TOP TEN

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Examining the Impact of Metro Expansion and Automation on Driver Resources: A Case Study of the West Midlands Metro Network

Global public transport networks are expanding their infrastructure and integrating advanced automation technology. This scenario necessitates extensive investigation into the impact on human resources, specifically drivers. This research conducted a phased analysis of the West Midlands Metro network, exploring the impact of expansion and automation on driver resources. A SIMUL8 simulation was created during Phase 1 to evaluate the current service and detect any possible deficiencies. The analysis of metrics showed variations in service performance among different stations and a decrease in asset utilisation.

The findings highlight the necessity for focused enhancements in targeted areas. A thorough analysis of current literature on extension best practices was undertaken during Phase 2 to gather valuable insights for guiding future expansion planning efforts. Data-driven probabilistic forecasting was conducted in Phase 3 to assess the range of automated driverless capabilities on a proposed expansion line and observe the impact on driver role. The findings suggest that starting with partial automation allows infrastructure stabilisation before advancing to fully driverless capabilities. This gradual timeline balances technology adoption with the need for change management within the metro organisation and its employees.

The study's findings offer valuable insights for transportation authorities regarding sustainable workforce management. It aids individuals in foreseeing and managing the evolving skill demands within the industry. The utilisation of a visualisation tool allows for the creation of automation timelines that depict the changing driver roles, aiding in strategic planning for smooth transitions.