

CRS

Carmen Rail Solution

FirstGroup and Keolis

Crew diagramming consultancy

Challenge

- Evaluate potential productivity savings for 250 train drivers and conductors
- Validate the proposed approach to depot strategy and measure the benefits of CRS for the new TransPennine Express franchise whilst taking into account the pay terms and conditions for two labour agreements

Approach

- Import the timetables and model the pay terms and conditions using CRS
- Generate optimized crew diagrams for the February and December 2004 timetables while observing two existing labour agreements
- Analyse the validity and efficiency of existing crew diagrams. In addition, carry out sensitivity analysis ("What if?" scenarios) with respect to depot size and structure and employee award conditions to assist strategic decision making

Results

- Legal and operable diagrams with an overall reduction in the total amount of working time and cost
- Substantial productivity improvements were identified
- Identified implications of various strategic alternatives that allowed management to make appropriate decisions

In February 2004 FirstGroup and Keolis (FGK) took over the newly created TransPennine Express (TPE) rail franchise in the North of England. This new railway is a combination of the old TransPennine Express and some additional northern services operating in the same region.

FGK had been examining the crewing strategy using spreadsheets to manually create new crew jobs (diagrams) for TransPennine Express based upon the awards and conditions that were already in use. In order to further examine the crewing of TransPennine Express, Carmen was commissioned to provide an analysis using

CRS. CRS produced crew diagrams based upon the February and December 2004 timetables. This resulted in a set of equitable diagrams with less work hours and which complied with all allowances and rules. CRS also allowed for the evaluation of factors such the:

- implications of altering some of the awards and conditions
- implications of infrastructure movements (e.g. depot sizing and movements)
- key performance indicators i.e. overall time allowances, productivity and cost differences.

About FirstGroup and Keolis

TransPennine Express is a new train company that offers, fast, frequent and superior service. FirstGroup plc, the United Kingdom based international transport company, has teamed up with Keolis, one of Europe's private transport operators, to deliver a unique rail service across the Pennines. An investment programme of over £260 million has been implemented to bring high quality intercity rolling stock, new depots, substantial improvement to 30 stations and the development of their employees.

The FirstGroup and Keolis vision is to revitalise and redevelop TransPennine Express, making it the preferred mode of transport for customers in the North of England.

About Carmen

Carmen Systems are resource optimization specialists. Founded in 1994, the Swedish based software and consultancy company lead the global market in rail and airline crew management. Carmen's suite of products is:

- **Carmen Rail Solution**
Rail crew management
- **Rolling Stock Distribution**
- **Carmen Crew Management**
Airline crew management
- **PlanOp**
Postal and logistics network planning
- **IPTIS**
Public transport journey planning
- **OR Services**
Operations research consulting

"The results of Carmen's consultancy work with their train crew management tool, CRS, allowed us to identify significant productivity improvements and make more informed decisions regarding future resourcing".

Leo Goodwin

*Senior Commercial
Manager*

TransPennine Express



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