CYIENT

IMPROVING LONDONERS' COMMUTE

A Cyient – Thales Signaling collaboration

THALES

Overview

The London Underground (LU), a public metro system which opened in 1863, is the world's oldest underground railway system, spread across 402 Kms with 270 stations and 11 different lines. Over the last decade, it has experienced unprecedented growth in demand and is running a higher volume of service than ever with over a billion users each year and growing. The continuous increase led the LU to plan the Jubilee and Northern Line Upgrade Programme (JNUP). The JNUP involves the design, procurement and installation of a transmission-based train control (TBTC) system and was implemented by Thales, in partnership with us.

Thales develops, manufactures and supplies technology and services to the UK's aerospace, defense, security, and transportation sectors.

The Thales Group is a French multinational company with a global workforce of more than 63,000. Headquartered in Neuilly-sur-Seine, France, the group has an annual turnover of more than USD 14.5 billion.

The Thales Ground Transportation Systems business enables mainline and urban transport operators, network managers and highways agencies to get the most out of their infrastructure by providing solutions for signaling, supervision and control, integrated communications, security and information management.

Business Challenge

The objective of the program was to increase the capacity across JL and NL and to upgrade from a fixed block system to a moving block system which involved the implementation of transmission-based train control (TBTC) by installing Thales's Seltrac S40 system on both the lines.

One of the key challenges within the rail ecosystem is the lack of experienced resources in rail signaling. Due to this shortage, complex projects like the London Underground require a strong engineering partner who can provide the required support. The JNUP enhancement project had to be executed while ensuring minimal disruption to existing traffic. About 45% of the program's network were in tunnels and normal operations had to be sustained during the enhancements—challenges that further added to the complexity of the program.

Cyient Solution

With a 300+ strong signaling team and 200+ IRSE-certified engineers, we were able to address this challenge for our partner Thales, supporting the complex upgrade project with the right resources. To ensure the upgrade was carried out with minimal disruption to train operations, the testing and installation works for JNUP were carried out during the night, weekends and Christmas closures. We also supported Thales to meet end-customers' commissioning schedules across various stages of the project. The complex project was brought into service in stages while maintaining safety. The Jubilee line was commissioned in two stages (J234 and J5.0) with the entire line in revenue service, since 2011. The Northern line was commissioned in six stages (NMA1, NMA2, NMA3, NMA4, NMA5, and NMA6) with the entire line in revenue services, since June 2014.

Due to proper planning and coordination between Thales and us, the London Underground was able to commission NMA6 six months ahead of the planned schedule. The new system allows automated train control that results in reduced waiting time between trains and increased revenue production. By bringing in best practices and mature processes from our vast experience in rail signaling, our engineers enabled Thales to

achieve faster delivery cycles at lower costs, delivering safety-critical designs within strict timelines. Through our work, we ensured minimum disruption of traffic by keeping the existing system operational while the new system was being installed and tested.

Key Business Benefits and Results

With our proven expertise in global collaborative engineering models, we were able to provide execution across the UK and India for the JNUP program. This resulted in approximately 35-40% reduction in the total engineering outsourcing cost for Thales. We also provided quick turnaround on key program execution parameters, such as schedule and quality. For example, together with Thales, we reduced the measured cost of quality by 44% in the years 2012-2014 and enabled commissioning of the line section in the NMA6 stage six months ahead of schedule.

Additional Value Creation

The moving block system on JNUP allows trains to run closer together, while maintaining required safety margins, thus reducing the waiting time between trains and increasing the overall capacity of the lines. This will also mean increased revenue production and efficiency. Trains will be able to travel faster, enabling quicker journey time.

As a result of this upgrade, the London Underground and its commuters have benefitted positively with 18% reduction in journey time, 20% increase in passenger capacity with 11,500 more commuters per hour and an increase to 30 trains per hour during peak times.

"Cyient's engineering expertise and commitment enabled this safety-critical project to be delivered months ahead of the contract date—underscoring great collaboration and high quality output.

It is a terrific achievement and further enhances our relationship. Thank you to the team for their hard work and dedication."

VP Ground Transportation Systems, Thales

More Londoners getting to work on time —more sports fans getting to the Olympic Games

During the Olympic Games 2012, the Jubilee line demonstrated its ability to cater to the increased traffic and satisfy the public. Many commuters expected disruption and delays during the Olympic Games. However, the overriding story has been one of pleasantly surprised Londoners and spectators finding their way around with remarkable ease—one of the most visible, positive outcomes of the upgrade project supported by Cyient.

KEY FACTS

11,500
More passengers per hour

18%
Reduction in journey time

20%
Increase in capacity

30
Trains per hour during peak time

About Cyient

Cyient (Estd: 1991, NSE: CYIENT) provides engineering, manufacturing, geospatial, networks, and operations management services to global industry leaders. We leverage the power of digital technology and advanced analytics capabilities, along with domain knowledge and technical expertise, to solve complex business problems. As a Design, Build, and Maintain partner, we take solution ownership across the value chain to help our clients focus on their core, innovate, and stay ahead of the curve.

Relationships lie at the heart of how we work. With more than 15,000 employees in 22 countries, we partner with clients to operate as part of their extended team, in ways that best suit their organization's culture and requirements. Our industry focus spans aerospace and defense, medical, telecommunications, rail transportation, semiconductor, utilities, industrial, energy and natural resources.

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