

Open Data and its Application in Rail

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Director, Transport



Rockshore Specialists in Real-Time Information

- Providers of real-time information systems, consulting and managed services
- Privately held, profitable, debt-free, VC-free.
- 60+ people (and counting!)
- Offices in London, Manchester, Leeds and New York

Aviation

NATS



Toronto Pearson
International Airport | Aéroport



Public Transport

Network Rail



ATOC



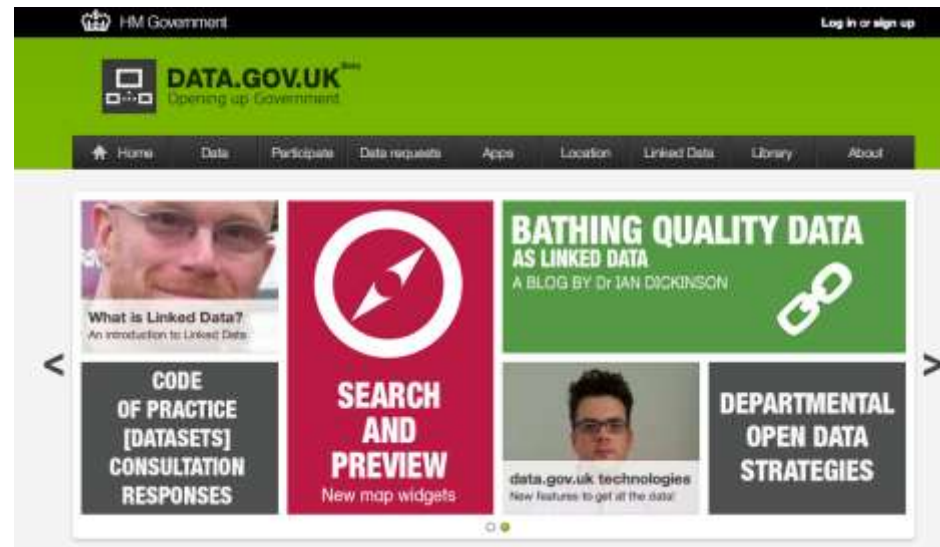
Telecom





What is Open Data?

“Open data is the idea that certain data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control” - Wikipedia





Open Data in UK Rail

The challenge from Government

“The Government will work with the transport industry to make available by April 2012 timetable and real-time train and bus information to support the development of innovative applications to improve passenger journeys.”

HM Treasury, November 2011



HM TREASURY



Open Data in UK Rail

What is out there?



- Data available:
 - Train Movements (TRUST)
 - Raw Signaling (TD Berth Steps)
 - VSTP
 - RTPPM
 - TSR
 - Timetable (CIF)
 - Reference Data (Stations, etc.)
- In numbers:
 - 00's of Data Channels
 - Service live for almost a year
 - 00's of Subscribers
 - 00's of millions of messages distributed *per day*

Network Rail

My Account My Feeds Log out

My Feeds

Summary
Train Movements
ID
VSTP
TSR
RTPPM
SCHEDULE

Train Movements Feeds

Train positioning and movement event data

Select All or TOCs Specific Train Movements Channels

Filter:

Available	Selected
Train Movements General	All TOCs
Arriva Trains Wales (AT)	
c2c (HT)	
CrossCountry (CH)	
Devon & Cornwall Railways (DN)	
East Midlands Trains (EM)	
Eurostar (UK) Ltd (GA)	
Ffestiniog Railway (FU)	
First Capital Connect (FC)	
First Great Western (FG)	

Update Subscriptions

© Network Rail Infrastructure Limited 2013

<http://datafeeds.networkrail.co.uk>



Open Data in UK Rail

So what?

;-)



Phase 1: A revolution in Customer Information

- The release of real-time open data enables *anyone* to innovate with low barriers to entry.
- New services are now coming online that are ruthlessly focused on customer needs.
- Lets take a look ...

OPENTRAINTIMES








RAILDAR

Realtime Train Info











Arrival/Departure Boards

OPENTRAINTIMES   TRAINS  MAPS  STATS  INFO

Trains at Manchester Piccadilly (MAN)

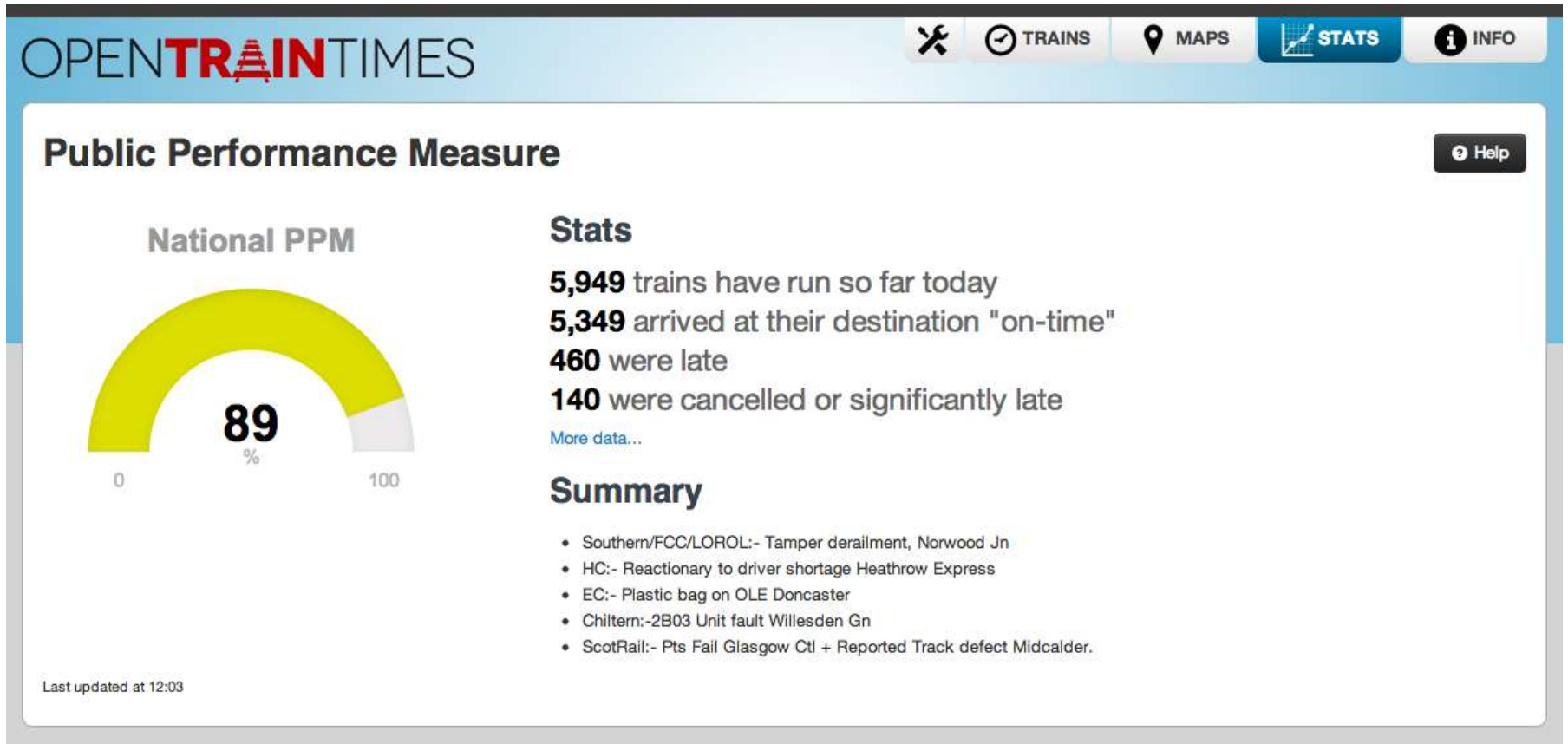
• Between 1143 and 1343 on Monday 15th April 2013

← 1 hour earlier Arrivals **All** Departures 1 hour later → Functions ▾

Info	Arrives	From	Pfm	To	Departs	Operator
	11:41	Liverpool Lime Street (High Level)	13	Norwich	11:43	East Midlands Trains
		Starts here	1	New Mills Central	11:45	Northern
	11:44	Manchester Airport	14	Blackpool North	11:46	First TransPennine Express
		Starts here	9	Crewe	11:46	Northern
	11:49	London Euston	5	Terminates here		Virgin Trains
		Starts here	2	Hadfield	11:48	Northern
		Starts here	4	Stoke-On-Trent	11:48	Northern
		Starts here	14	Llandudno	11:50	ARRIVA Trains Wales



Public Performance Measure





Historical Public Performance Measure



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TRACKING THE UK RAIL NETWORK.

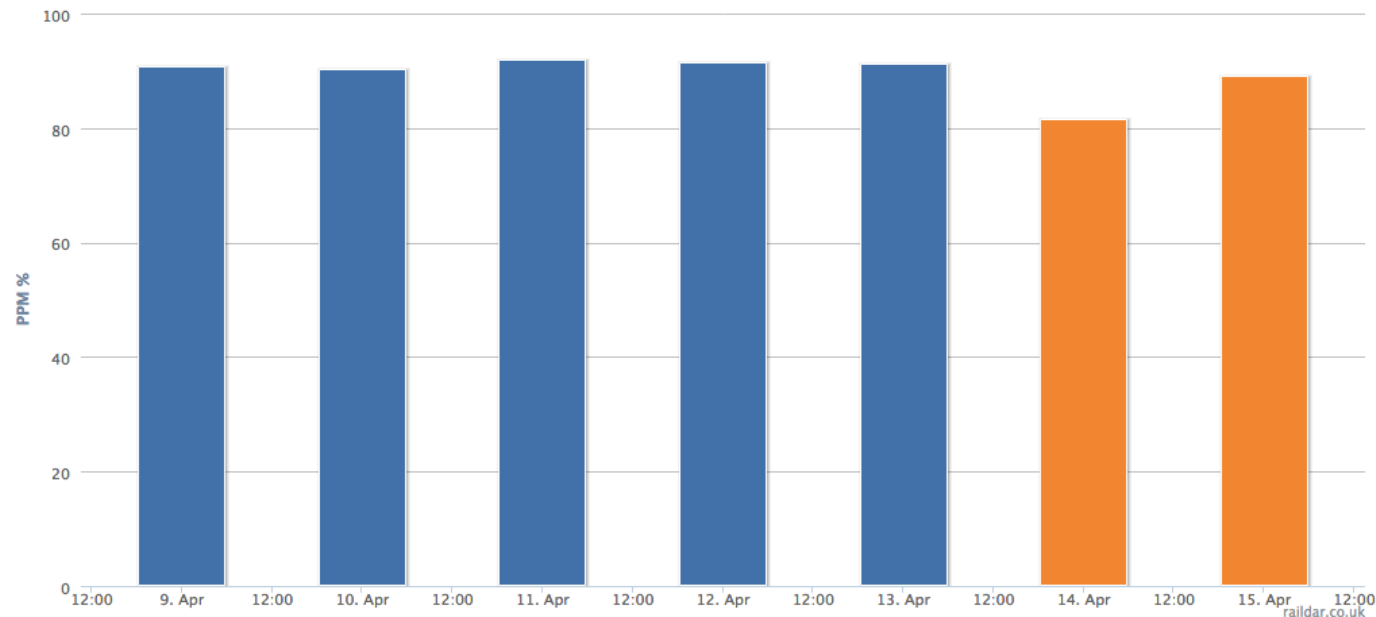
For today the PPM is 89.1% (8184 trains seen on network, 6562 have completed their journey, 5844 of which on time, with 72 cancellations)

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Public Performance Measure

Operator:

Public Performance Measure





On Time and 'Right Time' Performance



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TRACKING THE UK RAIL NETWORK.

For today the PPM is 89.0% (8272 trains seen on network, 6658 have completed their journey, 5933 of which on time, with 78 cancellations)

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[Public Performance Measure](#)

Train Arrival Performance





Historical On Time and 'Right Time' Performance



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TRACKING THE UK RAIL NETWORK.

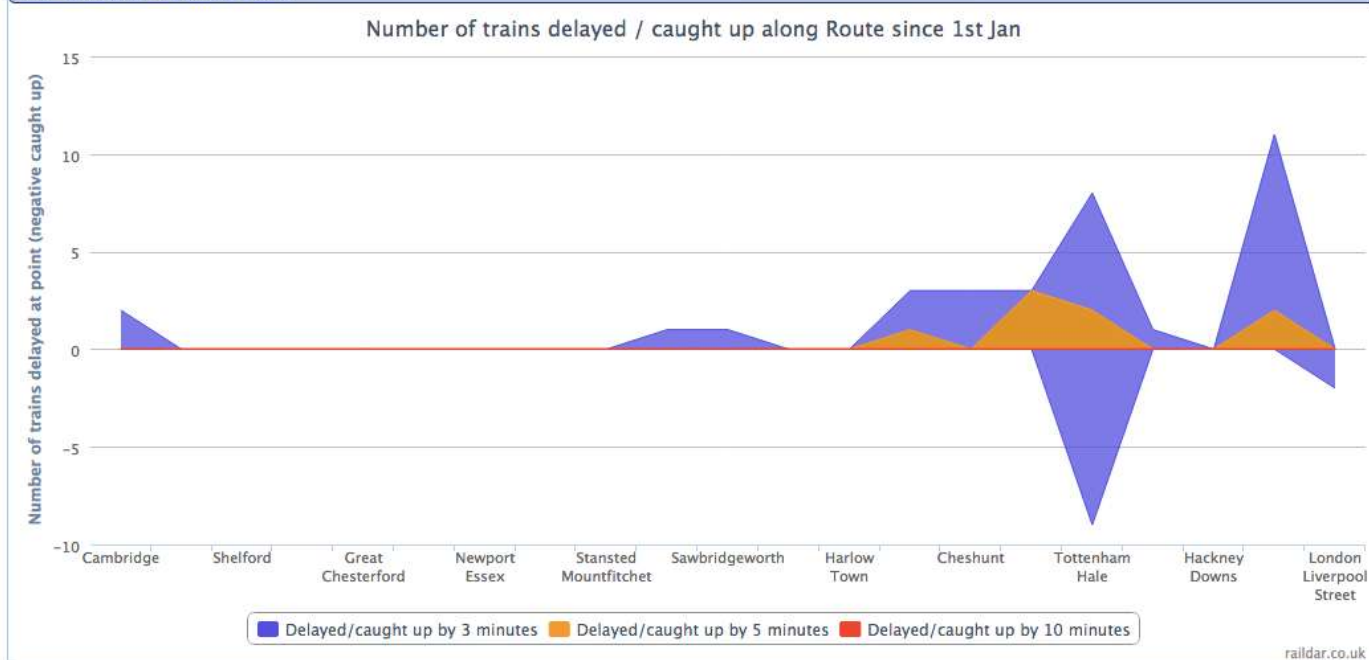
For today the PPM is 88.9% (8370 trains seen on network, 6784 have completed their journey, 6034 of which on time, with 78 cancellations)

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[Public Performance Measure](#) [Train Arrival Performance](#) [Desktop](#) [Search Results](#)

Past Performance of 07:21 Cambridge to London Liverpool Street (Weekday service)

Likelihood of Delay along Route





Historical On Time and 'Right Time' Performance



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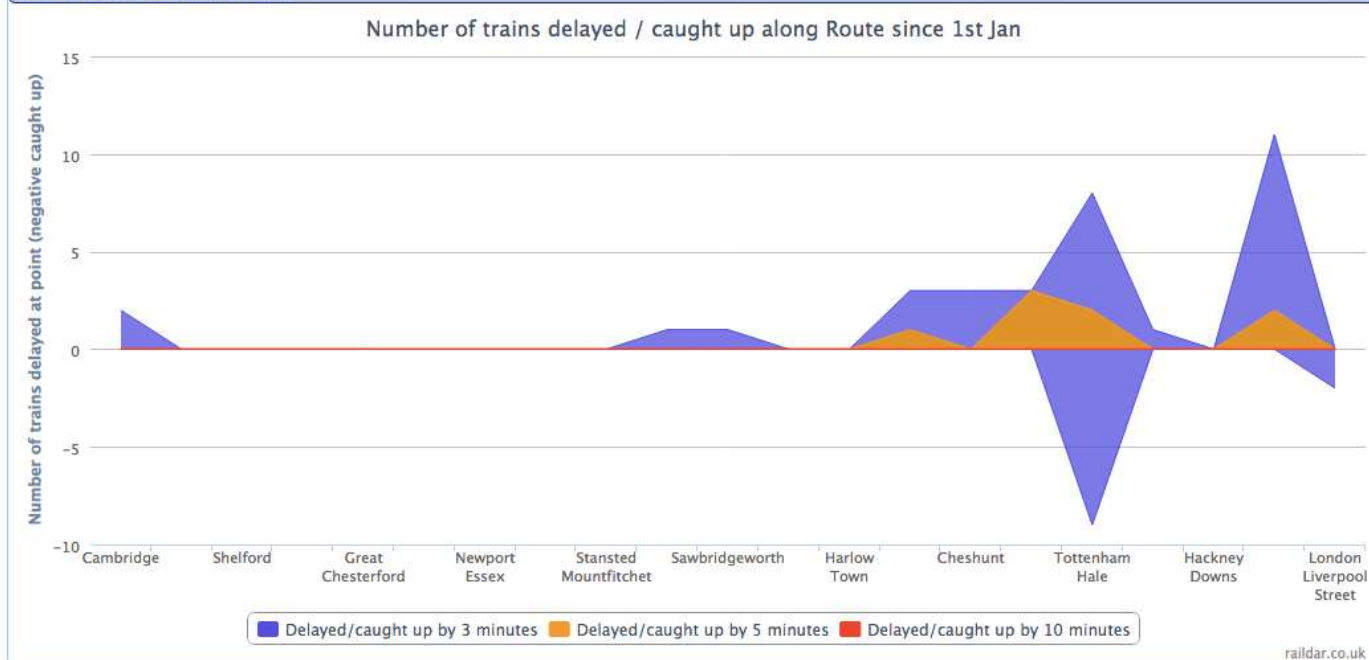
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Phase 2: Innovation in Operations





Phase 2: Innovation in Operations

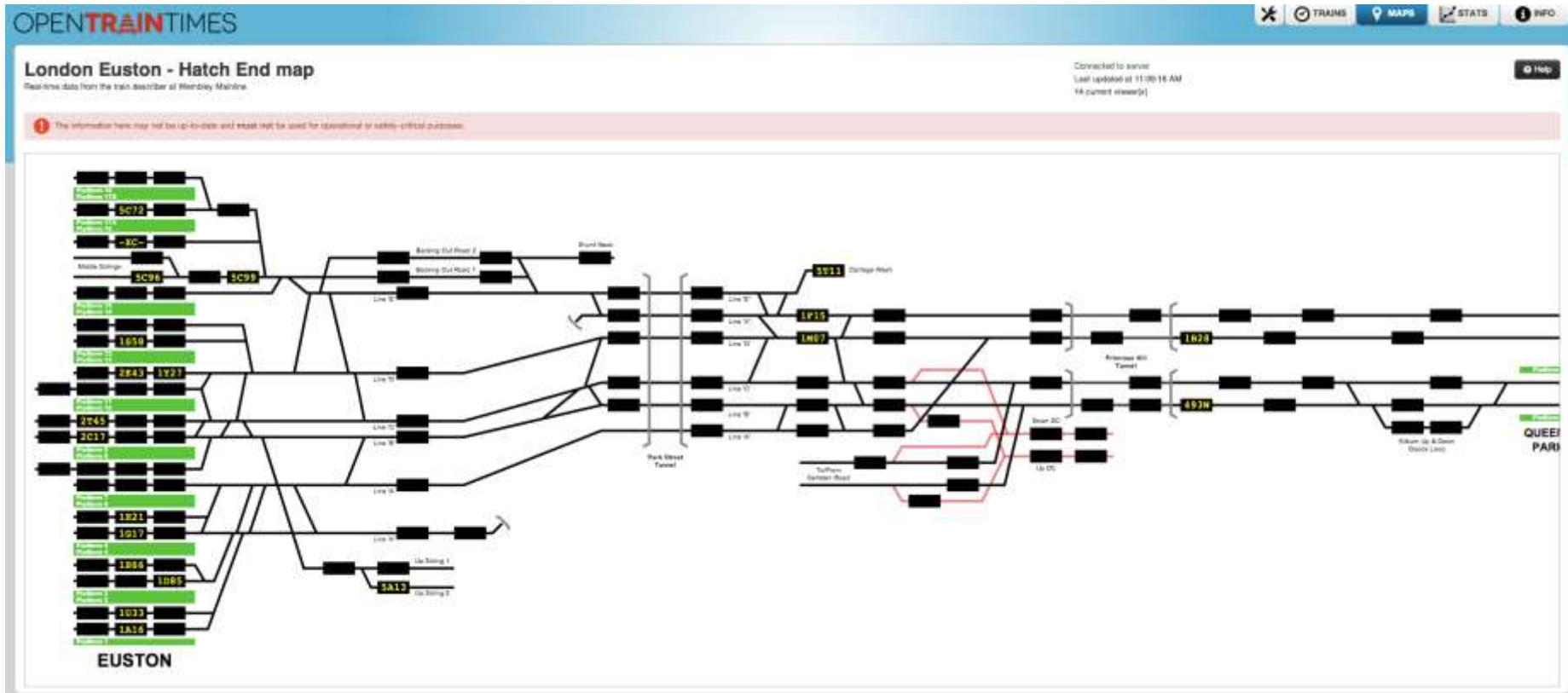
- Open Data is opening up the Control Room and wider Operational environment to new entrants.
- These new entrants have lower operating costs and higher levels of innovation than traditional suppliers.
- Even Network Rail are consuming their own Open Data with small teams creating Apps to meet point needs.

Prediction

The control room and wider operating environment will be a very different place in 3 years.

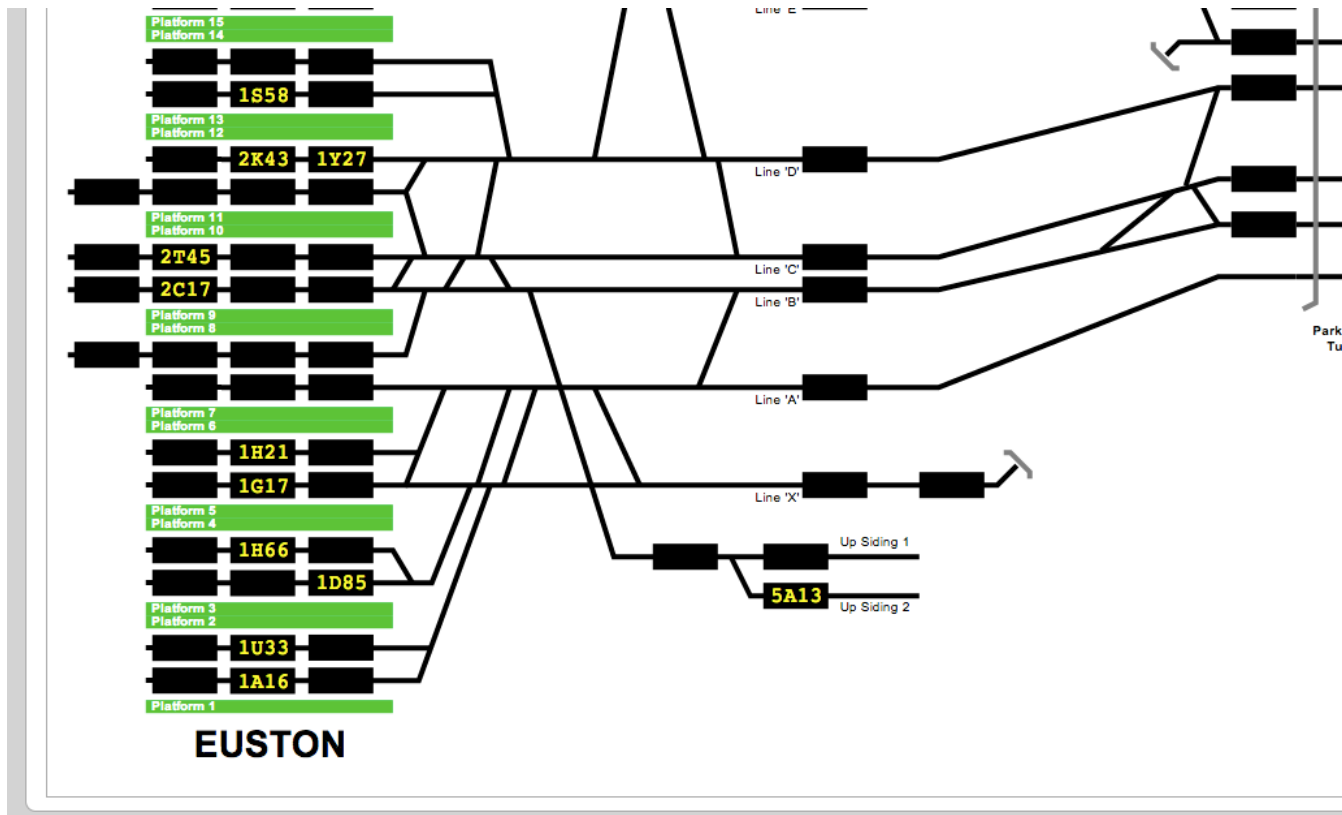


Web-based, Mobile Train Movement Visualisation





Web-based, Mobile Train Movement Visualisation





Multi-sourced Geographic Visualisation (Timetable, Signalling & GPS)

Train Locator

Filter Viewed Trains

- GPS Filter**
 - All Types
 - GPS Enabled Trains only
 - Non-GPS enabled trains only
- Schedule Filter**
 - All Types
 - TSDB Scheduled Trains
 - VSTP Scheduled Trains
- Rated Speed Filter (mph)**
 - All Types
 - 45
 - 55
 - 60
 - 75
 - 90
 - 100
 - 110
 - 125
 - 140
- Train Class Filter**
 - All Types
 - 1 : Express passenger, mail trains
 - 2 : Slow passenger
 - 3 : Freight 80,85 or 95 mph
 - 4 : Freight 65,70 or 75 mph
 - 5 : Empty passenger stock
 - 6 : Freight 50,55 or 60 mph
 - 7 : Freight 40 or 45 mph
 - 8 : Freight 35 mph or less
 - 9 : Eurostar passenger trains
 - 0 : Light locomotive
- Delay Filter**
 - All Types
 - On Time
 - 1+ mins late
 - 5+ mins late
 - 10+ mins late
 - 20+ mins late
 - 1+ mins early
 - 5+ mins early
 - 10+ mins early
 - 20+ mins early

Clear Filters Close

Applications in Rail Freight



CONTACT SUPPORT

My Account User Admin Customer **Booking** Logout

RockshoreTesting Customer [07/09/2012 12:36]

Booking Information

Customer : Tesco Test Ltd Booking Reference Number : FB000000001 Booking Date : 2012-09-07 10:12:32.0 Status : **CONFIRMED**
 Enquiry Reference Number : ENQ0000000001 Container Number : CSQU3054381 Container Code : S32[NOR_ISO] Cost : £ 1183.0

Outward Journey Details

Mode	FOC	Vehicle Number	Departing From	Arriving At	Coach	Status	Cost	Action
	Camryne Transport Ltd		LS17 8DB at 01/Oct/2012 03:25	Barking at 01/Oct/2012 03:55		CONFIRMED	€ 245.0	
	John G Russell (Transport) Limited	1/M0 - 542823M/08	Barking(99101) at 01/Oct/2012 09:11	Coatbridge(99102) at 01/Oct/2012 17:22	FEA-C-1003	CONFIRMED	€ 79.0	
	Malcolms		Coatbridge at 01/Oct/2012 22:55	BS17 7DB at 01/Oct/2012 23:25		CONFIRMED	€ 269.0	

Inward Journey Details

Mode	FOC	Vehicle Number	Departing From	Arriving At	Coach	Status	Cost	Action
	Malcolms		BS17 7DB at 01/Nov/2012 04:30	Coatbridge at 01/Nov/2012 05:00		CONFIRMED	€ 265.0	
	Direct Rail Services Limited	1044 - 542823M/044	Coatbridge(77202) at 01/Nov/2012 09:21	Davertry(75200) at 01/Nov/2012 10:15	FEA-B-1003	CONFIRMED	€ 30.0	
	Direct Rail Services Limited	1044 - 542823M/044	Davertry(75200) at 01/Nov/2012 11:25	Grangemouth(79100) at 01/Nov/2012 13:05	FEA-B-1001	CONFIRMED	€ 32.0	
	Direct Rail Services Limited	1044 - 542823M/044	Grangemouth(79100) at 01/Nov/2012 14:33	Barking(73102) at 01/Nov/2012 17:55	FEA-B-1002	CONFIRMED	€ 31.0	
	Camryne Transport Ltd		Barking at 01/Nov/2012 22:57	LS17 8DB at 01/Nov/2012 23:27		CONFIRMED	€ 245.0	

[Back](#) [Cancel Booking](#) [Print Booking](#)

Version: 1.4.10



Summary

- Network Rail's release of real-time Open Data has (almost) levelled the playing field with respect to information provision.
- This enables new entrants to compete with the old guard



- Exciting times !!!

For live demos and more insight come
and visit Rockshore on Stand J14