TSUG

Transport Statistics Users Group

Monthly Review: April 2019

This month's review shows that Estonian transport enterprises served as many passengers in 2018 as they did during the previous year, while freight volumes (tonnes) increased by 2%. The number of passengers carried by Estonian road, rail, sea and air transport enterprises in 2018 amounted to 208.7 million, 72% of whom were carried by bus. The passenger volume increased by 5% on year, reaching 6.2bn pkm in 2018. One in every four German long-distance trains arrived at its destination late in 2018, according to Deutsche Bahn. The increase in speed limit by NYCT followed significant improvements in service, including a 50% reduction in major incidents and a 32% rise in system-wide on-time performance. Due to the New York Subway Action Plan, launched in July 2017, weekday on-time performance in January was 76.7%, as opposed to 58.1% in January 2018, an improvement of approximately 32%. SJ carried a record 31.8 million passengers in 2018, an increase of 1.5 million compared with 2017. While net sales increased from SKr 7.78bn ($US 832m) in 2017 to SKr 7.87bn last year, operating profit dropped from SKr 666m to SKr 486m. Saudi Arabia's Haramain high-speed line, which runs for 449km between Mecca and Medina, has carried more than 250,000 passengers with load factors of 82% since opening on October 17 2018. In an innovative first, engineers developing the HS2 hub at Old Oak Common in north west London are proposing to tap heat from the high speed trains to heat water and power central heating for up to 500 new homes that could be built nearby. The aviation all-accident rate (measured in accidents/million flights) was 1.35, the equivalent of one accident for every 740,000 flights. This was an improvement over the all accident rate of 1.79 for the previous 5-year period (2013-2017), but a decline compared to 2017's record performance of 1.11. In mid-February 2019, a Virgin Atlantic flight from Los Angeles to London had reached a speed of 801 miles/h 35,000 feet over Pennsylvania. In the four quarters to Q4, 2018, Air France/KLM's passenger revenues were a record €21,186m. Washington Dulles International airport is once again the DC region's second busiest airport. We have Message from the Chairman, TSUG, Letter to the Editor, Letter from the Editor, and also Kit Mitchell's Statistics Digest.

Dr Shanta Bir Singh Tuladhar and Andrew Sharp

Contents

Dates of the next TSUG seminars

Date	Venue	Topic
Wed-17-Apr	TfL	Transport Safety
Wed-22-May	TfL	Traffic Calming – Does It Work?
Wed-19-Jun	TfL	Methodology
Wed-17-Aug	TfL	The Impact of Carbon Change

The seminars can be booked through the TSUG website at www.tsug.org.uk/seminars.php

Statistics Digest

STATISTICS DIGEST April 2019

This digest lists major sets of statistics that have been released recently or which are due to be released. Regular monthly and quarterly releases are not included. The web links given allow free downloads of the documents cited.

Recent releases from Department for Transport

Recent releases from Department for Transport	
1 March	Renewable Transport Fuel Obligation: Year 10 (2017 to 2018) report 6 (15 April 2017 to 14 April 2018 supply)
https://www.gov.uk/government/statistics/biofuel-statistics-year-10-2017-to-2018-report-6	
1 March	Renewable Transport Fuel Obligation: Year 11 (2018) report 2 (15 April 2018 to 31 December 2018 supply)
https://www.gov.uk/government/statistics/biofuel-statistics-year-11-2018-report-2	
13 March	Shipping fleet statistics: 2018
https://www.gov.uk/government/statistics/shipping-fleet-statistics-2018	

Forthcoming releases from Department for Transport	
11 April	Vehicle licensing statistics: 2018
https://www.gov.uk/government/collections/vehicles-statistics	
May	Road lengths in Great Britain: 2018
https://www.gov.uk/government/collections/road-network-size-and-condition	
May	Road freight statistics: October 2017 to September 2018
https://www.gov.uk/government/collections/road-freight-domestic-and-international-statistics	
May	Road traffic estimates in Great Britain: 2018
https://www.gov.uk/government/collections/road-traffic-statistics	
May	Road goods vehicles travelling to Europe: April 2018 to March 2019
https://www.gov.uk/government/collections/road-freight-domestic-and-international-statistics	
June	Travel time measures for the Strategic Road Network and local 'A' roads: April 2018 to March 2019
https://www.gov.uk/government/collections/road-congestion-and-reliability-statistics	
June	Provisional road traffic estimates, Great Britain: April 2018 to March 2019
https://www.gov.uk/government/collections/road-traffic-statistics	
June	Vehicle speed compliance statistics for Great Britain: 2018
https://www.gov.uk/government/collections/speeds-statistics	
June	Reported road casualties Great Britain, main results: 2018
https://www.gov.uk/government/collections/road-accidents-and-safety-statistics	

June	Search and rescue helicopter annual statistics: year ending March 2019
https://www.gov.uk/government/collections/search-and-rescue-helicopter-statistics	
June	Light rail and tram statistics: year ending March 2019
https://www.gov.uk/government/collections/light-rail-and-tram-statistics	

Recent release from Office of National Statistics

22 March	UK and foreign vessels landings by UK port and UK vessel landings abroad: 2014, 2015, 2016, 2017 and 2018 (year to date)
https://www.gov.uk/government/statistical-data-sets/uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad	
21 March	Driver CPC qualification and training data
https://www.gov.uk/government/statistical-data-sets/driver-cpc-qualification-and-training-data	
21 March	Public Transport Journey Planning in Northern Ireland 2017/18
https://www.gov.uk/government/statistics/public-transport-journey-planning-in-northern-ireland-201718	
20 March	Travel Habits 2018
https://www.gov.uk/government/statistical-data-sets/travel-habits-2018	
19 March	Weekly road fuel prices (data 2013 – 2019)
https://www.gov.uk/government/statistical-data-sets/oil-and-petroleum-products-weekly-statistics	
14 March	Driving test statistics (DRT)
https://www.gov.uk/government/statistical-data-sets/driving-test-statistics-drt	
14 March	Driving instructor statistics (INS)
https://www.gov.uk/government/statistical-data-sets/driving-instructor-statistics-ins	
13 March	Local bus passenger journeys (BUS01)
https://www.gov.uk/government/statistical-data-sets/bus01-local-bus-passenger-journeys	
13 March	Costs, fares and revenue (BUS04)
https://www.gov.uk/government/statistical-data-sets/bus04-costs-fares-and-revenue	

Other recent releases

12 March	Vehicles 2018 (Sweden)
https://www.trafa.se/en/road-traffic/vehicle-statistics/vehicles-2018-8195/	

Seminar Write-up

Notes on the Q & A Sessions of the TSUG Seminar on Traffic Offences, Statistics, Enforcement & Alternatives to Prosecution, 20th February 2019
To be read in Conjunction with the pdfs of the Presentations

Christopher Freer – Vehicle speed compliance in Great Britain

Heather Ward (UCL) asked if 8 locations were adequate to gather valid information on 20 mph zones. Christopher said that they were. Jeremy Grove (DfT) said that they had been looking at this and that the sample might not be representative of all 20 mph zones. Heather that that this was tricky given the interest in the topic.

Richard Owen (Road Safety Analysis) asked if the data was 24/7? Christopher replied that it was. He also asked if the 80% percentiles were available. They are considering it. The raw data would be available if a data request was supplied. Richard also asked if they used road speed data which was compared with the published data. He was concerned about the low sample size.

Amy Aeron-Thomas (RoadPeace) asked if the data was available by vehicle type and country. Christopher replied that all data was available for all vehicle types for England, Wales and Scotland except for HGVs in Scotland. She suggested using the road safety KPIs. Could they use this database? Heather Ward said that she would find out.

Simon Lister (TSUG) asked if the number of offences was an indicator of prosecutions? Richard replied that they use them but do not compare them to location. Heather Ward noted that the European Safety Council recently has published a report on this.

Kit Mitchell (1) – Long term trends in traffic offences

Peter Gordon (TSUG) asked if there was direct causality between prosecutions for offences such as speeding and the number of casualties or were there other factors at play? Heather Ward replied that drinking had been going down and that there was a cultural change. Kit mentioned some overseas evidence. The introduction of speed cameras in France has definitely caused a reduction in speeding.

Simon Lister said that contributory factors must be taken with care. The Attending Officer has to tick a form and this involves an element of judgement. Amy Aeron-Thomas said that there has to be strong evidence for a case to stand up in court. She hoped that the next review would include a 'Not known' box.

An individual (do we know who?) said that alternatives to prosecution (NDORS) started in 2002 and this would largely explain the reduction in speeding offences. Some forces realised that paying for courses was a good source of revenue (but please see later comments).

Hannah Husband – Home Office statistics

Kit Mitchell asked if PentiP included and separately identified spot and average speed cameras. Hannah replied that it was not included in the data set that she used but that PetriP has extra information that is not supplied to her. Sarah Monahan (Metropolitan Police) said that it was broken down by the manufacturer of the camera which would give the information. PetriP is overseen by the Home Office.

Amy Aeron-Thomas noted that mobile phone offences have increased but that that you cannot send someone for retraining for this offence.

Adan Snow (Liverpool John Moores University) asked if you could disaggregate those eligible for retraining. Hannah replied that there were nearly two milion speed offences annually according to Home Office statistics and that there are various processes which a good police force could use to further analyse the results. There is no information on how many drivers turn the offer of a course down.

Heather Ward noted that there was no break down by age or sex. Hannah replied that it is available in PentiP but that any widening of the annual data requirement has

to go through various sources, culminating with sign off by the Home Secretary, and is probably seen as too difficult.

Can you categorise the result by vehicle type? It is on PentiP but you might have to renegotiate the contract with the supplier.

Adam Snow – Analyses of traffic offences, penalties and possibilities for automated data capture

Amy Aeron-Thomas asked if there was any analysis of online and digital counts. Adam said that none had been undertaken.

Simon Lister asked if there was a link between Key Performance Indicators and other factors. Are factors like travel levels pertinent? Most of the legislation comes under the DfT and is enforced by the police. Adam replied that information is not reported at police force level.

Kit Mitchell said that regional differences may be due to different qualities of the road network throughout the country. Roads are poor in Lincolnshire with fast straight single carriageway roads which had not been modified. They were much better in, for example, Devon. Adam replied that other tools were available at a force level. There are many reasons for changes in offence levels.

Kit Mitchell (2) – A case study of an alternative to prosecution

Simon Lister asked if there is a case for alternatives to prosecution being applied to more drivers. Kit replied that in general no. The typical cost of a course was around £500 and the cost charged might only be £100 but the cost of accidents is very high so the overall cost benefit is positive and they do seem to be having a beneficial effect.

Margherita Rendel asked how many centres they were throughout the country. Kit replied that there were seventeen plus outstations. Local Authorities, the Instititute of Advanced Motorists and ROSPA also ran less advanced centres. She also asked if passing tests should be made a requirement. Kit replied that this appeared to be counter-productive. Denmark has withdrawn a cognitive test.

Peter Gordon

Seminar on Rail Passenger Statistics

This seminar, on 20 March, was excellent with four very good speakers. Presentations are to be put on our website as usual, once cleared by the speakers.

It was clear from the questions after each presentation that many in the audience were knowledgeable users of the statistics produced by ORR, DfT and Steer.

After the seminar there was some discussion of the appropriate format for meetings where we are hearing from producers of statistics who particularly want user input. There were 40 delegates, so a less formal format might be difficult to manage, but maybe with a smaller audience we could have more of a round table arrangement with shorter presentations and more discussion?

Thoughts on topics, speakers and discussion leaders welcome.

Andrew Sharp

Members can find past seminar slides here: http://www.tsug.org.uk/past_seminars.php

Members' Forum

Message from the Chairman, TSUG

We have added the presentations of most of the recent meetings to the website. They are available by visiting our website at http://www.tsug.org.uk/index.php. You will need to log in using your e-mail. Please contact us if you have any problems. Select the Seminar tab (the third from the left) and click on 'You can view a list of past seminars'. A few are missing either because the speaker did not wish us to use them or because they are not available.

Peter Gordon

Letter to the Editor

Dear all

Perhaps a little correction, if I may?

On page 8, as an attempted comparison to Californian rail travel data, you note that Waterloo station had 22m passengers last year.

Please note that that figure only refers to passengers on full-price tickets. You need to add in another 31.5m passengers on reduced-price.

tickets, and another 40.8m on season tickets, to get to the real total of 94.4m. That was in a 'poor' year which included two weeks'.

of disruption during major engineering works. From this we really can see the relative difference in rail trip rates in the two conurbations.

Regards
Nigel
27/03/19

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Letter from the Editor

TSUG Review

The editors would like to encourage more people to write articles for the Review. At the moment, this work falls on a small number of people, and of course reflects their interests. Both of these reduce the comprehensiveness of our coverage.

YOU could easily write once a year about some statistics you have seen: please do so, and send them to the Editors.

Editor, TSUG Newsletter

General News

Overspends and Overruns
From AASHTO Journal

After the Federal Railroad Administration reduced funding for California's high-speed rail project, a senator from Iowa has introduced a bill to require full public disclosure of the cost and timeline of government-funded projects that are over budget and behind schedule.

The bill would require the Office of Management and Budget to submit an annual report to Congress listing every government-funded project that is $1 billion or more over budget or five years or more behind schedule. It would also require:
- a brief description, including the purpose, location, the year in which it was begun, the Federal share of the total cost, and the contractors and grant recipients;
- an explanation of any change to the original scope of the project, including adding to or narrowing of the initial requirements;
- the original expected and current expected completion date;
- the original and current cost estimate;
- an explanation for a delay in completion or increase in the original cost estimate; and
- the amount of and rationale for any award, incentive fee, or other type of bonus awarded for the project.

Transport in Estonia 2018
From ERR News

According Statistics Estonia, in 2018, Estonian transport enterprises served as many passengers in 2018 as they did during the previous year, while freight volumes (tonnes) increased by 2%. The number of passengers carried by Estonian road, rail, sea and air transport enterprises in 2018 amounted to 208.7 million, 72% of whom were carried by bus. The passenger volume increased by 5% on year, reaching 6.2 billion passenger-kilometres in 2018. The carriage of passengers decreased in road transport, but increased in rail and air transport.

The number of passengers using road transport decreased by 1% compared to 2017. There were 190.4 million passengers in total and 86% of them used urban transport, including trams and trolleybuses. The number of passengers on urban transport decreased by 2% last year, but the number of passengers using county bus lines increased 12%, to 16.7 million. In 2018, passenger traffic volume of road transport totalled 2.9 billion passenger-kilometres.

In 2018, Estonian sea transport enterprises carried 9.4 million passengers, which is almost as many as in 2017. The number of passengers carried was 2.5 million in domestic sea traffic (up by 3%) and 6.9 million in international sea traffic (down by 1%). The passenger traffic volume of sea transport enterprises was nearly 1.3 billion passenger-kilometres in 2018. International sea traffic accounted for 98% of the passenger traffic volume.

Last year, a total of 7.8 million passengers were carried by rail in Estonia, an increase of 4%. Some 7.7 million passengers were transported by domestic rail, up 5%, while 107,100 passengers were carried on international rail routes. The passenger traffic volume of rail transport enterprises totalled 416.8 million passenger-kilometres.

In 2018, Estonian air transport enterprises carried 1.1 million passengers, up 11% on year. 62% of passengers were carried on commercial flights. The passenger traffic volume of air transport enterprises totalled 1.5 billion passenger-kilometres.

The carriage of goods increased in both road and rail transport. According to preliminary estimates, in 2018, Estonian road freight vehicles and rail, sea and air transport enterprises carried a total of 57.3 million tonnes of goods, half of which was carried by road and nearly half by rail.

According to preliminary estimates, Estonian road freight vehicles carried approximately 29.3 million tonnes of goods in 2018 (up by 1%). 23.7 million tonnes of goods were transported by domestic road carriers (up by 3%), while 5.6 million tonnes were carried on international services (down by 7%). Estimated freight turnover totalled nearly 6 billion tonne-kilometres in 2018.

In 2018, the volume of goods carried by rail increased by 2%, amounting to 27.8 million tonnes. Nearly two-thirds of the rail freight volume was in domestic rail traffic, reaching 17 million tonnes of goods last year (down by 6%). The volume of goods carried by railway amounted to 13.5 million tonnes, of which around 80% was international traffic. Transit goods carried amounted to 9.1 million tonnes (up by 20%). The carriage of imports and exports by rail increased by 3% and 10% respectively. Compared to 2017, rail freight carried increased by 12% and amounted to 2.6 billion tonne-kilometres.

Rail

CaHSR Bridges
From Slate (apologies for the Imperial measurements throughout!)

California's high-speed rail (CaHSR) project is in trouble. The state only has enough money to complete the route's middle segment, running through the agricultural heartland of the Central Valley, but not to connect to Los Angeles and San Francisco, the major population centres at either end (although these will be connected by conventional rail). The cost forecast has increased, with the Central Valley segment alone—thought to be the easiest one to complete—going up from $6 billion to $10.6 billion.

New bridges over the train tracks—mostly roads, which cross from one side to the other every couple miles or more often—were required to clear the top of the rails by 27 feet.

A Shinkansen 700 series train car is 12 feet and 1 inch high. The new bridges over the new California high-speed rail tracks are so high you could get two Shinkansens beneath them, stacked on top of each other. Is it normal to build so much room between the top of a train and the bottom of a bridge? Broadly speaking, yes, because that space will be taken up with electrical equipment—the wires that supply power to the train. However, California may be building the highest high-speed rail overpasses in the world, which reflects the project's unusual structure—specifically, its designers' relative indifference to construction costs compared to future maintenance costs.

Californians Advocating Responsible Rail Design is an advocacy group that has scrutinized the California High Speed Rail Authority for a decade and warned about some of its questionable practices—in particular the reliance on the contractor-industrial complex, wherein a handful of firms are responsible for both designing and building so many U.S. rail infrastructure projects. They have been very poorly supervised by CAHSR, a November state audit concluded.

The results of this arrangement have been disastrous by international standards. American rail construction is considerably more expensive than comparable projects in Europe.

WSP USA (then known as Parsons Brinckerhoff) made the 27-foot bridge standard for the project in its 2009 design criteria. This results in the current enormous mounds of dirt that constitute the overpass foundations. Bigger bridges cost more—not just because they require bigger supports, but because the state has to buy enough land to build long, gentle ramps bringing the road up to the crossing height. Interstate highways require 16 feet of vertical clearance, for comparison. Land acquisition has been a problem for CAHSR. So have, in at least two instances, the design and construction of the overpasses.

Earlier studies in California had envisioned an HSR corridor with lower bridges, including a 2004 Environmental Impact Statement that set out a vertical clearance of 21 feet. A 2013 study by the Center for Transportation Research at the University of Texas suggested high-speed rail in that state could be designed with "at least 19 feet of clearance." SNCF—whose offer of assistance was turned down by California a decade ago—manages with just over 21 feet of clearance to run its TGV trains.

Still, several engineers suggested 27 feet was within the range for high-speed rail clearances.

The trains will draw their electricity from a contact wire 17.5 feet above the track. The catenary occupies the next five feet. There are three feet of clearance for the feeder wire. Finally, there's a foot of electrical clearance.

There are ways to design overhead wires that require less space. For example, in Japan, Shinkansen trains get 25 feet of room under bridges, but by attaching the catenary to the overhead structure, the height can be lowered to 23 feet. In California, by contrast, engineers committed to have free-standing electrical equipment under overhead bridges.

Does that make the bridges higher above the tracks and more expensive to build? Yes. But because the bond proposal that funded the HSR project requires the system to cover operations and maintenance with ticket sales, there was a strong incentive to reduce the kind of variable design that would require more care down the road. Spend now, save later. Or at least that was the idea.

DB Compensation

https://www.dw.com/en/germany-deutsche-bahn-to-simplify-ticket-refund-process-eventually/a-47944722

One in every four long-distance trains arrived at its destination late in 2018, according to Deutsche Bahn.

The train company paid out €53.6 million in refunds last year for delays in local and long-distance transport. That is partly because more people are applying for refunds — 2.7 million passengers completed compensation forms last year, 50% more than in 2017.

DB carry 4652m passengers a year.

Compensation paid out is €0.012/passenger..

New York Subway Goes Faster

https://www.railwayage.com/safety/nyct-faster-safer/?utm_source=&utm_medium=email&utm_campaign=1411

MTA New York City Transit (NYCT) has made progress in safely increasing subway speed limits with its Save Safe Seconds Campaign, part of the agency's Subway Action Plan initiated by President Andy Byford. Since late summer 2018, an NYCT safety committee has approved increases to speed limits in more than 100 places, and the agency has implemented more than 50 of them. These increases follow significant improvements in service,

Jackson Heights Station:
New York City Subway

including a 50% reduction in major incidents and a 32% rise in system-wide on-time performance.

More than 20 new locations have received speed limit increases since late January 2019.

To identify areas in the system through which trains can safely pass at higher speeds, NYCT's SPEED (Subway Performance Evaluation, Education and Development) Unit, which consists of employees with various specialties and union officials, has traversed almost all of NYCT's approximately 700 track-miles. The SPEED Unit conducts various tests to determine whether certain track segments might be able to support higher speeds than currently permitted, without compromising standards for safety and passenger comfort.

In addition to testing for raising speed limits, the SPEED Unit is testing the accuracy of speed regulating signals known as "grade time signals" or "timer signals," with more than 95% of some 2,000 such signals tested since the initiative began in summer 2018. Approximately 350 faulty timer signals have been discovered, and

105 have been recalibrated so far "in what amounts to very labour-intensive work to inspect, diagnose and repair or replace numerous possible pieces of equipment during times of exclusive track access for workers such as weekends or nights," NYCT noted.

New York Subway Punctuality Improvements

http://www.mta.info/press-release/mta-headquarters/dramatic-and-accelerating-year-over-year-improvements-subway

Metropolitan Transportation Authority (MTA) recently published new statistics showing the dramatic subway performance improvements that have been achieved since the launch of the Subway Action Plan. They pointed to a months-long trend of improvement, including the best on-time performance and the fewest number of delays that the system has seen in four years. The Subway Action Plan was launched in July 2017, and was funded by the governor, legislature and city, with the goal of taking extraordinary measures to stabilize and improve the subway system (which is over a century old and by far the largest in the country).

Weekday on-time performance in January was 76.7%, as opposed to 58.1% in January 2018, an improvement of approximately 32%. January also represents the fifth consecutive month that the Department of Subways exceeded its goal of reducing delays by 10,000 each month. In January 2019, there were 42,348 weekday delays, compared to 76,287 in January 2018. Weekday major incidents – incidents causing 50 or more delays – are also drastically down in January, with 52 compared to 105 in January 2018.

Weekend on-time performance is also much improved. In January 2019 compared to January 2018, there were seven major incidents compared to 14; 83.1% on-time performance compared to 64.7%; and 8,180 delays compared to 18,931.

Delay-inducing track fires caused by debris are also significantly down – a direct result of aggressive debris cleanup under the Subway Action Plan. In January 2019, there were 23 track debris fires, compared to 42 in January 2018. In the 12 months to January 2019, there were 322 track fires related to debris, compared to 452 the previous year.

Several other statistics also point to evidence of the Subway Action Plan's effectiveness. Additional unanticipated time spent waiting on platforms is down to 71 seconds compared to 95 seconds and additional unanticipated time spent on trains is down to 58 seconds compared to 106 seconds.

During the Subway Action Plan, workers have also:
- Cleared more than 40,000 street grates to prevent ingress of litter and leaves that build up on the track, causing fires and clogging drains.
- Sealed more than 4,000 leaks to prevent water ingress that causes power and signal problems, deterioration of track and other equipment resulting in unplanned service changes, delays and track fires.
- Installed Continuous Welded Rail (CWR) across the system, replacing jointed rail, which is more prone to rail defects that delay trains.
- Repaired almost 20,000 minor track defects that if not repaired can cause delays.
- Repaired or rebuilt more than 1,700 signal components, drastically reducing the backlog of issues that can disrupt service.

- Rebuilt and modernized more than 200 signals to be moisture proof and avoid service interruption.
- Conducted a comprehensive inspection of door components across all fleets.
- Made maintenance practices more efficient so cars can be put back into service more quickly.
- Repaired door control units on over 1,000 cars in the oldest fleets to improve reliability of this critical component that cause 40% of car breakdowns.

SJ passenger Traffic in 2018
From International Railway Journal

Sweden's national rail passenger operator SJ carried a record 31.8 million passengers in 2018, an increase of 1.5 million compared with 2017. While net sales increased from SKr 7.78bn ($US 832m) in 2017 to SKr 7.87bn last year, operating profit dropped from SKr 666m to SKr 486m.

SJ achieved a strong financial recovery in the last quarter of 2018, thanks to releasing tickets for sale earlier than

Local Train at Marsta Station

normal and running additional services in the run up to Christmas.

Punctuality of medium and long-distance trains dropped from 90% in 2017 to 86% in 2018. This was because a long, cold and snowy winter changed in a short time to a very hot summer.

The First Four Months of Haramain
From International Railway Journal

Saudi Arabia's Haramain high-speed line, which runs for 449km between Mecca and Medina, has carried more than 250,000 passengers with load factors of 82% since opening on October 17 2018, according to the Saudi Railway Authority (SAR).

The service is reporting a 93% punctuality rate, a major achievement given the difficulties of operating a high-speed service in desert conditions. In total, SAR has operated more than 450 trips on the 320km/h line, which is served by a fleet of 35 300km/h Talgo 13-car T350 high-speed trains as well as an additional set for use by the Saudi royal family.

Fast transit to the high-speed line in Jeddah needs a 21-minute transfer from King Abdul Aziz International Airport, the principle entry point to Saudi Arabia for Hajj pilgrims: this is a critical element in the railway's viability. During the Hajj, there are up to 30 million visitors.

SAR aims to significantly increase traffic on the line in 2019. In the first quarter of the year the operator was running 40 trips/week. This is increasing to 60 trips in the second quarter and then 100 in the third and fourth quarters. In 2020 the railway is planning to offer 200 trips.

There is Hot Air and Hot Air

https://www.gov.uk/government/news/hs2-could-provide-green-energy-to-hundreds-of-new-homes

In an innovative first, engineers developing the HS2 hub at Old Oak Common in north west London are proposing to tap heat from the high speed trains to heat water and power central heating for up to 500 new homes that could be built nearby. The scheme would see five air source heat pumps draw warm air from the tunnels, where the waste heat from trains is usually extracted by traditional ventilation systems and seeps into the ground surrounding the tunnels.

Class 345 Trains Stabled at Old Oak Common

HS2 Ltd's plans would see waste heat fed into a local District Heating System. Warm air would be pushed into the crossover box by trains, in effect acting like pistons. It would then rise to be harnessed by air source heat pumps, and used to heat water which would be transported to homes by insulated pipes. Based on current energy price forecasts, HS2 estimates that the investment in waste heat recycling system would pay for itself after four years.

Compared to gas boilers being used in the homes, recycling heat generated by trains' engines and brakes could reduce the carbon footprint of 500 houses by more than a fifth (22%). Plans are at an early stage but the technology is proven. As the project progresses HS2 Ltd will work with local partners to make this aspiration a reality.

Old Oak Common's crossover box is the only place on HS2's first section between London and the West Midlands capable of supporting waste heat recovery technology, but there may be further opportunities on the high speed network's Leeds and Manchester routes.

Air

Commercial Airline Safety
IATA Press Release

The International Air Transport Association (IATA) released data for the 2018 safety performance of the commercial airline industry showing continuing safety improvements over the long term, but an increase in accidents compared to 2017.
The all accident rate (measured in accidents/million flights) was 1.35, the equivalent of one accident for every 740,000 flights. This was an improvement over the all accident rate of 1.79 for the previous 5-year period (2013-2017), but a decline compared to 2017's record performance of 1.11.

The 2018 rate for major jet accidents (measured in jet hull losses/million flights) was 0.19, which was the equivalent of one major accident for every 5.4 million flights. This was an improvement over the rate for the previous 5-year period (2013-2017) of 0.29 but not as good as the rate of 0.12 in 2017.

There were 11 fatal accidents with 523 fatalities among passengers and crew. This compares with an average of 8.8 fatal accidents and approximately 234 fatalities/year in the previous 5-year period (2013-2017). In 2017, the industry experienced 6 fatal accidents with 19 fatalities, which was a record low. One accident in 2017 also resulted in the deaths of 35 persons on the ground.

Fastest 787?
From Travel&Tour World

In mid-February, it was reported that a Virgin Atlantic flight from Los Angeles to London had reached a speed of 801 miles/h 35,000 feet over Pennsylvania.

The Boeing 787-9 has flown at speeds up to 776 miles/h in the past, although its ordinary cruising speed is 561 miles/h. But the jet stream provided a strong tailwind to the flight and helped it to touch speeds of 1289 km/h.

Tui Boeing 787 at Gatwick

Recent Airline Statistics

Air France/KLM reported its Q4, 2018 results recently. Some statistics were at record highs: others have fluctuated.

In the four quarters to Q4, 2018, passenger revenues were a record €21,186m. This is the highest since my series started in the year to Q4, 2015 when it was €20,541m. It dropped to €19,682m in the year to Q4, 2016 and has grown steadily since.

Aer Lingus Airbus A320 at Heathrow

Passenger kilometres (PKM) were also at a high, at 255,405m, as were available seat kilometres (ASK) at 292,184m.

Passenger numbers were also at a record high of 85,619,000.

Revenue/passenger was €247.45, its highest since the year to Q3, 2016: in the year to Q4, 2015 it was €259.96. Revenue/passenger-kilometre was €0.083 – again, the highest since the year to Q3, 2016: in the year to Q4, 2015 it was €0.087. Average length of journey was 2983km, the same as at the start of my series. It was just below 2960km in the year to Q4, 2017 and has fluctuated in a narrow band.

IAG, parent of BA, Aer Lingus and Vueling, also reported Q4 figures. Revenue for the last four quarters was €21,549m – over €21.5bn for the first time. Revenue passenger kilometres (RPK) were also at a record level of 270,657m – over 270bn for the first time. ASKs were also at a record high of 324,808m, as were passenger numbers at 112,920,000.

Revenue/passenger at just under €191

Aer Lingus Airbus A320 at Heathrow

continues its climb from the Q2, 2018 trough of €189.49: while it was €230.72 when my series started in the year to Q4, 2015, this only included Aer Lingus from August 2015. The same pattern can be seen in revenue/passenger-kilometre, now just below €0.08 where it has been since the four quarters to Q1, 2018. It was over €0.09 in Q4, 2015.

Finally, average journey length is the lowest I record, at just under 2397km: this figure started at 2513 in the year to Q4, 2015 and has gone down virtually every quarter since.

Air Asia reported figures which look good until you reach some of the derivatives.

Revenue was a record high, at RMB 10.6m. In the four quarters to Q4, 2015 when my series starts it was 6.3bn.

RPK were 55,963m, the first time they have exceeded 55bn: ASKs were also up at a record 66,261m.

Passenger numbers were 44.437m compared with 24.254 at the start of the series.

Revenue/passenger is at a record low of RMB 238.79: revenue/passenger-km is similarly low at RMB 0.1896 – the first time it's been below RMB 0.19. Average length of passenger journey at 1259km is the lowest I record since the year to Q4, 2015 when it was 1237: it rose steadily to 1313 in the year to Q4, 2016 before dropping steadily to its present level.

Washington DC's Airports
From FlightGlobal

Washington Dulles International airport is once again the DC region's second busiest airport, but travellers eager to see improvements will have to wait before any major projects are undertaken. Dulles ended a multi-year run as both the area's largest and quietest airport, a distinction it had not held since the 1980s, with 24.1 million passengers in 2018, data from operator the Metropolitan Washington Airports Authority (MWAA) shows. Washington

BWIA Aircraft at BWI Airport

National slipped to third place with 23.5 million passengers while Baltimore/Washington International (BWI) held its lead with 27.1 million passengers.

While traffic at Dulles is up, MWAA is not ready to commit to some passenger-sought infrastructure improvements. The airport needs to hit 30 million annual passengers before the operator is willing to look at significant new investments – including a replacement for the "temporary" concourses C and D.

A long-planned rail connection between Dulles and downtown Washington DC is under construction and scheduled to open in 2020.

The cost/enplanement (CPE) – a measure of the cost to airlines to board a passenger on a flight – at Dulles fell to $17 in 2018, after peaking at $26.55 in 2014, MWAA data shows. However, BWI and Washington National remain cheaper for airlines. CPE at BWI was $9.33 for the fiscal year that ended in June 2018, and Washington National was $13.44 for the full-year 2018.

Thirty million passengers would be a record for any DC-area airport. At its peak, Dulles handled 27.1 million passengers in 2005, while BWI posted its highest-ever traffic number last year.

One threat to the continued growth of Dulles is an economic downturn in the USA, where the economy has grown for nearly 10 straight years. However, airline executives continue to say domestic demand remains strong, and are moving forward with ambitious growth plans – including United's plan to up capacity by 4-6% in 2019.

On the plus side, the DC area continues to grow and attract major business investments, including Amazon's second headquarters, driving increased demand for air service. National is slot-restricted and cannot handle additional flights, making BWI and Dulles the foci of region's aviation growth.