

### **Terminal 5 Rail Projects: An Untold Success Story**

The publicity surrounding the opening of Heathrow's new Terminal 5 on 27<sup>th</sup> March 2008 quickly focused on the operational problems associated with the baggage handling system. The media had a field day reporting what went wrong whilst overlooking those things that had gone right. There was little reporting of the successful opening and smooth operation of two new railway extensions (LU's Piccadilly Line and BAA's Heathrow Express) and a combined station under the new terminal building. As we all know, from the media's perspective, successful delivery of a major project does not always make such a good story. Sadly, therefore, the major contribution systems engineering can make to a major project is not always well publicised.

The purpose of this presentation is to summarise how systems engineering contributed to the successful delivery of the T5 rail projects. It explains how a Systems Engineering and Assurance team was formed at the outset and was proactively involved until handover of the railways to the operators. The team's objectives were to ensure compliance with requirements and standards, problem-free integration of the many workstreams and subsystems, and the smooth commissioning of the railways through a systems engineering approach that included Human Factors, EMC, RAM and System Safety. The T5 rail extensions presented a unique challenge, involving the creation of four new tunnel bores under the operating airport, and the fitout of the two railways and the station. The project involved the full range of rail disciplines, from heavy civils through to complex control systems, and integration with two live railways.

The presentation also comments on the challenges that exist in making the wider engineering community aware of systems engineering 'success stories' when failures to apply systems engineering are much more likely to grab the headlines.

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