A TRICKY OPERATION TO RUN

Lisa Hosking, MD Australia, The UIC, looks at how Kestrel has helped Yarra Trams analyse and improve its network.

▲ Tram swap on Route 96 at Southern Cross station. *Photo by Richard Capper*

Software is only as good as its user. This is particularly true of software designed for the reporting, analysis and improvement of operational performance, i.e. punctuality and reliability or, put another way, delays and cancellations. Yarra Trams, as a private sector operator, is closely monitored and contract managed by Public Transport Victoria. So, as well as professional pride in running a slick operation, there are 'commercial consequences' if targets are not met.

The targets are comparable to many heavy rail operations running on dedicated, closed networks. Yarra Trams has to meet targets or Network Service Level Guarantees of 77% punctuality (0.59' early to 4.59' late) and 98% reliability (services run compared with the timetable). The network figures for May 2014 were 83.56% and 98.99%. Yarra Trams has beaten all previous years' punctuality results in 11 out of the past 12 months. This is in a context of a highly complex network, the vast majority of which is shared with motor vehicles. These excellent results are even more remarkable given massive growth in motor traffic, patronage and the number of tram services provided.

So what part does my business play in this? We are a small part in a number of initiatives. The Universal Improvement Company (the UIC) has amongst its products performance reporting, analysis and improvement software called Kestrel. Kestrel has an eclectic mix of users including Docklands Light Railway in London, TransLink, the passenger transport division of the Queensland Government which has a multi-modal version and, of course, Yarra Trams who included Kestrel as part of their tender when bidding for the franchise.

At its simplest, Kestrel imports the timetable, imports what actually happened on the day, and then compares the two for both reporting and analysis. As you might imagine, this is somewhat more complicated than it might at first seem. For example, delays can be caused by a massive number of factors. A tram in an urban environment can experience many small delays in a short period of time – cars parking (Melbourne loves its on-street parking), car drivers turning right in front of the tram (unlike a bus, the tram can not drive around them), traffic light sequences, passengers loading and unloading, and so on. Then there is the usual plethora of other possible causes of delay – rolling stock faults, infrastructure

problems such as auto-points and overhead lines. On top of that, Melbourne has an impressive programme of sporting and cultural events – many of which impact on the service. Kestrel allows analysis of these factors and many others, not only reporting against them but also allowing analysis by variables such as day of the week, season, tram class, location, time of day and many more. This is delivered through a series of standard modules – dashboards, reports, enquiries and analytical tools.

As I said at the start of the article, software in general and Kestrel in particular is only as good as its user, and Yarra Trams is an excellent client to work with. Our main point of contact in the organisation is Ian Cushion, Manager Network Performance. Ian and his team work closely with my colleagues to identify system requirements that we then build for the organisation. That is where Kestrel differs from many software products. Each version is fully customised for that client – data sources, performance regimes and, essentially, everything else.

Taking one simple example, Yarra Trams has recently introduced new positions at each of its depots – Team Manager, Drivers. A key element in thinking around this role is the recognition that drivers on an urban tramway have far more autonomy, and hence a greater impact on performance, than say a driver on a heavy rail network. Therefore the level of performance reporting and analysis needs to be pushed down to a level of detail that allows the Team Manager, Drivers – and indeed the drivers themselves – to see what is impacting on performance, thus identifying improvements. My colleagues this week have been out at Essendon and Camberwell depots scoping the next set of reporting tools. These are busy people, and features in Kestrel need to be intuitive and straightforward to use.

An example of an initiative that has come out of this approach is managing

Early Running. In a variable environment with timetables derived from historical performance, it can be easy to run early on quiet days. By ensuring the data is available to see the who, when and where, the Team Manager, Drivers can work with his or her team to improve results in this fundamentally controllable area. Rolling this up to a network view, Yarra Trams can see improvements from around 8% punctuality lost to Early Running prior to the introduction of Team Manager, Drivers, and these reports, to around 3% now. This has played a key part in the significant improvement in results, and only available through the combination of managerial work and data that is transformed into decision-making information through Kestrel.

A further example is the 'Think Tram' initiative, involving targeting specific locations on the network for targeted analysis and improvements. New functionality was added to Kestrel to show before and after comparisons of performance, overlay route images, present average running times, show variability of these alongside deviations from schedule, and allow for commentary on operational issues. All of this information was presented in an easy to read single page format.

As Yarra Trams celebrates its fifth anniversary of taking over the franchise back in November 2009, we at the UIC look forward to continuing our working relationship and playing our small part in ensuring a highly complex operation runs smoothly.