Use of mobile phone data for analysis of train travellers : A literature review

UIC next station
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Mrs Fatemeh Rajabi Safiri

Tehran headquarter of Islamic republic of Iran railway

*Expert in planning and coordination in Department of Logistics and Support*

importance of mobile data

- Using data analytics from travelers' mobile phones is an easy and cost-effective way to secure a railway station, provide better service, and use targeted advertising in digital marketing.

- A recent national poll by ISPA shows that 69 percent of mobile users use a smartphone. (The survey was conducted by telephone with the statistical population of the entire country (city and village) in May 21,2019.)

Mobile users consume more than 2x minutes vs. desktop users
Average Minutes per User by Platform
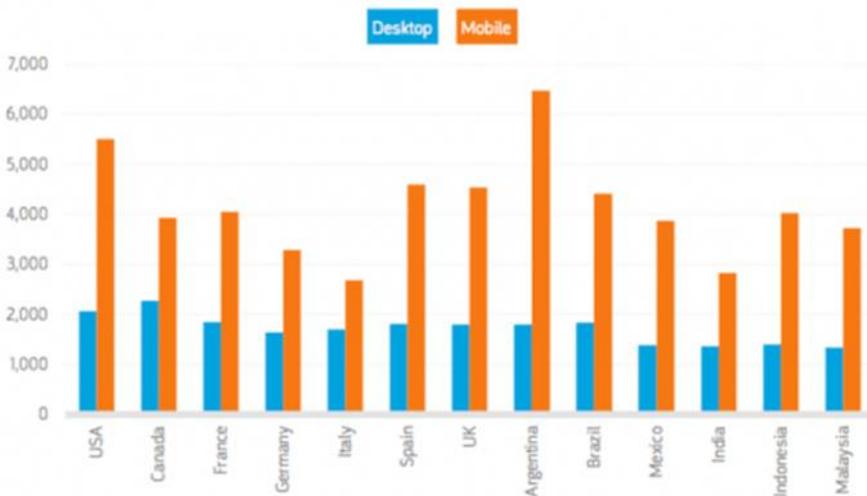
Figure 105 Personal use of devices: 2017

Proportion of all respondents (%)

Smartphone, Tablet, Laptop, Desktop

Legend: UK, FRA, GER, ITA, USA, JPN, AUS, ESP, SWE

Smartphone — UK 75, FRA 77, GER 78, ITA 85, USA 69, JPN 58, AUS 77, ESP 87, SWE 78

Tablet — UK 52, FRA 45, GER 43, ITA 51, USA 45, JPN 25, AUS 46, ESP 55, SWE 44

Laptop — UK 66, FRA 71, GER 72, ITA 68, USA 61, JPN 66, AUS 67, ESP 73, SWE 69

Desktop — UK 39, FRA 50, GER 51, ITA 51, USA 47, JPN 38, AUS 49, ESP 56, SWE 41
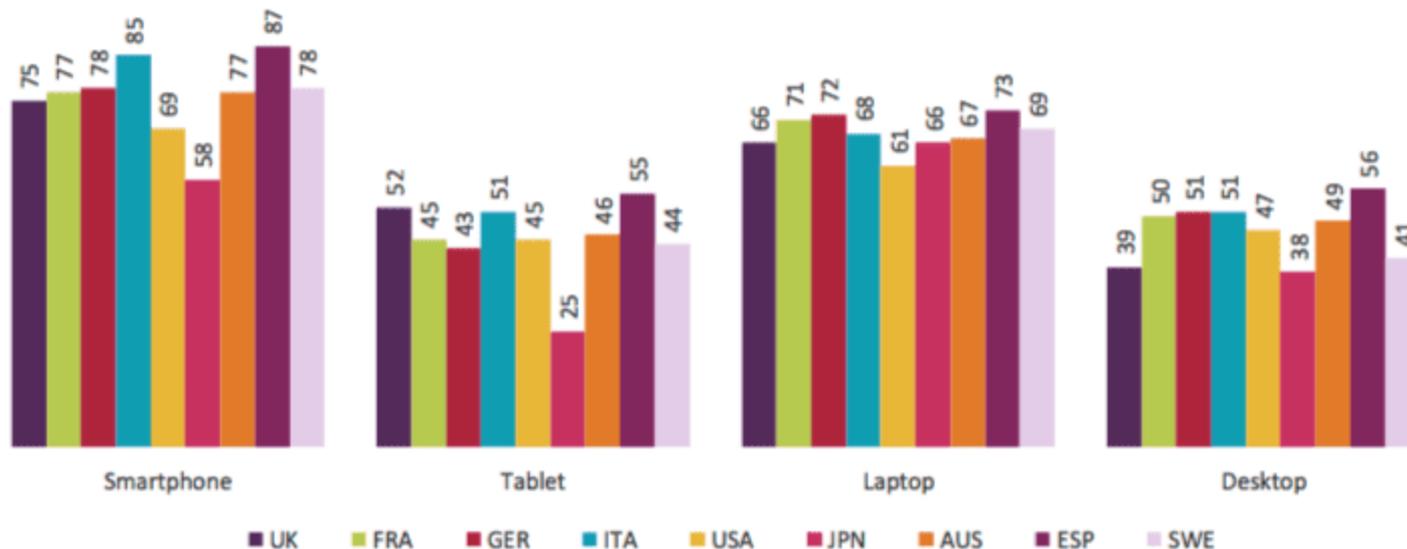
Source: Ofcom research 2017

Base: All respondents UK=1006, FRA=1038, GER=1012, ITA=1020, USA=1000, JPN=1019, AUS=1008, ESP=1010, SWE=1000

Q4a. Which of the following devices do you personally use either at home or elsewhere?

The main purpose of the discussion

- Location-based services provide unique, ubiquitous, and timely services to customers. With Use of mobile phone data for analysis of train travellers , it becomes feasible to deliver location-based advertising services to targeted customers.

- Strengthen the integrated customer relationship system by identifying loyal customers and enhancing their satisfaction by allocating appropriate welfare facilities and promotions.

Research on the use of mobile data for marketing, advertising and service enhancement

Research topic	Researchers and Source	summary of results
Building a targeted mobile advertising system for location-based services	Kai Li a , Timon C. Du Decision Support Systems 54 (2012) 1–8	This study proposes a targeted mobile advertising system (TMAS) that works as a platform to provide both merchants and consumers with context-aware advertisements. The approach integrates the advantages of both mobile and targeted advertising to allow merchants to disseminate location-based targeted advertisements while providing pull-type and personalized advertisements for consumers. To demonstrate the TMAS, a platform was built to provide highly relevant advertising to consumers and to guarantee that advertisements have an equal opportunity of being presented to consumers.

Research on the use of mobile data for marketing, advertising and service enhancement

Research topic	Researchers and Source	summary of results
The Increasing Importance of Mobile Marketing in the Light of the Improvement of Mobile Phones, Confronted Problems Encountered in Practice, Solution Offers and Expectations	Y.Burcak-Boydak Oztach. Decision Procedia Social and Behavioral Sciences, Volume 195, 3 July 2015, 1066–1073.	The effect of mobile applications will have on the purchasing behavior of people, especially on their vacation habits /Virtual life coming to the forefront in the post-information society, together with the advances that will be seen in biotechnology and nanotechnology and the possible issues such a virtual environment will raise. The effects mentioned in the first point are positive effects that mobile applications will create in the marketing and sales dimension, whereas others are negative effects experienced from a sociological aspect.

Research on the use of mobile data for marketing, advertising and service enhancement

Research topic	Researchers and Source	summary of results
Use of mobile phone data for analysis of number of train travellers	Anette ØstbøSørensenaJohannes Bjelland Journal of Rail Transport Planning & Management Volume 8, Issue 2, 2018, 123-144	With updated ridership information, planners should be able to get a detailed, continuous and accurate vision of the travel behaviour of their customers.This study has investigated the potential for using mobile phone data to describe travel patterns that include train travel. The main implication of the findings is that mobile phone data can potentially be used for ridership analyses.

Research on train ridership is important

- ridership is reported to external funding and oversight agencies.

- it monitors trends over time.

- ridership is a key performance indicator at various levels of the transportation system.

- ridership data identifies locations with the greatest boarding and alighting activity, which is important not only for its own purpose, but because the safe management of the railway may depend upon it.

obstacles

- First, train operators consider such data confidential business information, especially in high resolution.

- Second, the data that actually are available vary in quality and coverage.

- Violations of citizenship laws And the Privacy Act

- Creating databases for storing and processing data

- Providing technical requirements, whether building a suitable application or providing the equipment needed for operation

- Creating security requirements to protect information data

Results and discussion

Based on research done so far. mobile phone data can potentially be used for ridership analyses.

With updated ridership information, planners should be able to get a detailed, continuous and accurate vision of the travel behaviour of their customers. This is important in planning and improving the transportation service.

Result

By identifying storage and analyzing mobile data, one can identify the behavior and number of passengers on the journey, and therefore use targeted location advertising at the stations and within the train.

By identifying passengers who are constantly using the train for their transportations, and by devoting special arrangements to them, customer loyalty can be added.