



High Speed Two Innovation and Innovative People

National Rail Conference 2015

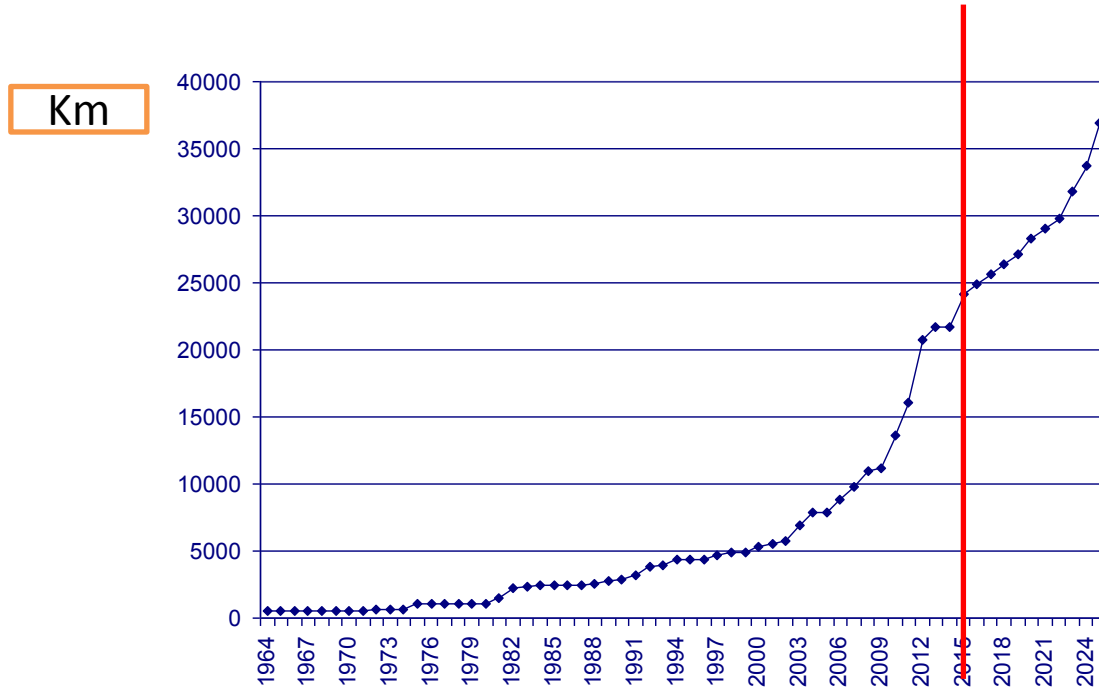
Prof Andrew McNaughton

www.gov.uk/hs2

High speed rail is 51 years old



The technology is proven



Britain is growing

Population of England

- 2008 – 52m
- 2033 – 60m
- 2050 – 70m

Living in City Regions

- Today – 41m
- 2050 – 61m

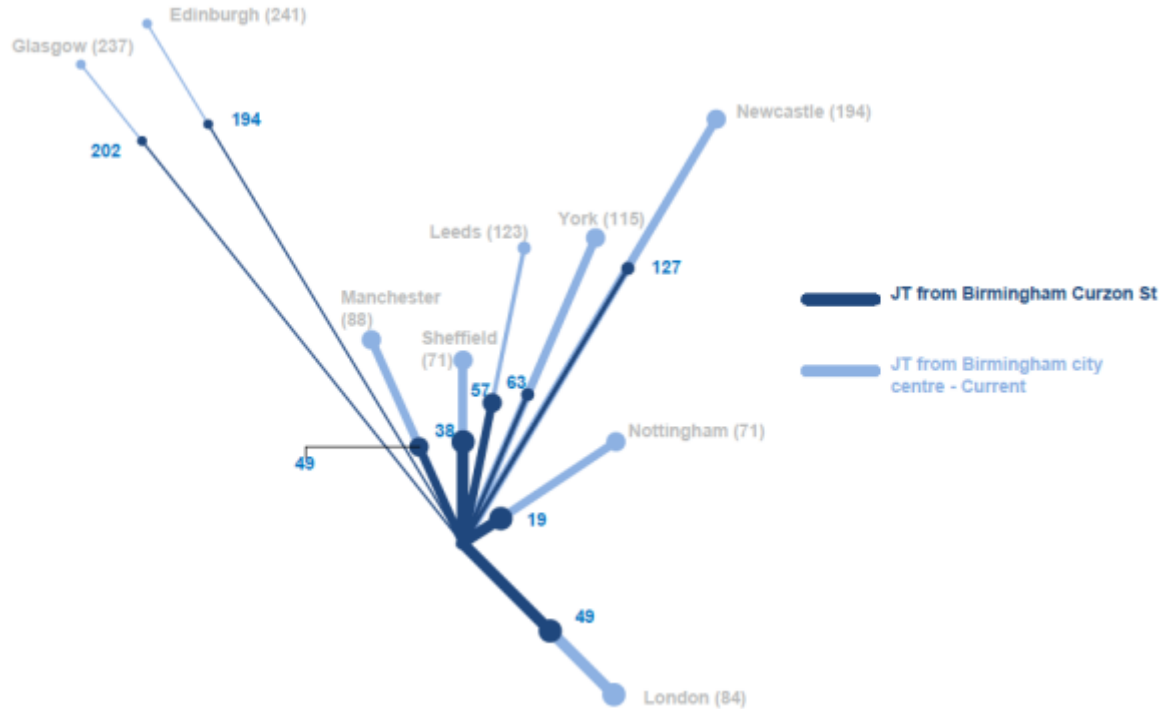


Initial network

- London to
 - West Midlands – 1-24 to 0-49
 - Manchester – 2-08 to 1-08
 - Leeds – 2-12 to 1-22
- Birmingham to
 - Manchester – 1-34 to 0-41
 - Leeds – 2-05 to 0-57



Changing connectivity (e.g. Birmingham)



Underpinning growth

- Rebuild and rebalance UK economy
- Wider benefits from released capacity
- Supports the creation of up to 400,000 jobs
- Cities working as one economic powerhouse



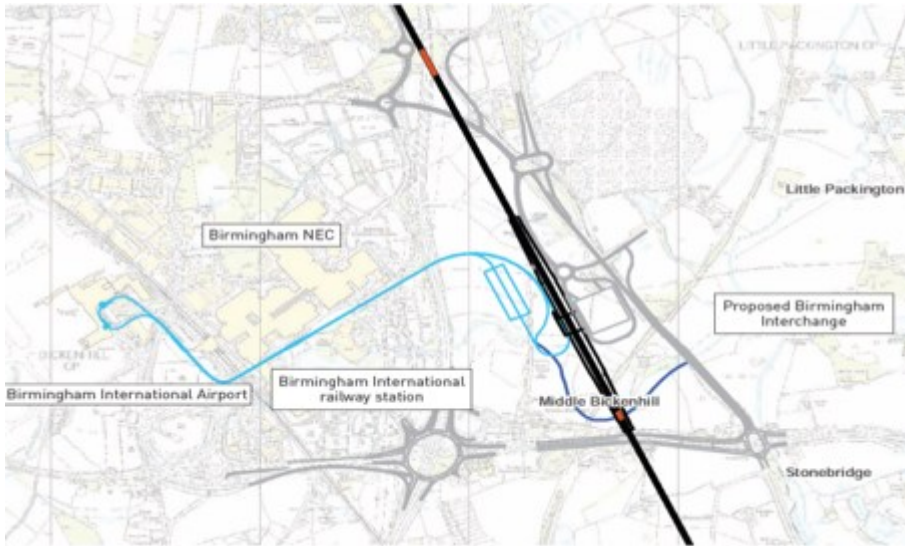
Opportunities around HS2 stations

- Over-site development
- Working with local authorities on wider opportunities
 - Joining up station with surrounding areas
- Different opportunities at each of the stations

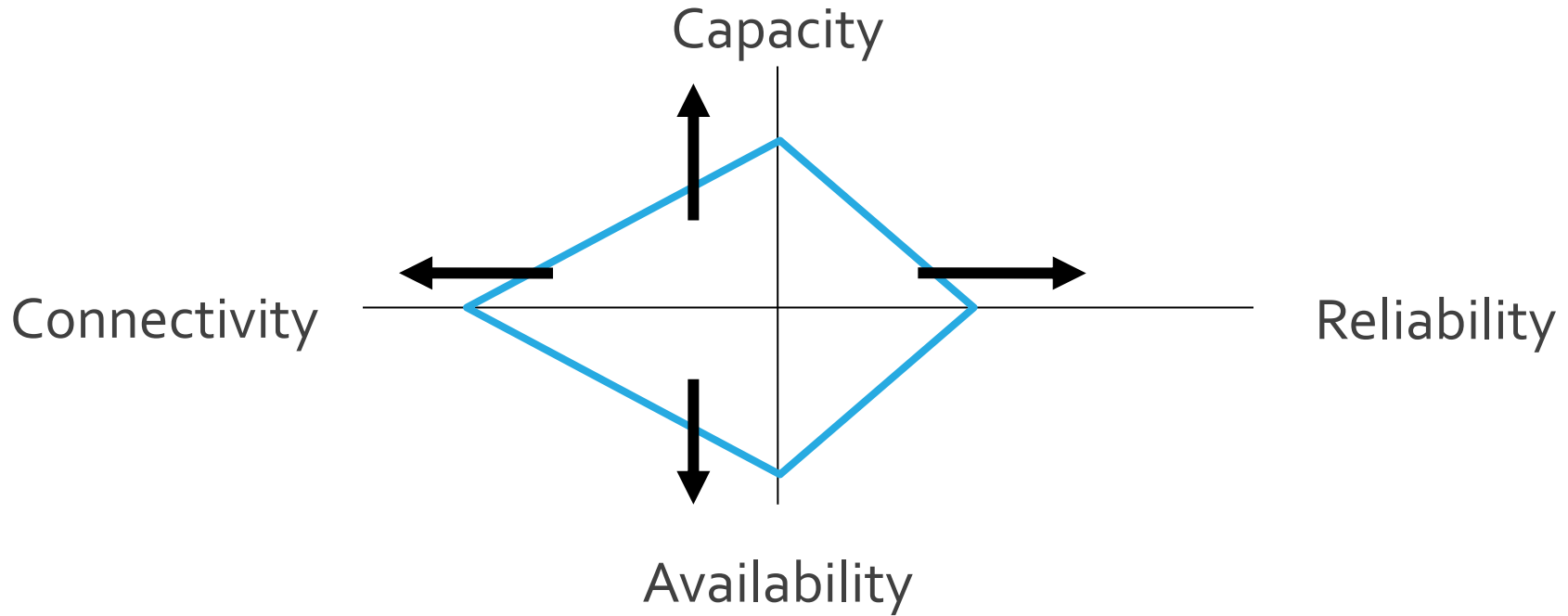


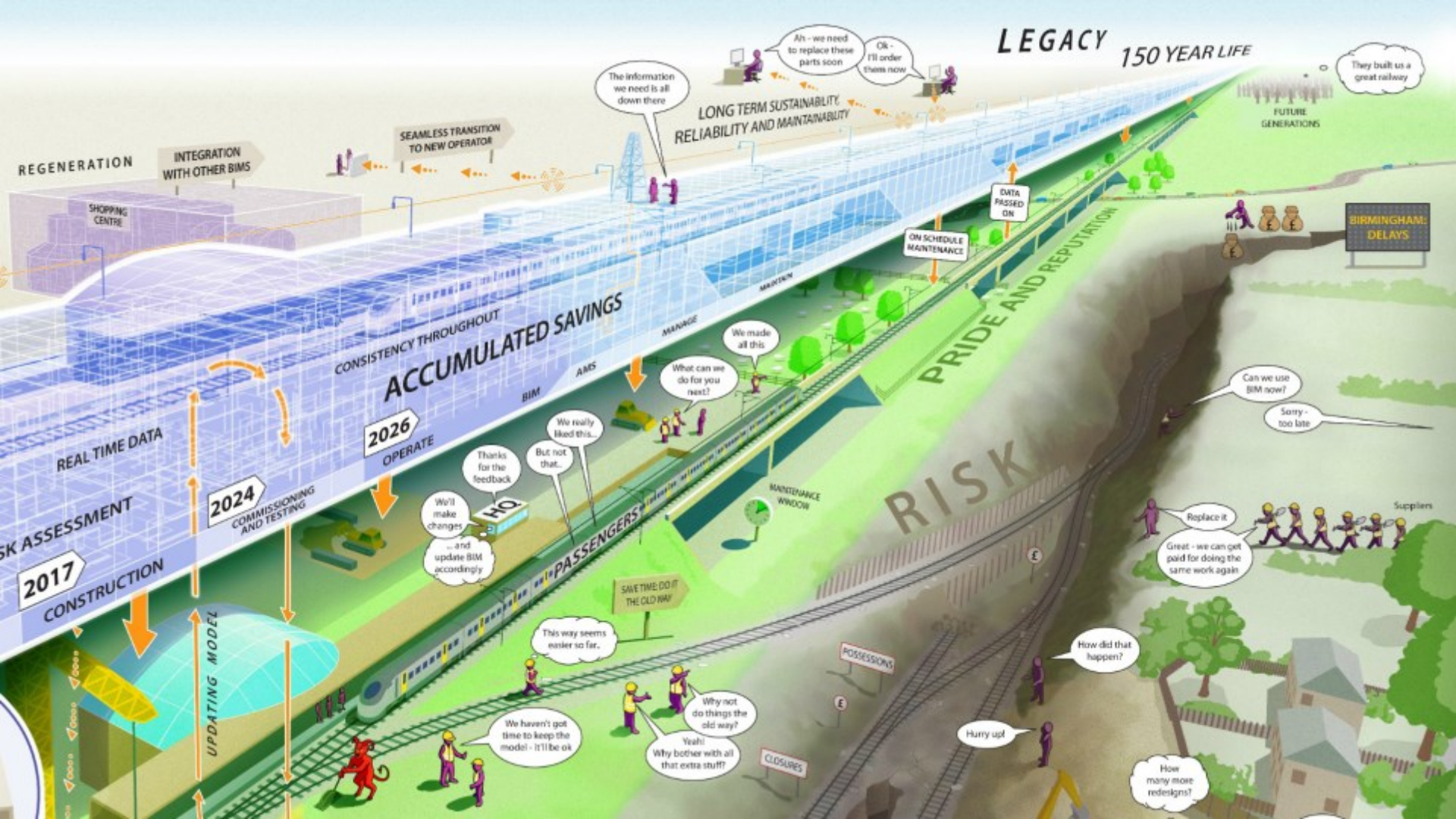
West Midlands Interchange

- Plans for new Sustainable City “UK Central”



Maximising capacity, connectivity, availability and reliability





LEGACY 150 YEAR LIFE

REGENERATION
INTEGRATION WITH OTHER BIMS

REAL TIME DATA

RISK ASSESSMENT
2017 CONSTRUCTION

2024
COMMISSIONING AND TESTING

UPDATING MODEL

CONSISTENCY THROUGHOUT
ACCUMULATED SAVINGS
2026 OPERATE

LONG TERM SUSTAINABILITY
RELIABILITY AND MAINTAINABILITY

ON SCHEDULE MAINTENANCE
DATA PASSED ON

RISK

PRIDE AND REPUTATION

BIRMINGHAM: DELAYS

FUTURE GENERATIONS

They built us a great railway

The information we need is all down there

Ah - we need to replace these parts soon
OK - I'll order them now

We made all this

What can we do for you next?

We really liked this...

But not that...

Thanks for the feedback
We'll make changes... and update BIM accordingly

This way seems easier so far...

We haven't got time to keep the model - it'll be old

Why not do things the old way?

Yeah! Why bother with all that extra stuff?

POSSESSIONS

CLOSURES

How did that happen?

Hurry up!

How many more redesigns?

Can we use BIM now?

Sorry - too late

Great - we can get paid for doing the same work again

Replace it

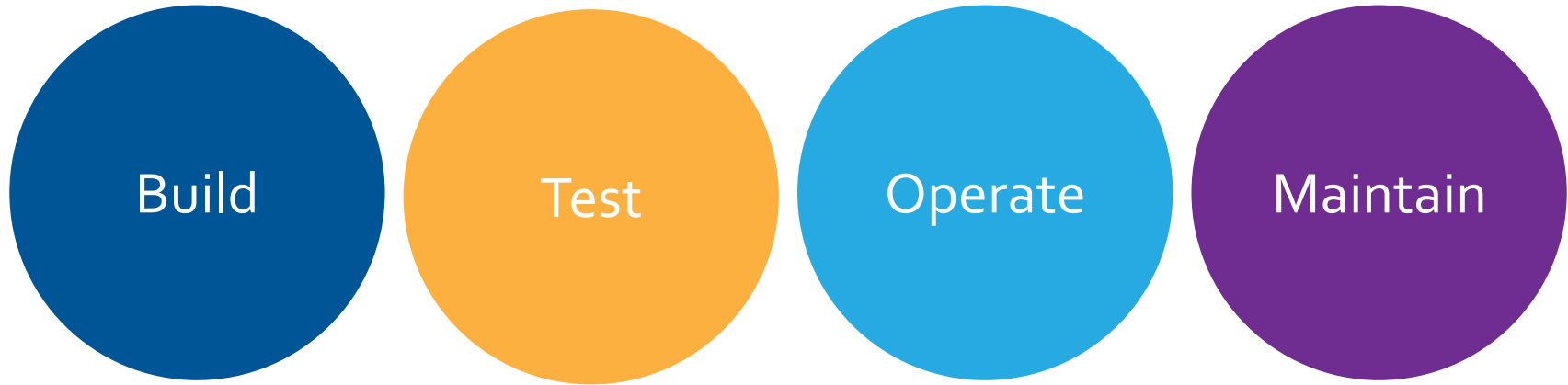
Suppliers

Visualising the railway: construction

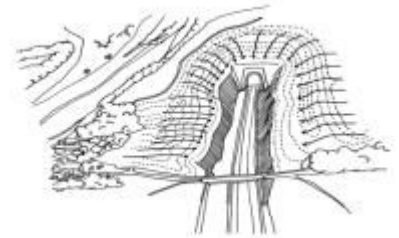
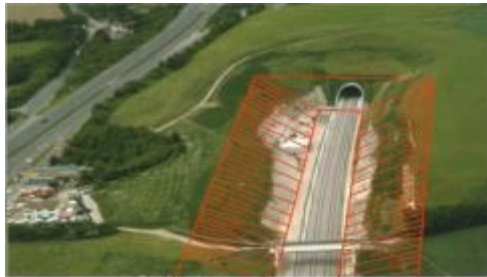
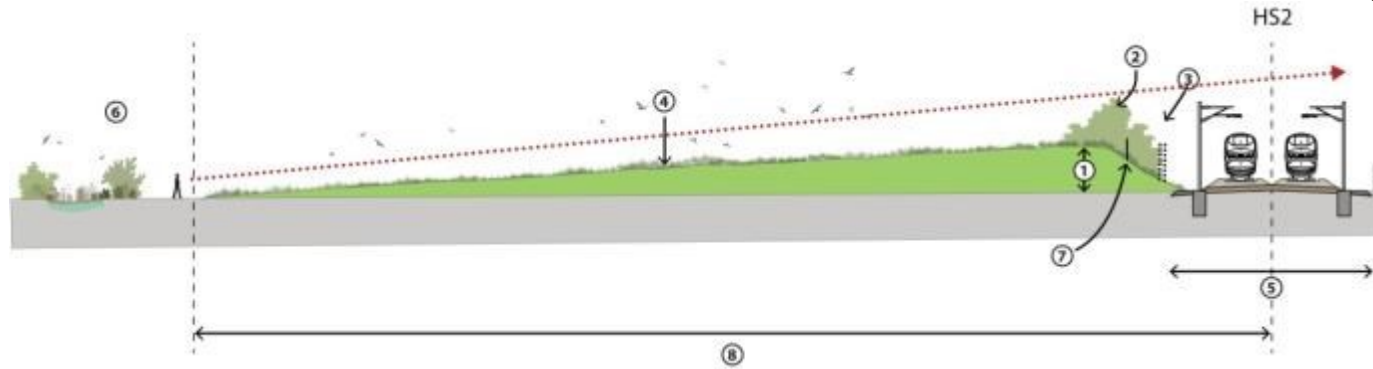


Getting it absolutely right

Do it twice ...



HS2 design principles



Design for sensitive environments



Example of construction options



Figure 2. (above) shows Park Village East during construction.



Figure 3. (above) shows Park Village East after construction.

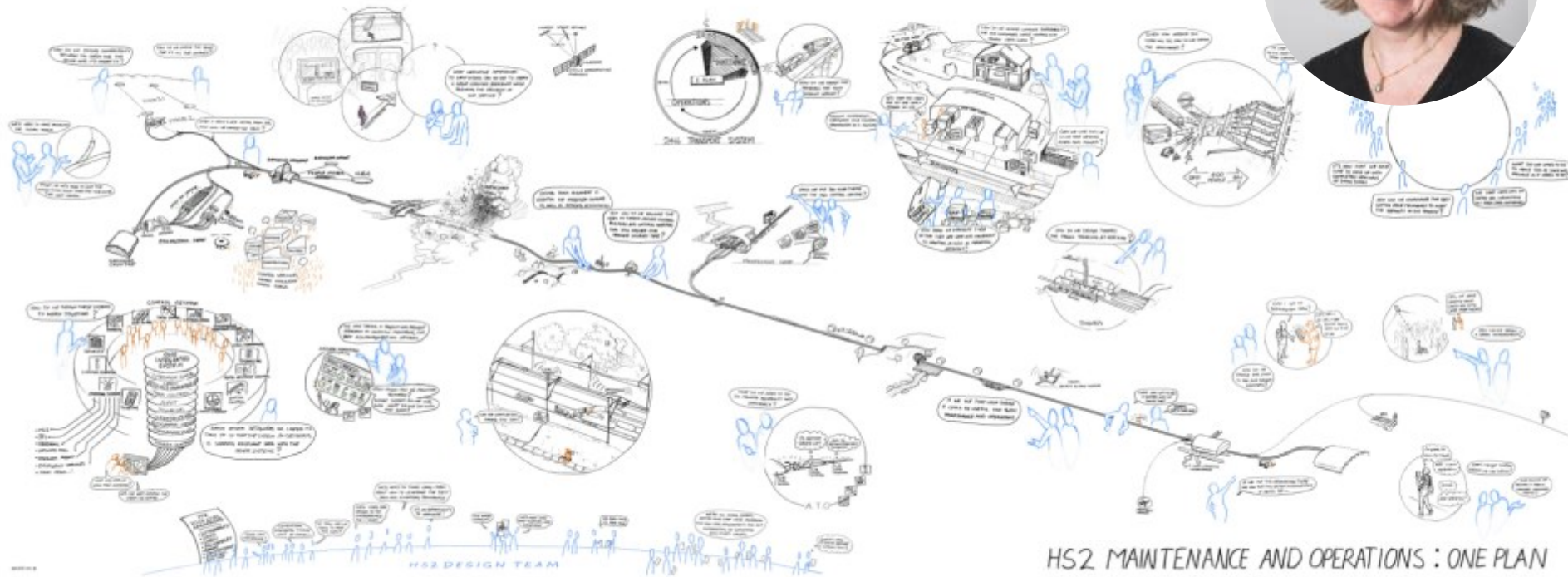
Computer-aided construction



Habitat replacement and improvement



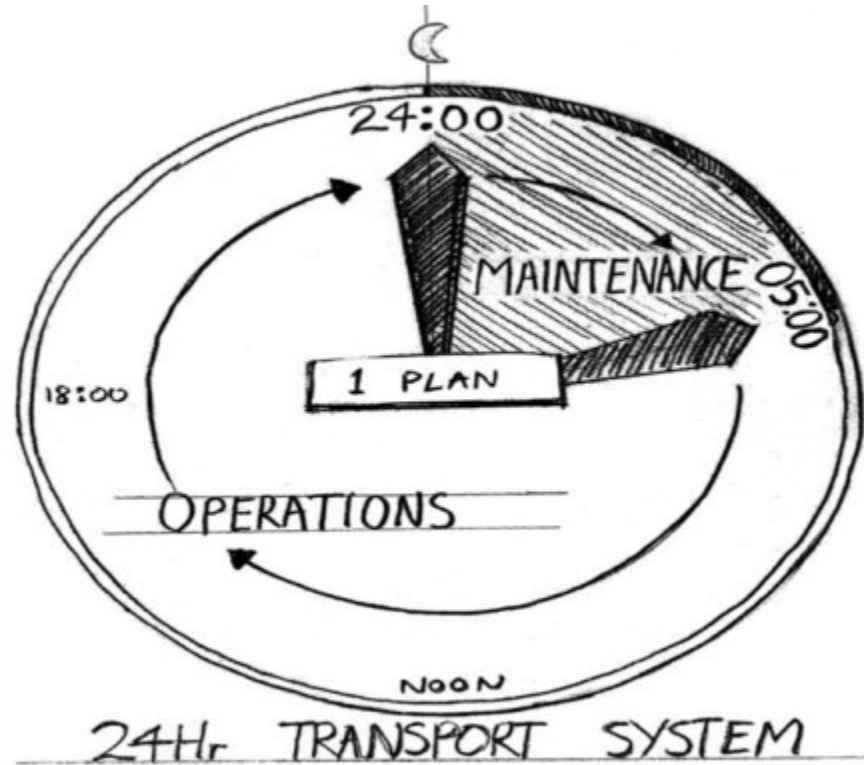
Operations and maintenance



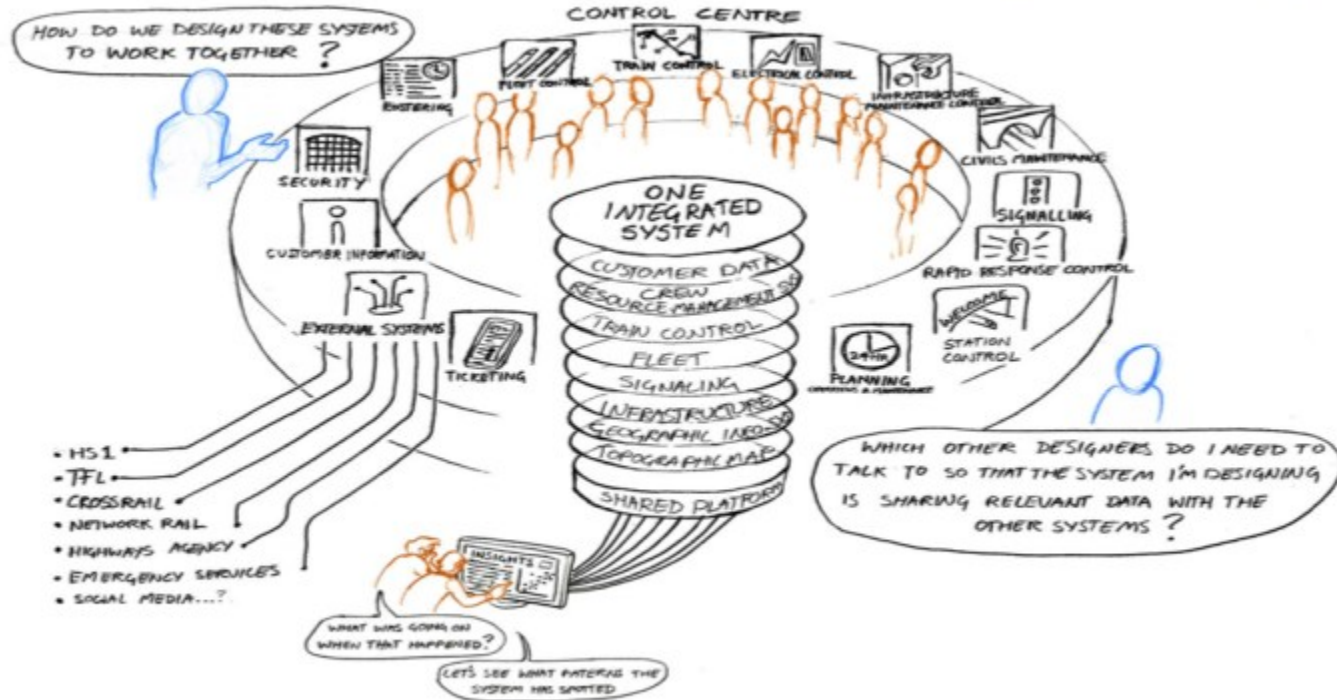
Automatic train operation



A single plan



Total integration



Designed for passengers

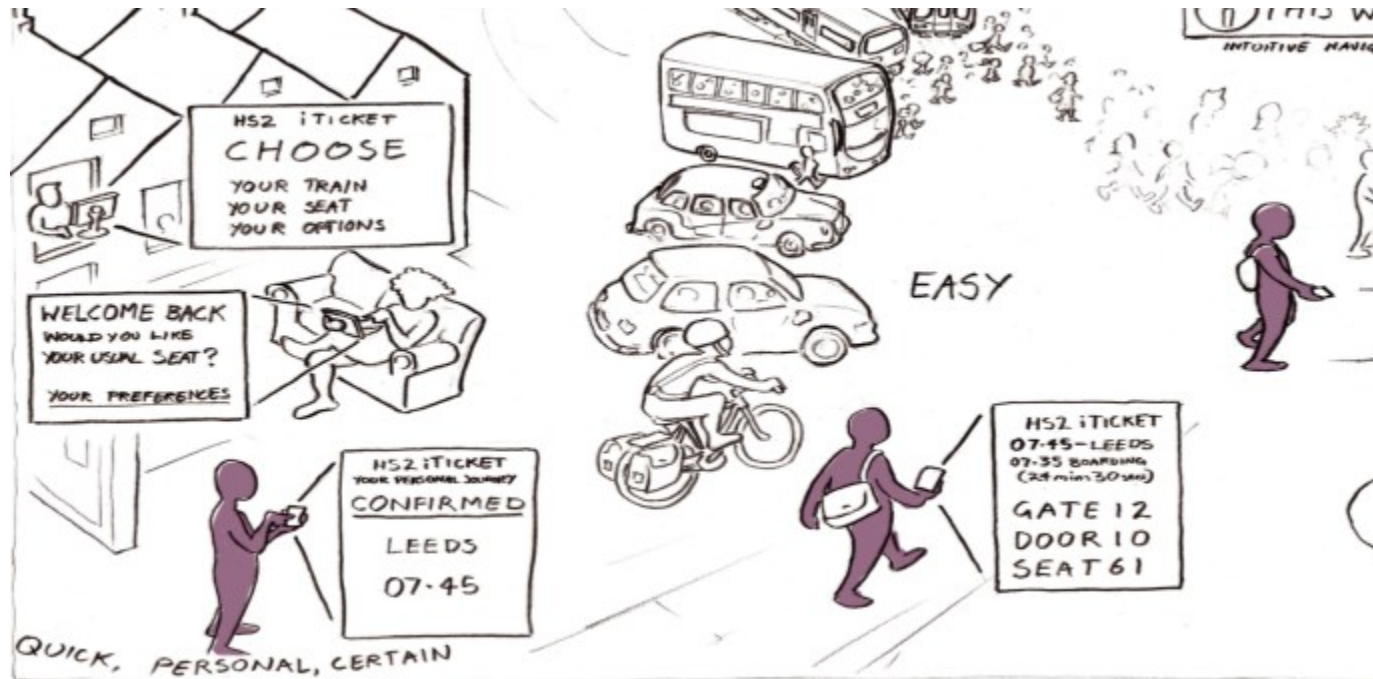
Intelligent ticketing

High quality comfort and access to trains and stations

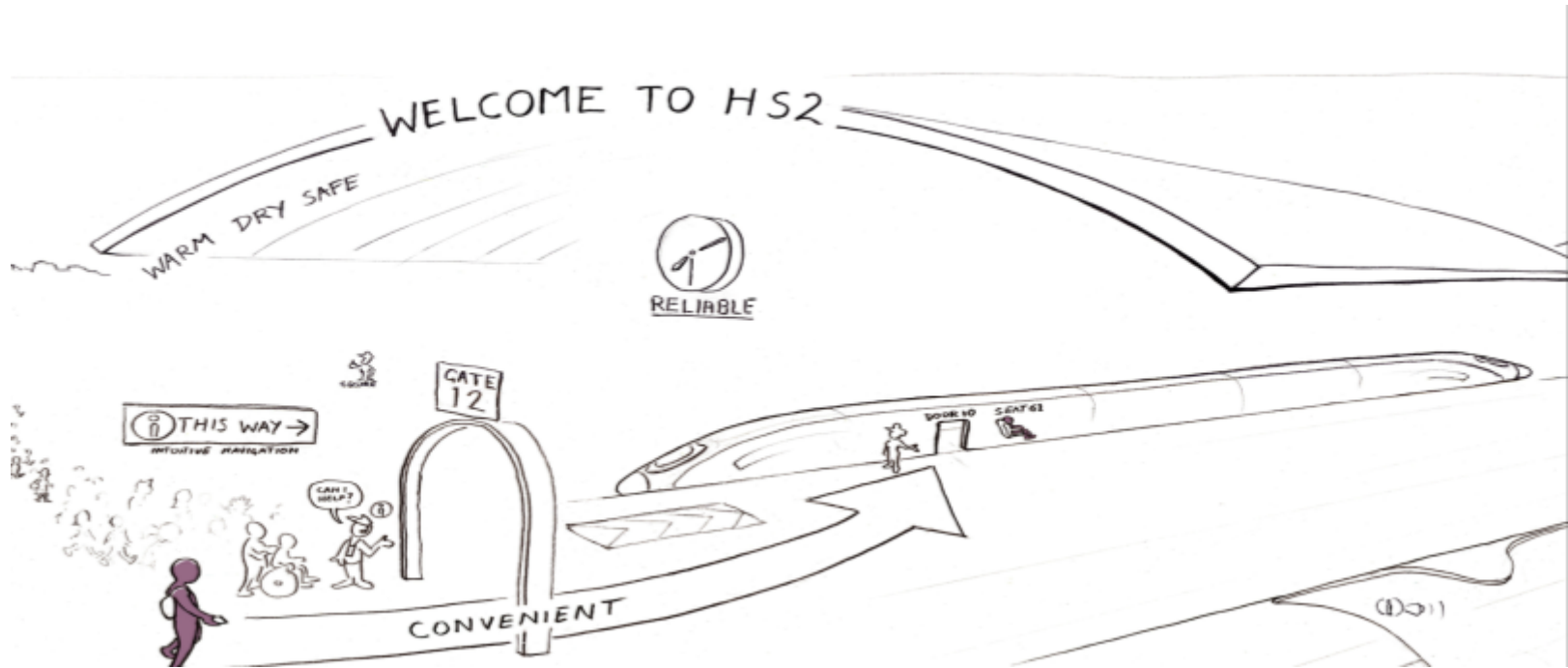
Good connections: end-to-end journeys



Giving control to our passengers



EQ not just IQ



Our cornerstone...



A 21st century railway

