemic. This contrasts with all of the other regions included in our analysis, which to-date experienced their recovery peak last summer.
 - At the first wave low point (w/c April 6th for all regions), North America's weekly Passenger Wi-Fi usage had fallen to just 6%. Only Southern Europe saw lower levels during this period.
 - In the lead-up to the summer months, North America showed a steady recovery, averaging 2 percentage points (p.p.) per week. This stalled around the Independence Day Federal holiday, and North America reached the earliest (by two months) and lowest (by 5%) post first wave peak of any region (26%) during w/c June 29th.
 - Through the second half of the year, North America consistently saw some of the lowest usage levels of any region but, unlike the other regions, had a positive average weekly change (0.1p.p.) across the period, and never saw a weekly drop of more than 2p.p. outside of the December holiday period. The United Kingdom and the Republic of Ireland were the only other regions not to see a double-digit percentage point week-on-week decline in the same time-frame.
 - Following the holiday period, North America has averaged a 2p.p. increase in weekly usage levels in 2021 to date. **This is the strongest early 2021 recovery rate of any region, but with more weekly variance than seen during the second half of 2020.** The 6p.p. increase in the w/c February 8th was the highest outside of holiday periods for North America since the start of the pandemic; while the -3p.p. change in the w/c February 22nd was the largest fall in the region since the w/c July 6th, when the initial first wave recovery progress stalled.

Eastern & Western Europe



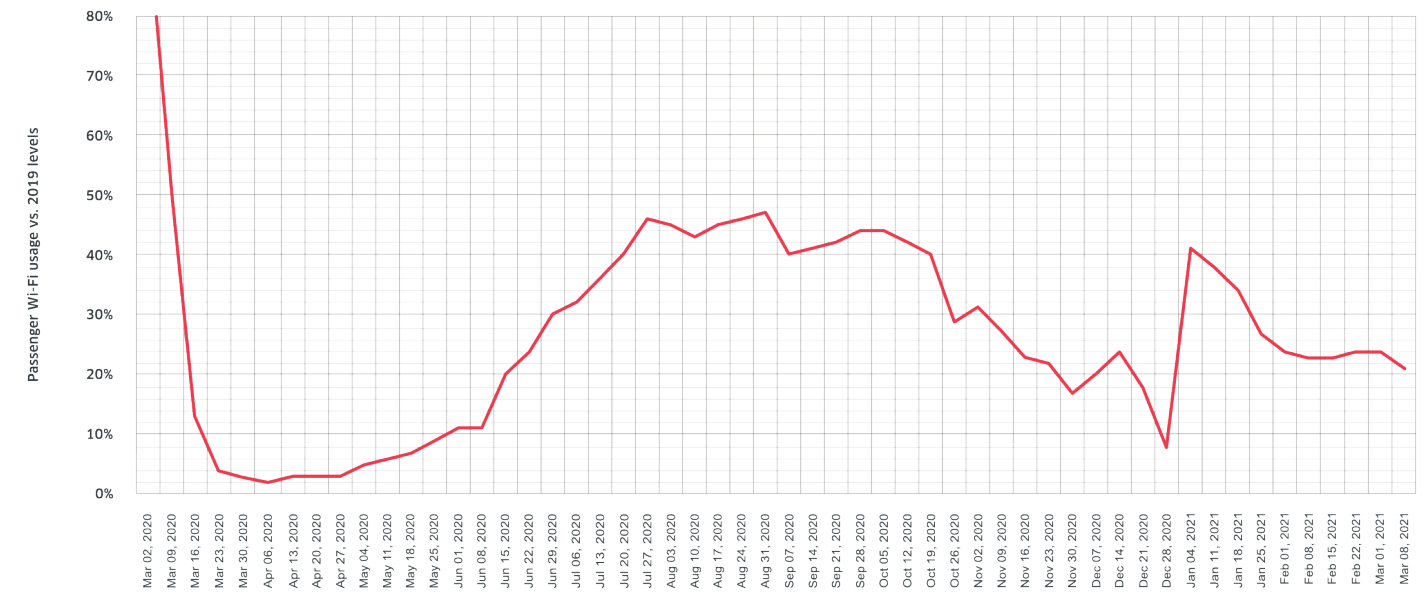
- **In Eastern and Western Europe**, Passenger Wi-Fi usage is currently sitting at 44% of 2019 levels.
 - At the first wave low point, Eastern and Western Europe's weekly Passenger Wi-Fi usage had fallen to 13%. Only Northern Europe saw higher levels during this period.
 - Eastern and Western Europe demonstrated the strongest recovery of any region through to the end of summer 2020 (averaging 3p.p. per week), with Passenger Wi-Fi usage peaking at 74% of 2019 levels in August (the highest recovery peak of any region to date).
- “Eastern and Western Europe demonstrated the strongest recovery of any region through to the end of summer 2020... with Passenger Wi-Fi usage peaking at 74% of 2019 levels in August...”**
- The second half of the year saw a steady decline, averaging -2p.p. per week from the August peak to the holiday period, coinciding with a surge in coronavirus cases and the implementation of new localised lockdowns. It is worth noting that, with the exception of the last week in December, the region has not fallen below 35% of 2019 levels since the end of May - a level which would represent a peak for the United Kingdom and the Republic of Ireland.
 - From mid-January 2021, Eastern and Western Europe has seen Wi-Fi usage rates increase 1p.p. per week on average. The 7p.p. week-on-week increase seen in the w/c February 15th was the highest in the region since last summer, one month before the first wave recovery peak.

Northern Europe

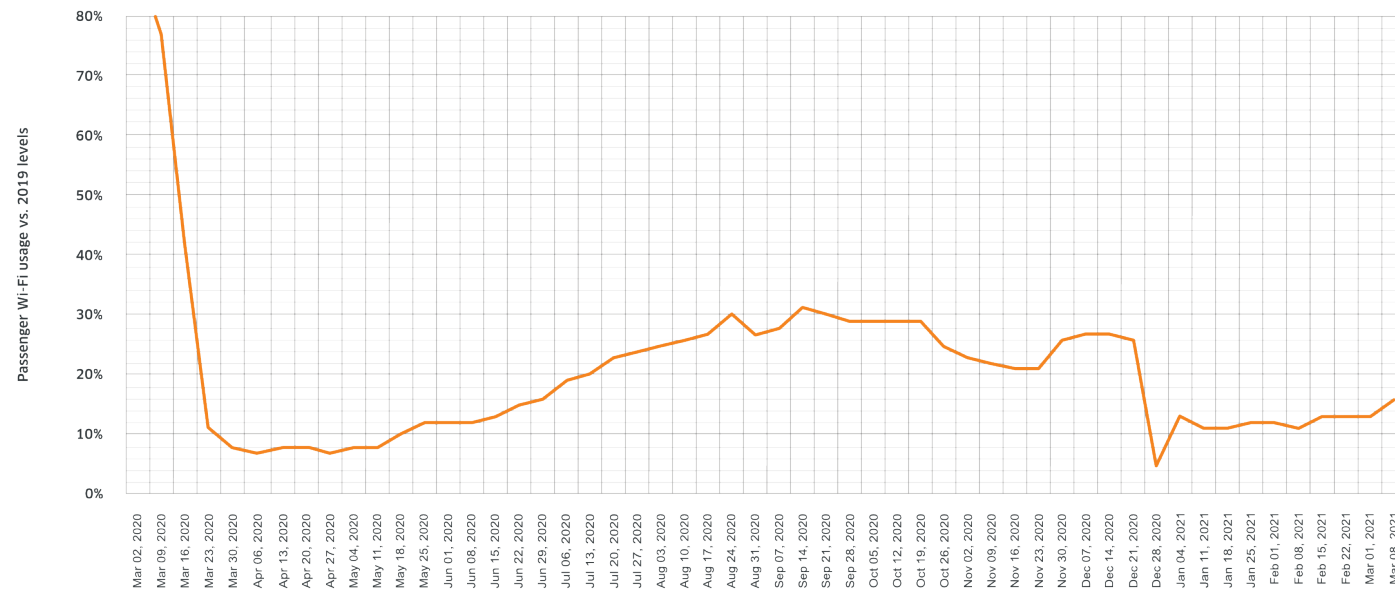


- **Northern Europe** (excluding the UK and Republic of Ireland) is currently at 29% of 2019 levels.
 - With a first wave usage level low of 14%, Northern Europe's recovery started from the least impacted position. Southern Europe, and the United Kingdom and the Republic of Ireland took 10 and 11 weeks respectively to reach these levels from their first wave low points.
 - Northern European Wi-Fi usage made a steady recovery in the lead-up to the summer, averaging 2p.p. per week, then plateaued as recovery efforts were interrupted by the vacation period, and less international travel hurting tourism.
 - After reaching its recovery peak of 48% in late September, Northern Europe experienced an average weekly decline in Passenger Wi-Fi usage of 1p.p. through to the winter holiday period.
 - Since the turn of the year (and post-holiday season), **Northern Europe appears to have arrested the decline, but it has not yet been able to make significant strides towards reversing it**, registering an average weekly change of only 0.2p.p.

Southern Europe



- **Southern Europe** is currently at 21% of 2019 Passenger Wi-Fi usage levels.
 - As the region which experienced the toughest restrictions during the first wave, it is not surprising that Southern Europe saw the largest drop in Passenger Wi-Fi usage, falling to a low of 2%.
 - From mid-April, Southern Europe recovered at an average rate of 2p.p. per week though to the end of August, reaching its recovery peak to date of 47%.
- “As the region which experienced the toughest restrictions during the first wave, it is not surprising that Southern Europe saw the largest drop in Passenger Wi-Fi usage...”**
- From September to the December holiday period, the region experienced a similar rate of decline (2p.p. per week) to its closest neighbours in Eastern and Western Europe.
 - The region has seen this decline continue at the same rate (2p.p.) on the other side of the holiday period and, at the time of writing, local lockdowns are being reintroduced as the region faces a potential third wave of the pandemic.



- In the **United Kingdom** and the **Republic of Ireland**, Passenger Wi-Fi usage is now at 16% of 2019 levels.
 - At the first wave low point, weekly Passenger Wi-Fi usage had fallen to 7% of 2019 levels.
 - The United Kingdom and Republic of Ireland had the lowest weekly average recovery rate (1p.p.) through to a post-first wave peak of 31% in mid-September. This reflects the local government advice on avoiding public transport only being relaxed at the start of August.
 - Given the more cautious approach in the first wave recovery phase, the United Kingdom and the Republic of Ireland experienced the most gradual decline (an average of 0.3p.p per week) of the European regions, from the onset of the second wave through to the December holiday period. Strict national restrictions around holiday season travel then contributed to a second wave Wi-Fi usage low of 5% in the w/c December 28th, the only regions to date to have experienced a lower point during the second wave than during the first.
 - From mid-January 2021, the regions have seen an average weekly recovery rate of 1p.p., similar to Eastern and Western Europe, but with less weekly variance. **The 3p.p. increase in the w/c March 8th coincided with the first significant easing of restrictions in the United Kingdom this year** - the re-opening of schools - which also released working parents from their home-schooling responsibilities. However, the government advice to work at home, where possible, remains in effect.

Section 2

Public Transport is Doing its Part

Passenger numbers only tell part of the story of public transport's journey through the pandemic year. While no one would argue it has been anything less than one of the most challenging times in living memory, the industry should also be applauded for the role it has played.

The Safest Way to Travel

Early in the pandemic, public transport - an enclosed and potentially crowded environment - was mooted as one possible contributor to the spread of the virus. But the reality is that the public transport industry adapted as quickly as any other.

In September, Sam Schwartz Consulting published a review of studies from around the world demonstrating the low risk of COVID-19 transmission through the use of public transit, especially where safeguards such as the use of face masks and increased frequency of surface cleaning were in place³.

Analysis of public transit ridership in multiple cities between June – August 2020 showed no correlation between ridership levels and COVID cases. Indoor hospitality venues, poorly ventilated office spaces, and gyms have all proven to be more risky environments for disease transmission than public transit.

Schwartz et al point out that there will be more negative longer-term health consequences arising from any shift in travel habits away from public transit to private car usage. The higher number of fatal crashes per private car mile, the associated increases in "inactivity diseases" such as obesity, diabetes and high blood pressure, and the reduction in air quality arising from the larger carbon footprint per traveller were just some of the reasons cited.

³ Schwartz, S., Chase, H., Farhi, L., Iacobucci, J., McGuinness, K., Mokady, E., Royall, R., Sargent, K., Schack, D., Spence, A. (2020). *Public Transit and COVID-19 Pandemic: Global Research and Best Practices*. APTA. https://www.apta.com/wp-content/uploads/APTA_Covid_Best_Practices_09.29.2020.pdf

Stepping Up

Respecting their countries' social distancing measures and guidelines, public transport authorities and operators have actively discouraged their customers from travelling for all but essential journeys during the pandemic. But importantly, public transport has continued to operate for those who needed it most – taking key workers, such as front-line medical staff, between their home and work environments. Once the first vaccines were rolled out, transport operators were quick to launch dedicated services to improve access to vaccination centres⁴.

The public transport industry should also be applauded for the way it has efficiently managed vehicles under-utilised as a result of the pandemic.

The shut-down of typical points of Internet access due to COVID-19 closures – including public libraries – further highlighted inequalities in technology access across the population. Nearly 22% of U.S. households have no access to the Internet on a regular basis. Icomera has supported several clients putting their Passenger Wi-Fi-equipped vehicles to use as mobile community hotspots.

One such example was Mountain Line, the community bus service operated by the Missoula Urban Transportation District (MUTD) in Montana, USA⁵. With one of its Wi-Fi-equipped electric buses parked in a church parking lot, the operator provided free Internet access to drive-in traffic, connecting users from the safety of their own vehicles for work, their studies, or simply to stay in touch with family and friends.

“The public transport industry should also be applauded for the way it has efficiently managed vehicles under-utilised as a result of the pandemic.”

In another instance, four California school districts installed Wi-Fi technology on their school buses to serve students and their families⁶. These “Student Wi-Fi Zone” buses provided free Wi-Fi access within a 300-foot radius for those affected by California’s mandated shelter-in-place order.

Other transport operators have used the prolonged period of vehicle under-utilisation to accelerate technology upgrade programmes and innovation pilots, where it was possible to work safely and responsibly within COVID-related restrictions. More on that in Section 3.

⁴ Go North East. (2021, February 25). *Innovative new vaccination bus partnership aims to increase vaccination take-up in Newcastle*. <https://www.gonortheast.co.uk/innovative-new-vaccination-bus-partnership-aims-increase-vaccination-take-newcastle>

⁵ Mountain Line. (n.d.) *Mountain Line Provides Wi-Fi-Equipped Bus As Community Hotspot*. Retrieved February 23, 2021, from <https://mountainline.com/mountain-line-provides-wi-fi-equipped-bus-as-community-hotspot/>


⁶ Lopez-Bernal, G (2020, June 18). *ENGIE North America and Icomera Fast-track Installation of Free Wi-Fi for California School District*. Icomera. <https://www.icomera.com/engie-and-icomera-fast-track-installation-of-free-wi-fi-on-school-buses-for-california-school-districts/>

Wider Recognition

None of this has gone unnoticed. Writing for Bloomberg Citylab in February 2021⁷, David Zipper, a Visiting Fellow at Harvard Kennedy School with a focus on the future of cities, tech and mobility, opined that the days of using ridership as the sole key measurement of success in public transport may be over.

Zipper notes that despite the fall in passenger numbers, the pandemic has also highlighted the “societal value” of public transportation. Cities are unable to function if public transportation is unavailable to the essential workers who rely on it to reach and staff their services.

Zipper instead advocates the use of “access” - a transit system’s ability to help people reach the places they want and need to go - as the guiding metric in funding the industry’s recovery, where the traditional use of ridership “could push transit into a death spiral”.



“Cities are unable to function if public transportation is unavailable to the essential workers who rely on it to reach and staff their services.”

The societal, economic, and environmental value of public transport is also clear to world leaders.

In February, Canadian Prime Minister Justin Trudeau announced plans for the federal government to spend an additional \$14.9 billion on public transportation projects across the country, over the next eight years⁸. The funding offers city planners long-term predictability in the face of the pandemic, supporting a large-scale upgrade and expansion of services.

When asked about the logic of supporting large transit projects when people are working from home, Trudeau responded:

“That’s certainly something we’re all reflecting on, of what back to normal looks like, with everything we’ve learned through this pandemic. But there will be no question that cities will still be incredible vibrant places for economic growth, for jobs.

“Yes, there will be more working from home but people will still want to be getting around and there may actually be less need for certain single occupant vehicles and more use of better quality, cleaner, and safer public transit.

“This is about shaving time off of your commute so you can spend more time with your family. It’s about making sure you have opportunities and options when you’re looking for a home that will also be able to get you to your job in an affordable way. These are the things that make a huge difference in the lives of people.”



| Public transport has continued to support key workers during the pandemic

German Chancellor Angela Merkel has said that Germany is investing €86 billion over the next ten years to maintain and modernise its rail network⁹. 2021 is the “European Year of Rail” and Merkel says that this year, the investment is needed in rail digitalisation and new innovations:

“The pandemic has made it clear that we need to put even more effort into digitalisation... The fact that trains run and the movement of goods flows is of great importance to our society – the corona pandemic shows us that once again.

“Signal and communication technology is currently lagging behind the technical possibilities. As the railway itself has calculated, around 20% more traffic could be handled in the network through more efficient use of digital solutions.

“Without such innovations, it will not be possible to halt climate change and at the same time remain economically successful.”

⁷ Zipper, D. (2021, February 16). *Post-Covid, Transit Agencies Must Look Beyond Ridership*. Bloomberg. <https://www.bloomberg.com/news/articles/2021-02-16/post-covid-transit-needs-a-new-metric-for-success>

⁸ Jones, R.P. (2021, February 10). *Trudeau pledges billions in permanent funding for public transit*. CBC. <https://www.cbc.ca/news/politics/trudeau-transit-fund-1.5908346>

⁹ Geerts, E. (2021, January 11). *Angela Merkel: ‘Only with rail we will achieve our climate goals’*. RailTech. <https://www.railtech.com/policy/2021/01/11/angela-merkel-only-with-rail-we-will-achieve-our-climate-goals/?gdpr=accept&gdpr=accept>

Section 3

The Internet-Enabled Recovery Plan

While world leaders are preparing the path for recovery, the public transport industry has already mapped out the route and is putting its foot firmly down on the accelerator. The industry’s recovery, however it is measured, will be propelled by real-time or on-demand access to data by passengers and operators. Icomera calls this the industry’s “Internet-enabled recovery plan”.

Restoring Passenger Confidence from Door to Destination

Although there is no evidence of a link between public transport usage and COVID transmission, misinformation carried by the press in the early days of the pandemic means that operators will have to make their focus on safety more visible¹⁰.

Prior to the journey, passengers will expect access to real-time updates on service timetables and vehicle occupancy levels through their personal devices, giving journey certainty and minimising the time spent waiting in a public space for a suitable service to arrive at their stop.

Once on board, passengers will look for reassurances regarding their personal safety and health measures enacted by the operator. Digital passenger information channels – such as Wi-Fi portals – can show when the vehicle interior was last cleaned and reinforce the onboard safety measures currently in place, while providing updates on journey progress¹¹.

Traditional information channels will not keep pace and will be too expensive to maintain / update. They also cannot support a two-way conversation between passengers and operators while the journey is in progress. Digital channels collect in-journey feedback from customers while on board. This becomes a regular touchpoint that generates invaluable data for understanding the evolving landscape of passenger routines, sentiment, and mindset.

¹⁰ Stansbury, J., Spear, B., Pruvot, A., Alport, G. (2020). *Glimpses of Recovery - Traveler Sentiment Survey Edition 1*. Oliver Wyman. <https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2020/jun/Glimpses%20of%20Recovery%20-%20Traveler%20Sentiment%20Survey%20Edition%201.pdf>

¹¹ Perrero, M. (2020, August 18). *The New Passenger Experience: In a COVID-19 World, Communicating about Cleanliness is Key*. Mass Transit. <https://www.masstransitmag.com/management/article/21150016/the-new-passenger-experience-in-a-covid19-world-communicating-about-cleanliness-is-key>

Making the Journey Count

For business commuters, the availability of Wi-Fi on trains and buses will support the flexibility in work hours and locations that the “work from home” transition has introduced. There will be a shift in attitudes from viewing the office as a working space, to viewing it as a meeting space. If a passenger’s commute can contribute towards their working day, and not disrupt it, then public transport will be the obvious and most effective modal choice for those journeys, while also easing the congestion of traditional peak travel hours.

For leisure travellers, Passenger Wi-Fi and other onboard entertainment offers an immersive experience. When passengers are engaged with content, the perceived journey time is reduced. This has a positive impact on propensity to travel.

These arguments were already well-understood by the industry prior to the pandemic and Icomera has experienced first-hand how the rollout of new or upgraded Passenger Wi-Fi, information, and entertainment services continued, and in some cases accelerated through the last 12 months, regardless of region or public transportation segment.

*“...The availability of Wi-Fi on trains and buses will support the flexibility in work hours and locations that the ‘work from home’ transition has introduced.
If a passenger’s commute can contribute towards their working day, and not disrupt it, then public transport will be the obvious and most effective modal choice...”*

Achieving More with Less

Outside of the improvements that are obviously visible to passengers, transport operators universally face the immediate challenge of having to simultaneously operate with greater efficiency, while meeting higher health, safety and security standards, becoming more resilient to any future pandemics.

During the last 12 months, Icomera has seen operators trial new systems aimed at tackling these challenges¹², including vehicle sensors, thermal imaging and face mask detection cameras, and ultraviolet (UVC) disinfection lights.



The value of being able to reliably and securely transmit the data that all these systems generate and utilise, to and from vehicles in real-time or on-demand, cannot be overstated. Fast and appropriate responses based on this data will be essential to a cost-effective “predict and prevent” maintenance strategy, while also protecting passengers and controlling the spread of this or future viruses.

Next-Generation Connectivity

With an increasing number of onboard devices or systems requiring Internet connectivity, the increasing value of the data they generate, and the increasing importance of its timely availability, transport operators will need mobile Internet connectivity solutions that efficiently utilise the limited coverage and finite capacity of existing cellular (and other communications) networks.

This is precisely the challenge that Icomera's core technology has been addressing for over 20 years, currently ensuring the wireless delivery of over 130 terabytes of data across our installed base every day.

As 5G networks roll out, the available capacity for wireless data transfer will increase. In October, Icomera conducted the world's first trial of a 5G-enabled router in a live rail environment, in Sweden¹³. The train received over 1 gigabit of data per second as it passed through Tele2's 5G cellular network in Stockholm - an industry-record-breaking level of throughput surpassing the benchmark referred to as "the Gigabit Train".

The backwards-compatible 5G modems also yield gigabit speeds when using only 4G LTE networks thanks to "LTE CAT 20" technology, which allows for faster data transfer by aggregating up to seven "frequency carriers" at once. This means that transport operators upgrading to 5G-enabled technology ahead of the full 5G rollout should expect to see substantial increases in throughput from existing networks, while establishing a future-proof means of delivering high-speed gigabit Internet connectivity to their vehicles.

For longer-distance rail operators - who must meet connectivity requirements comparable to that of a small town in terms of numbers of users, while traveling at speed through remote rural environments - dedicated broadband radio networks installed along the track may be used to augment or supplant the existing cellular coverage and capacity.

Icomera TraXside™ technology is already being used in Hyperloop trials¹⁴, preparing the way for "capsule-to-ground" communications when the new transport mode begins commercial operations in the 2030s. Fortunately for rail operators, the connectivity technology of choice for Hyperloop is already being deployed in rail environments today.

¹² Brown, J (2020, October 20). *Icomera and GoMedia Supporting West Midlands 5G-Enabled CCTV Trial*. Icomera. <https://www.icomera.com/icomera-and-gomedia-supporting-west-midlands-5g-enabled-cctv-trial/>

¹³ Barnes, P (2020, November 24). *Icomera Achieves True 'Gigabit Train' in 5G-Enabled Router Trial*. Icomera. <https://www.icomera.com/icomera-achieves-true-gigabit-train-in-5g-enabled-router-trial>

¹⁴ Mass Transit. (2021, January 27). *Hyperloop TT connects with Icomera TraXside for wireless communications*. <https://www.masstransitmag.com/technology/intelligent-transportation-systems/communications-navigation-cad-avl-gps/press-release/21207653/icomera-hyperloop-tt-connects-with-icomera-traxside-for-wireless-communications>

Conclusion



"Moving beyond COVID-19 and resuming society's shift towards sustainable, green mobility will undoubtedly be a Connected Journey."

This report has told the story of the "Pandemic Year" from the perspective of public transport across two continents, with Passenger Wi-Fi usage data providing an international view of how ridership has been affected by COVID-19. But we have also shown that in the face of great adversity, the industry has continued to demonstrate its societal, economic, and environmental value.

Whether we measure the recovery in terms of passenger numbers of leisure travellers, or in terms of "access" for the transit-dependent commuter, it will be driven by real-time and on-demand information for all, utilising a mix of new and existing technologies.

Digital connectivity solutions and strategies will underpin the future of travel - restoring confidence from door to destination, making every ride time-efficient for the passenger, and cost-effective for the operator. Moving beyond COVID-19 and resuming society's shift towards sustainable, green mobility will undoubtedly be a Connected Journey.

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