Continuously Connected Customer

The Continuously Connected Customer research was the first in-depth evaluation of free WiFi in a real-world setting within the UK. This document summarises four key messages and what they mean next for the rail industry.

The Collaboration

This project was a collaboration between Arriva UK Trains, Chiltern Railways, BAS LLP and the Centre for Transport and Society at the University of the West of England Bristol (UWE). It was funded by the RSSB under TOC15. UWE undertook the academic research, with support from Wavelength (a market research company) for data collection. Chiltern Railways ran the free WiFi trials on their network. The project ran between May 2015 and February 2018.

The Research

The project tested different levels of free WiFi on Chiltern Railways trains to understand the impact of continuous connectivity for rail customers.

Improvements to the free WiFi were also matched by improvements to mobile data connectivity for EE customers (about a third of all mobile network users).

There were three trials lasting 20 weeks each:

- Route A (Birmingham to London) - trial A1 moved from 20MB to 75MB, and trial A2 moved from 75MB to 125MB;
- Route B (Aylesbury to London) – trial B1 moved from 0MB to 20MB.

Surveys were conducted before the trials and at the end of each trial (total survey responses 5943)[1]. Qualitative interviews were also conducted with passengers (total interviews 54). Supporting data came from ICOMERA, and an analysis of the Twitter feed (key words 'Chiltern Railways' + WiFi).

[1] A stratified randomised recruitment approach was used on the two routes and for each survey wave. Power calculations indicated approximately 1000 participants would be required at a minimum to measure small changes in behaviour.

Key Insights from the Research

Key insights have been organised around four hypotheses. The evidence either proves or disproves the statement.

1. "Productive travel time attracts people to rail" ☑

The research confirms that travel time has value to rail passengers. Passengers use their time to benefit economic productivity and to maintain their personal activities. This is good news for train operators, as 30% of passengers travelling on Route A are currently attracted to rail by the potential to use their travel time productively.

On Chiltern Railways a high proportion of people feel they have made very worthwhile use of their travel time, and few see it as wasted time. More than half of all business travellers on Route A, and just under a quarter on Route B, agreed they had "made very worthwhile use of their travel time". While this perception improved over the trial periods, the results were not directly associated with changes in the amount of free WiFi.

2. "No one cares about free WiFi!" ☒

Chiltern Railway customers do not share the view that public WiFi is distrusted and few will use it. The research evidence demonstrates many passengers are willing to use it. On Route A 63% connected to the free WiFi with 125MB on offer, and on Route B 31% connected with only 20MB on offer.

However, free WiFi is important to the 'customer experience' as a part of the package, rather than on its own. Passengers on Route A, for instance, talked and tweeted about having a seat, table, and power as enabling work or other personal activities. There remains an opportunity to investigate incentivising commuters to move from *peak* to *off-peak* services, if they have the flexibility to do so, where they may benefit from a travel environment which is more conducive to work in.

Already it is the commuters on Route A who have reaped the most benefit from an increased data allowance, with more people using it by the end of the two trials (A2 61%, up from baseline 54%). This evidence suggests passengers need to make an investment of time and effort to connect successfully; commuters are most likely to make this investment and benefit the most from free WiFi at the moment.

Free WiFi is not for everyone, given that many business travellers on Route A prefer to use mobile data as their main or even sole source of connectivity. There were different reasons for not using the free WiFi, from poor experience to incompatibility of public networks with work requirements. Those who combine mobile data with free WiFi were either ensuring

continuous connectivity between both networks, or using dual devices (i.e. one connected to mobile data, and one connected to the free WiFi).

3. "Connectivity benefits values of travel time". ☑

Connectivity to the internet enables passengers to utilise their travel time for work and non-work activities. On Route A (intercity mainline) 20% of passengers saw free WiFi as a main reason to travel by train; connectivity coupled with time use makes rail travel attractive.

What is more, by enhancing the opportunities for business passengers' productivity, travel time can have a real economic value for businesses and the economy as a whole[2]. Business travellers, in general, seek to exploit their travel time for work purposes from the start of the journey to the finish within working hours. This was evidenced in the interviews, and the survey demonstrated that business travellers are the most active in making their time productive.

Commuters, however, are also using their personal time during the journey productively for work. Generally this takes the form of work emails, and commuters who were interviewed saw their commute as a time for 'catching up' on such work activities or 'preparing for' the day. Currently, commuters do not usually count this as work time. Coupled with other enhanced environmental benefits discussed above, the suggestion to experiment with methods of shifting commuters to off-peak would need to consider the opportunity of enabling travel time to be counted as work time.

However, being connected goes beyond the economic value of time; it facilitates commuters in particular to engage in personal tasks, including socialising through social networks and online messaging, which make commuting a more bearable experience. It is important to recognise the individual value of personal time as part of the commute trade-off, and ensure that it is equally enhanced when considering the attraction of rail over road.

4. 20MB is all passengers need. ☒

Significantly increasing the free WiFi data allowance to 125MB did not attract more passengers to use it overall on Route A, but it did improve the experience for those who used it. Therefore, it is important to reiterate the earlier point that more commuters used the free WiFi as the data allowance increased.

[2] The Department for Transport produces 'values of time' in WebTAG. The WebTAG data book projects values and prices for a given year, and for business travel time as a rail passenger the projected 2017 market value is £35.60. This value varies significantly with the distance travelled. For more information please see:
https://www.gov.uk/government/publications/webtag-tag-data-book-december-2017

The benefit to customers connecting to the free WiFi was evident in the Icomera data. For instance, Icomera data provides evidence that the number of people reaching the data limit has dropped from nearly half at 20MB to less than 10% at 125MB. Some of those passengers interviewed who used the free WiFi did note improvements, even if they did not attribute it to a larger data allowance. Some passengers interviewed post-trial A noted that in the Business Zone the data allowance was now 'unlimited'. While nearly a third were using the 20MB offer on Route B, there is potential to see if this market expands with a higher data allowance.

What next for the Rail Industry?

Arriva UK Trains, Chiltern Railways and BAS LLP have responded to the evidence from the research. The initial response from the rail industry partners has been to consider ways in which free WiFi can enhance the customer experience and attract passengers.

Chiltern Railways

Chiltern Railways states that as one of the first train companies to offer free on-board WiFi, their aim is to provide the best digital train experience with fast, reliable WiFi. Chiltern Railways believe customers should be able to make their time on board as productive as possible. This research validates the company's approach and they intend to retain the data limits provided on both the mainline from London Marylebone to Birmingham/Oxford and on the suburban services from London Marylebone to Aylesbury.

Arriva UK Trains

The RSSB funded project Continuously Connected Customer has provided valuable insights that will shape Arriva UK Trains strategies. The increase in data allowance on long-distance Chiltern services within the project resulted in increased customer satisfaction, while the number of customers having their Wi-Fi data usage 'throttled' reduced from circa 50% at a 20MB limit to under 10% at a 125MB limit. This suggests that existing data allowances (i.e. c20MB) were not sufficient, particularly given the propensity for customers to simultaneously connect using mobile data. These findings will serve to focus our future work on closing the gaps in the consistency of data coverage, ensuring that connectivity becomes a driver of customer satisfaction rather than a source of potential frustration.

However, in order for Arriva and the wider industry to ensure that this increasing customer demand for on-board data can be satisfied, alternative approaches may need to be considered. In addition, an increased industry-wide focus on providing robust, continuous connectivity must consider customers who choose to connect to the internet via either Wi-Fi, their own mobile data, or a combination of both.

Insights into how customers use their travel time will aid us in shaping our customer offer, seeing connectivity as part of a wider customer experience that increases the value of travel time for customers and drives satisfaction with the service that Arriva provides.

BAS LLP
Commuters should look to make more use of off-peak travel. The research undertaken by Chiltern, Arriva, BAS and UWE supports the idea that London commuters who are in a role allowing them to work flexibly, with a remote component, should consider travelling off-peak and taking advantage of the Chiltern Mainline WiFi offer. The coverage and capacity is better than that demanded of new franchise awards, and the availability of seats, tables and power on the early off-peak services complements the capability of the WiFi offer to provide an effective working environment whilst travelling. The specific challenge for any TOC is that making a success of this approach will reduce farebox revenues for existing travellers and there is no certainty that any 'shift2rail' created will offset those losses but there could be significant additional revenue. The rail industry needs to decide how it explores this issue.

UWE Further Academic Research

The UWE research team recommend further research on these routes research to establish the numbers of people travelling by train, and by road. For example, a project with the Transport Catapult would enable access to mobile phone data to estimate numbers of road users and numbers of rail passengers travelling between London and Birmingham. Such evidence combined with research work currently in progress with Govia, would provide evidence for a robust estimation of numbers of passengers per train from WiFi login records. Potentially such data could also demonstrate changes in journeys by car and rail at an aggregate level, which may indicate modal shift. This type of evidence would be of benefit to the wider train industry.

Contact details of the collaborative team

Dr Juliet Jain
Senior Research Fellow
Centre for Transport and Society
University of the West of England, Bristol
email: Juliet.Jain@uwe.ac.uk

Gareth Biggins
Innovation Manager
Arriva UK Trains
email: bigginsg@arriva.co.uk

Kevin Collis
Partner, BAS LLP
email: kevin.collis@basllp.co.uk