



RailCorp

Crew management of 2000 Sydney Olympics

Challenge

Develop efficient CityRail crew plans for the 2000 Sydney Olympic train timetable

Approach

Used CRS to generate optimized crew shifts with day-of-operation management capability

Results

- Reduced the preparation time for new crew plans from months to days
- Enabled late timetable changes to be handled quickly and effectively
- Allowed management to plan ahead by examining 'What If...?' scenarios

The provision of timely, user-friendly public transport services during the Olympic Games is an extremely challenging task for transport operators in host cities. It is generally acknowledged that CityRail, part of RailCorp in Sydney Australia, turned in a gold medal performance with its passenger train services during the 2000 Sydney Olympics. An essential factor to this success was the train crew plans required to operate the Olympic timetable.

During the 2000 Sydney Olympics, rail crew numbers increased by about 35%, with trains stopping at Olympic Park station every 2.5 minutes and delivering at least 24,000 people per hour. With such a significant crew plan to organize, CityRail selected Carmen to assist in planning their rail crew requirements. Using its CRS rail crew management software, Carmen generated optimal shifts for all CityRail on-train staff. The system combined its state of the art algorithms with the constraints and complex rules of CityRail's operations to produce efficient and practical crew plans. CRS's optimized methodology reduced CityRail's preparation time for new shifts days as opposed to months, and allowed for the evaluation of factors

such as the:

- implications of late timetable changes
- effects on costs with different shift configurations
- effect of changes to labour rules
 - key performance indicators such as
 - productivity, cost differences, meal room
 - utilization, mileage and overtime payments.

Visitors to the 2000 Sydney Olympics were impressed by the train operation of the host city. Perhaps one of the best accolades received by the CRS team at Carmen was the feedback from CityRail's Train Crew Assignment Centre (TCAC). This group is responsible for the crewing on the day-of-operation and is heavily dependent on the robustness and correctness of the crew plans. John Dawes, the Train Crewing Manager for CityRail during the 2000 Sydney Olympics said, "CRS allows us to take a manual process and automate it more effectively, utilize resources and improve cost efficiency. CRS heralds a new technological era for the train crewing at RailCorp and is one of the most significant in recent history of the organization". Their endorsement of the strength and accuracy of the crew plans demonstrated the operational success of the project.

About RailCorp

RailCorp operates passenger rail services and associated feeder coach networks throughout the Sydney metropolitan and outer urban areas, regional centres of New South Wales, Australia. These services are provided by RailCorp's two business groups, CityRail and Countrylink.

CityRail provides unbooked suburban and intercity passenger rail services throughout a 2,060 km network. CityRail operates more than 2,300 services weekday and has 301 stations. In operating year 1999/2000, CityRail carried 278.7 million passengers.

About Carmen Systems

Carmen Systems is recognised as one of the world's leading software and operations research companies. Headquartered in Goteborg, Sweden, Carmen has major offices in Brisbane, Singapore, London, Montreal, Stockholm and Copenhagen. Carmen's products are:

- **CRS**
Rail crew management
- **RSD**
Real time freight car planning
- **CCM**
Airline crew management
- **PlanOp**
Distribution and logistics network planning
- **IPTIS**
Public transport journey planning
- **OR Services**
Operations research consulting

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*John Dawes
Train Crewing Manager
RailCorp*



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