

# USING A LLM SCENARIO BRIEF

## STRATEGIC WORKFORCE CRISIS: National Rail Operator .

### THE CRISIS

**770 experienced staff retiring over 5 years** (36% of technical workforce) while **only 220 new trainees can start annually = structural deficit of 620 skilled workers**

### Critical Roles at Risk

- Train drivers: 180/520 retiring (35%)
- Maintenance engineers: 240/680 (35%)
- Signalling technicians: 85/210 (40%)
- Rolling stock engineers: 145/380 (38%)
- Infrastructure specialists: 120/290 (41%)

**38% of workforce over 55** (industry average: 24%)

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## THE PERFECT STORM

### 1 Demographic Cliff

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- Losing decades of experience and institutional knowledge
- Training takes 3-6 years for full competency
- Pipeline deficit: 150 workers/year shortfall

### 2 Digital Transformation (£3.2B investment, 2025-2032)

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- Traditional mechanical → Digital/AI systems
- Current workforce: only 18% digitally literate
- New skills needed: software diagnostics, data analysis, remote monitoring
- Existing staff near retirement, not motivated to retrain

### 3 Fleet Modernisation (£1.8B)

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- Diesel → Electric/hybrid trains
- Completely different maintenance requirements
- Manufacturer training limited and expensive

### 4 Operational Intensification

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- 18-hour → 24/7 operations
- Higher service frequency = more intensive asset use
- Performance targets: 84% → 92% punctuality

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## WHAT'S FAILED

| Initiative   | Result                                 | Why It Failed                                   |
|--|--|---|
| <b>Traditional recruitment</b><br>(+40% apprentices) | Only covers 60% of retirements         | 4-5 year pipeline too slow                      |
| <b>Market-rate salaries</b><br>(+12-18%)             | Better retention, minimal recruitment  | Pay compression issues; union concerns          |
| <b>Market-rate salaries</b><br>(+12-18%)             | 2x cost; knowledge doesn't stick       | Safety concerns; £9M permanent staff equivalent |
| <b>Accelerated training</b><br>(4yr → 2.5yr)         | 40% pass rate drop; safety incidents ↑ | Regulator forced return to full duration        |
| <b>Digital upskilling</b><br>(mandatory training)    | 65% completion; mixed comprehension    | "I've got 25 years experience" pushback         |

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## NON-NEGOTIABLE CONSTRAINTS

### Regulatory

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- Safety certification standards mandatory
- Minimum experience requirements for critical roles
- No shortcuts on competency frameworks

### Financial

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- £5B already committed (digital + fleet)
- Operating budget under pressure
- Board resistance to major workforce investment

### Operational

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- Cannot reduce service levels
- Cannot close routes for training
- Compressed maintenance windows
- 24/7 operations expanding

### Cultural

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- 85% unionised workforce
- “Old rail” vs “new rail” tension
- Fear technology = job elimination
- Pride in craft skills and experience

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## STAKEHOLDER POSITIONS

### **Safety Regulator:**

“No compromise on standards. Can’t maintain workforce = restricted operations.”

### **Finance Director:**

“Already £180M over budget. Work within existing resources. Won’t automation reduce headcount?”

### **Operations Director:**

“Running on skeleton crews NOW. One incident from network shutdown. Need people immediately.”

### **Union:**

“Management created this by cutting training in 2000s-2010s. Don’t replace skilled workers with algorithms. Invest properly.”

### **Board Chair:**

“Existential threat. Can’t operate safely = lose franchise. But can’t explain £100M+ workforce spend when digitalisation should increase efficiency.”

## COMPLICATING FACTORS

- **Geographic:** 2,400km network; rural locations can’t attract staff
- **Generational gap:** Loyal craftspeople retiring; Gen-Z wants flexibility and purpose
- **Technology uncertainty:** Don’t know final skill requirements for systems not yet deployed
- **Competitive market:** Tech companies, automotive, construction competing for same talent
- **Industry-wide crisis:** All rail operators poaching from each other