

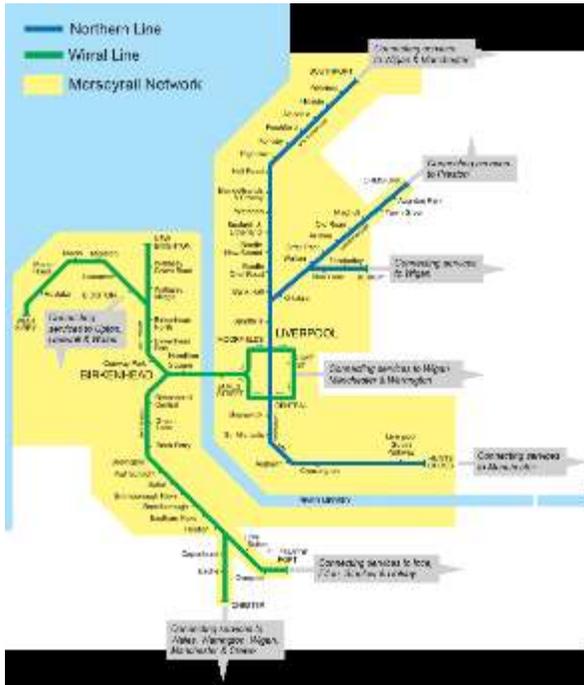
Introducing the New Class 777s

Presentation to Wirral Transport
Users Association

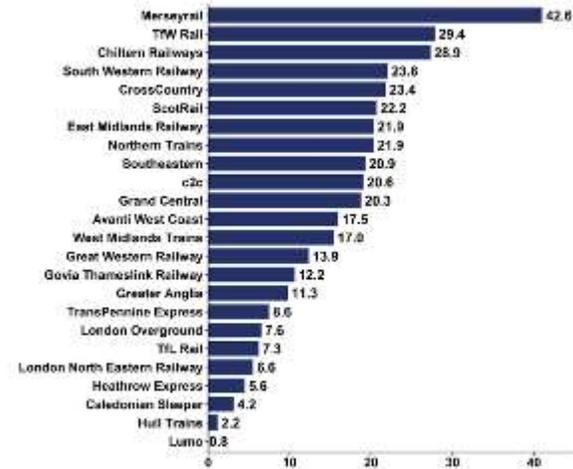
11th October 2024



Merseyrail - Background



Average age of rolling stock in years by train operator, Great Britain, as of 31 March 2022



Source: Rail Infrastructure and assets, April 2021 to March 2022



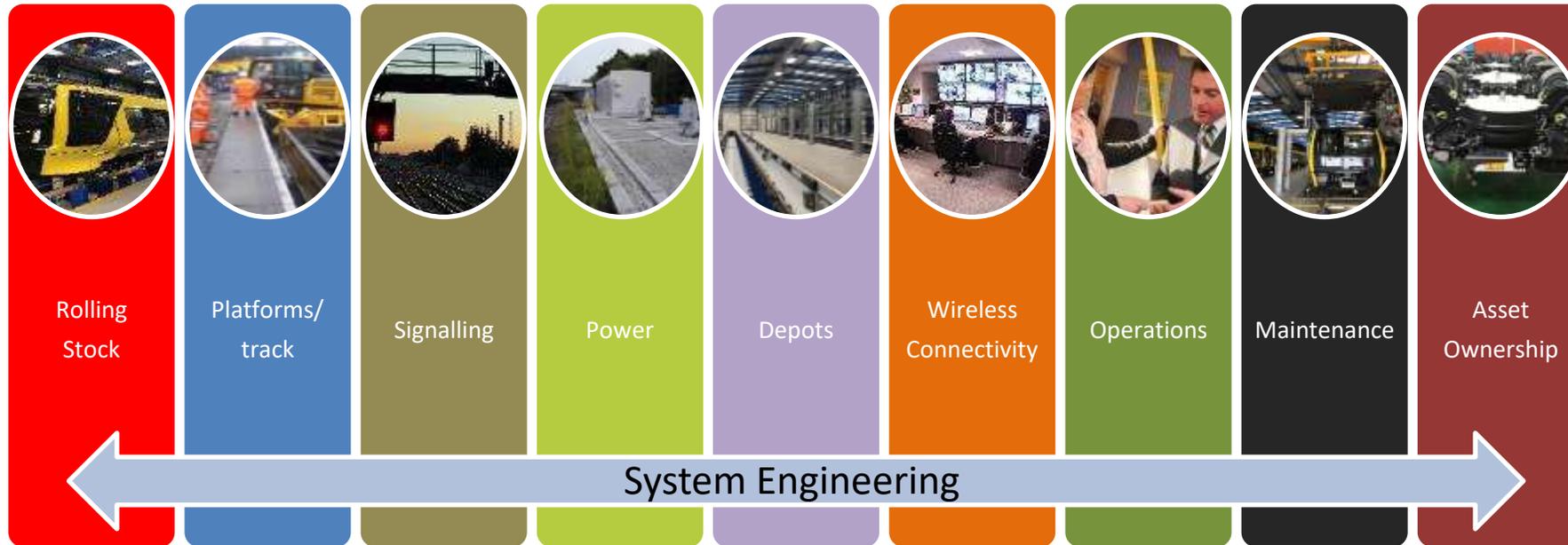
- Virtually self contained d.c. network
- Metro style operation
- Extensive underground running
- ~~Oldest~~ Newest fleet in the UK
- Devolved management since 2003 (first TOC in U.K.)

Devolution In Action

- Management of the Merseyrail Electrics services was devolved from DfT to Merseytravel in 2003
- Incremental improvement over last two decades
- Most punctual mainline operator in the U.K.
- Highly rated for passenger satisfaction
- £500m+ investment in fleet replacement
- Direct ownership of new bespoke rolling stock
- Establishment of financially efficient in-house leasing



Programme Structure



- Rolling stock, depots and maintenance: Stadler
- Wireless connectivity: Panasonic/ADC
- Platforms, track, signalling, power: Network Rail
- Operator: Merseyrail
- Multi disciplinary teams drawn from partner organisations
- Governance frameworks established to enable collaborative working

Passenger Led Design



- Transport Focus commissioned
- Two stages of research
 - Specification
 - Detailed design refinement
- Highly tailored design

Passenger Led Design

- Detailed research undertaken into key design features
- Avoidance of conflict
- Ease of circulation
- Seating choices
- Colour schemes
- Standing passengers
- Wheelchair, bike and multi-purpose areas
- Livery



Level Boarding

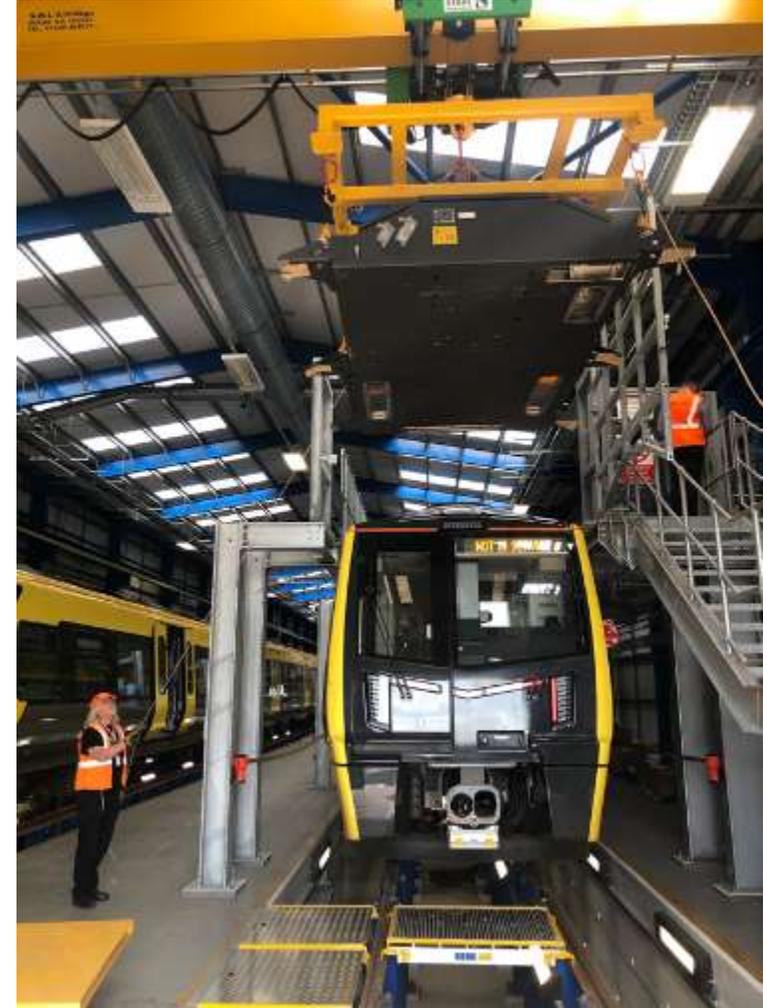


- Passengers' #1 concern
- Level boarding: lower train floor and "intelligent" sliding step
- 100 platforms reconstructed/tamped
- Every door, every platform, every passenger



Kirkdale Depot

- Modernisation of maintenance depots by Stadler
- Construction complete
- Driving cab simulator
- Facilities configured to maintenance of Class 777 units



Traction Power Supply Upgrades



- 10% journey time reductions to be delivered by new trains with 3x installed power (2.1MW)
- Boost to power infrastructure to address voltage drop and increase current from 4kA to 5.4kA
- 3 new bulk supply points with Scottish Power
- 10 new/upgraded substations
- Extensive cable upgrades

Unit Acceptance

- Four stage process
 1. Pre-delivery acceptance (factory based)
 2. Provisional acceptance for each unit
 3. Final acceptance for each unit
 4. Fleet acceptance
- Type testing
 - Static
 - Dynamic at test track in Germany
 - Dynamic on network
- Provisional acceptance complete October 2024
- Reliability growth to reach final milestones



Phased Rollout

- Class 777 maintenance centre at Kirkdale
- Rollout January '23 – August '24
- Incremental Statement of Compatibility from Network Rail
- Units introduced in small batches following Provisional Acceptance
 - Kirkby
 - Ormskirk
 - Wirral routes
 - Southport – Hunts Cross
- Network capacity challenging
- 8 car operations
- Headbolt Lane
- Finalisation



Technical Challenges

- Various fault modes have been encountered
 - Passenger information system
 - Cameras
 - Doors
 - Sliding steps
 - Master controllers
 - Traction converters
 - Power changeover
 - Train managers' handheld device
- Traincrew familiarisation
- Every new fleet is different!
- Team fully mobilized to address

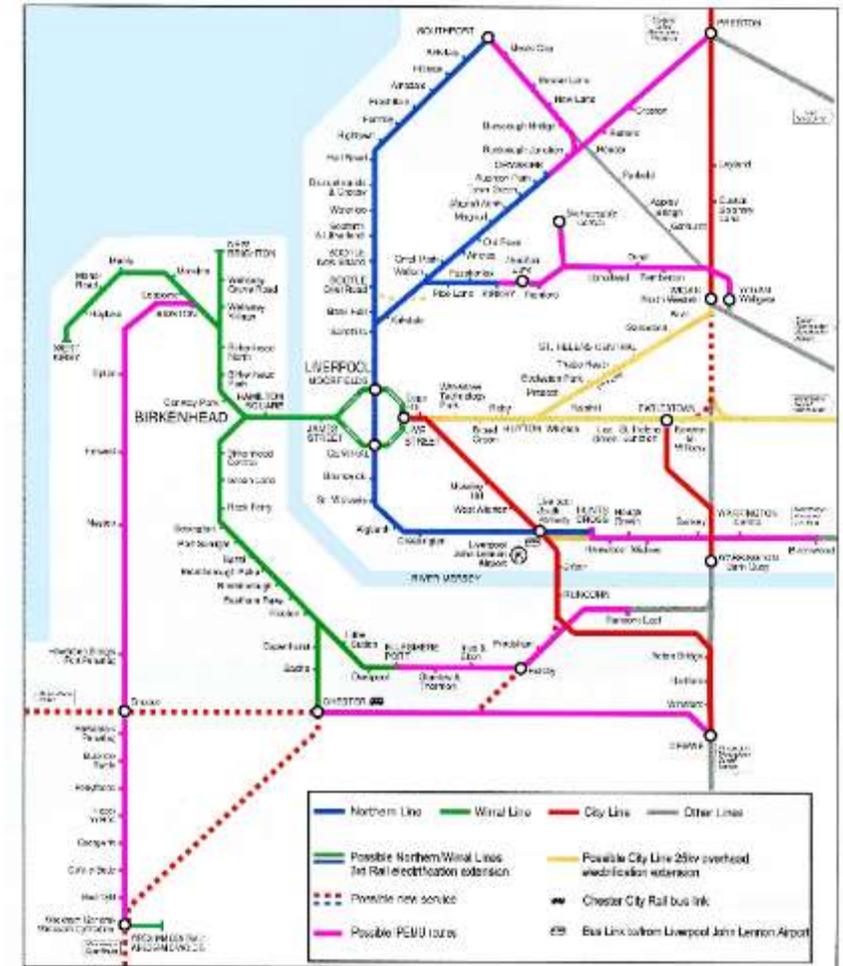
Headbolt Lane

- October '23 opening of Headbolt Lane station
- Multi-modal interchange
- First deployment in U.K. of all electric battery powered passenger fleet
- World first deployment in tunnels
- 7 Class 777s are IPEMUs
- Automatic dynamic power changeover



Network Expansion

- Cost effective solution: much less infrastructure
- 80% energy/carbon saving compared with diesel traction
- Technology enables much wider network expansion
- Active schemes:
 - Liverpool – Wrexham via Bidston
 - Liverpool – Warrington via Daresbury
 - More to follow



Outcomes

- 50% increase in passenger carrying capacity with smaller fleet
- 10% reduction in journey times
- >25% reduction in energy consumption/carbon footprint
- Improved passenger facilities, tailored to local needs
- U.K.'s most accessible heavy rail network
- On board staff fully engaged with passengers
- Industry leading safety at platform train interface
- U.K.'s first IPEMUs into passenger service.
- Enabler for network growth/expansion



Questions?