railfuture

Reducing rail infrastructure costs

The aim should be to minimise whole-life costs, which comprise initial capital costs and ongoing maintenance costs, without impacting ongoing operational profitability due to lack of resilience or capacity. Learning from major programmes such as Great Western Main Line electrification and HS2, and comparison with other European countries, the cost of new rail infrastructure can be reduced by:

- An informed client that can determine the right project definition, risk share and maintenance regime without setting unrealistic expectations:
    - Develop the requirement to achieve an acceptable whole-life budget
    - Set realistic deadlines, so that the project can make the most cost-effective not the quickest choice.
    - Balance the risk between the client and contractor. It is the client that is most likely to be in a position to manage external risks - attempting to place risk on the contractor that the contractor cannot control often results in the contractor pricing-up disproportionally and over-engineering.
    - Consider combining related renewal and enhancement projects. While separation of budgets and approvals for renewals and enhancements may make each appear less costly, separation of projects may not be the best value.
    - Do not reduce the specification to minimise the capital cost.
    - Do not change the scope once the specification and budget have been set.
- A pipeline of projects that have repeat elements, for example electrification or signalling. A rolling programme would enable Network Rail to act as an informed, intelligent client, learning from each project and applying those lessons to the next.
    - Develops the programme management and design experience necessary to make the right design decisions and deliver on time and within budget.
    - Develops experience in engaging with stakeholders to navigate the UK planning approval system (which needs to be simplified) which otherwise introduce delay to the project.
    - Builds a pool of skilled and experienced staff, avoiding poor specification and design decisions.
    - Encourages contractors to invest in training, avoiding mistakes during implementation.
- Effective programme management
    - Manage risk, taking the time to mitigate risk at lower cost. Systems which are developing fast such as signalling control have the most risk so require the most focus. Avoid risk aversion which results in over-specification to eliminate risk.
    - Challenge standards without affecting safety when a risk mitigation approach would be more appropriate, when standards have changed after the design is complete or when technology has moved on since the standards were established. Avoid rigid adherence to 'one size fits all' standards.
    - Appropriate contract structures. Avoid cost plus contracts, which leave the programme manager with no levers to reduce costs at times of high inflation.
- Improve asset knowledge, eg location of cables.

Some of these points are specific to the railway, others are relevant to many UK projects.

The best way to make infrastructure improvements to meet immediate needs at realistic capital costs is to identify the **real** problems, prioritise them according to need, and choose the right solution. Costs can thus be saved by not putting money into infrastructure projects that are not needed to meet expected demands. For example, the Trans Pennine Route Upgrade already committed, which combines high-capacity control systems, grade separation and four tracking between the Huddersfield area and Ravensthorpe, and an intelligent operational plan on behalf of all users, is sufficient to deliver the increased capacity and reliability needed for the Standedge route. New routes or four tracking of other sections of this route over the Pennines are not necessary to meet current expectations of future trans-Pennine freight and passenger demand.