

GOING UNDER GROUND

TUBE LINES GROUP
TAKES ON THE
MODERNIZATION
OF LONDON'S
TRANSPORT ICON

Since 1863, when the world's first underground railway began service between Paddington and Farringdon Street in London, the city has relied on its subterranean arteries. The expanded network, known colloquially as "The Tube," today makes more than three million passenger journeys per day, over 253 miles of track connecting 275 stations.

As London's Tube has developed over the past 140 years it has become inextricably linked to the city's psyche. Its underground stations gave shelter to Londoners and their leaders during both world wars, and it has tied together many outlying villages and new suburbs into today's thriving metropolis.

But as the Tube entered its third century, the British government realized it needed to change the way upgrades and maintenance are managed. Instead of managing renewal of the aging infrastructure itself, the government sought to bring private sector expertise to the table in the form of public-private partnership (P.P.P.) agreements. Under these agreements, the network was split into several groups of lines, and consortiums of



leading construction and maintenance companies were invited to bid for 30-year franchises on Tube operations.

THE TLG CONSORTIUM

In December 2002, the consortium known as Tube Lines Group (TLG) won the bid for the Jubilee, Northern and Piccadilly lines and became responsible for maintenance, renewals and upgrades of the infrastructure, including track, trains, signals and stations. The TLG consortium comprises U.S. engineering giant Bechtel

Group, Inc. and European firms Jarvis and Amey.

"Although we have equal stakes in TLG, Bechtel is actually responsible for about 55 percent of actual value of work done on the lines," says David Lane, a planning and scheduling manager at Bechtel who has been dedicated to TLG. "We look after the capital expenditure side of the contract."

And the amount of capital expenditure involved is not insignificant – more than \$3.5 billion in the first seven-and-a-half-year period. This



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money is being invested in areas such as track renewal and a new state-of-the-art system for monitoring track condition, as well as new signaling networks for the Jubilee and Northern lines. This is expected to significantly improve reliability and allow for a higher frequency of services.

MANAGING COMPLEXITY

But, achieving these high-level goals is going to require successful delivery of hundreds of projects. “Of the 330 individual projects, most are carrying the seven-and-a-half-year budget, but some projects

are spread over the other three periods that make up the 30-year franchise,” says Lane. “Within the database we currently have about 70,000 activities representing work for the first period.”

TURNING TO PRIMAVERA

To manage this complexity, TLG turned to Primavera, with whom Bechtel already had a long-standing relationship. The company had originally considered using P3e, but when the signing of the contract was delayed, it was able to take advantage of the then just-released P3e/c,

designed specifically for engineering and construction, and made plans to implement it instead.

“P3e/c is a much more dynamic solution than anything else available,” says Lane. “But to start with, we’re not doing anything fancy. After implementing the system we went through an extensive data input stage, importing previous schedules and doing some conversions. We’ve only just started to use it for reports, but plan to be using some of the more powerful reporting functionality soon.”

One example of where P3e/c will prove its worth is on special projects, which often involve many delivery teams. For instance, the addition of an extra car to the Jubilee Line requires work not only on the rolling stock itself, but also the track, stations and signaling. P3e/c enables individual teams and planners to develop, cost load, monitor and control their particular projects, which can then be brought together and reported as one program.

NEW BUSINESS, NEW PROCESSES

2004 will be a busy time for TLG as it continues to transition management processes and the 2,400 staff it inherited from London Underground, the public sector company now responsible for overseeing the infrastructure franchises. Having P3e/c handle project management across the enterprise is helping to spread best practices throughout TLG, and is also complementing other technology infrastructure projects. Among these is the implementation of a new enterprise resource planning (ERP) system supported by a new Oracle database that will also drive P3e/c.

By moving to an Oracle database for both systems, TLG hopes to

shorten the amount of time it takes to upload scheduling information to London Underground. The ERP

Lane says that Primavera Expedition provides much better functionality than the ERP system, so this is being

already implemented Expedition for contract management, and will continue to roll it out across the business.

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system will be based on modules from the Oracle E-Business Suite. However, for contract management,

integrated in the ERP Suite. Although the full ERP system goes live this month (March, 2004), TLG has

THE VALUE OF EARNED VALUE

Looking ahead to the second year on the job, Lane says TLG will continue to benefit from more sophisticated management processes enabled by Primavera technology. "We're evaluating Cost Manager as one of the front-ends to the ERP system, and are also interested in the flexibility afforded by running P3e/c on PDAs for our mobile staff," he explains. "But the thing that will have the biggest impact is educating our work force and our contractors about earned value."

The earned-value methodology is not very widespread in U.K. project management circles, although it is gradually gaining acceptance for the improved analysis and forecasts it can provide. Bechtel, through TLG, is playing a role in expanding this acceptance and plans to lead by example.

“Because we have such a large job, there is a lot of work to manage on a periodic basis – be it daily, weekly, monthly or yearly,” says Lane. “We don’t want to have to open schedules and go through them activity-by-activity to get a picture of where

we are. We want to start with cost and schedule performance indexes and drill down from there, so this level of detail is being included in all new contracts.”

As well as spreading the earned value message, TLG is now enforcing the London Underground requirement that all contractors do their reporting with Primavera. Some have seen the benefits that TLG has begun to achieve, and also decided to implement P3e/c. “This is great for us,” says Lane. “It means that our contractors are

going to manage their work even better, and also that all of their data can be fed directly into our system to streamline our analysis and reporting.”

Obviously, this is a benefit for the TLG consortium. But ultimately, Primavera technology combined with earned-value methodology helps support a wider benefit – a safer, more efficient transport network for London. •

Elton Cane is a business writer based in London.