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Award

ITSO Standards Update Contract -Cubic

Rail Settlement Plan Limited

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Scope

Description

The Department of Transport (DfT) has commissioned RDG to develop and deliver ITSO on Mobile and industry compliance with an updated ITSO specification (V2.1.5) for ticket retail and acceptance with TOCs and their supply chain.

ITSO is one of three main ticketing technologies used by rail and other public transport (primarily bus and tram) within England, Scotland and Wales to offer digital (non-paper) ticketing for the benefit of passengers. The government's Plan for Rail White Paper sets out a plan to 'work with ... operators to continue the roll-out of digital ticketing on smartphones across the network... (and) bring forward benefits for passengers (of) contactless journeys'. To achieve these objectives, it is vital that the government empowers the rail industry to implement ITSO on Mobile ticketing. This new type of digital ticket will enhance the current range of ticketing options, providing customers with more choice and allowing the industry to plan for the retirement of magnetic stripe tickets.

ITSO on Mobile ticketing combines the convenience of the highly successful smartphone-based eTickets with the speed and security of Near Field Communication (NFC) technology.

Features and benefits:

Reuses existing infrastructure - ITSO on Mobile will maximise the return on previous investments, avoiding costly hardware upgrades.

Easy to use - Contactless card usage by phone is already commonplace. ITSO on Mobile tickets will be the same - intuitive and quick. Customers will simply be able to use their smart device (phone or wearable) by holding it to the reader that is already on every automatic ticket gate in the country. On newer handsets, tickets will still work even if the device battery is flat.

Works first time - A recent study by RDG showed that contactless via a smart device is the fastest and most reliable ticketing interface at gatelines.

Fast - ITSO on Mobile will make use of Express Mode for Apple Pay and Google Wallet's Skip Device Unlock features, which means there will be no need to unlock the phone or open any apps at the gateline. Customers will just hold their device to the reader and go. Contactless ticketing is up to 40% faster than some barcode tickets.

Reduces fraud - ITSO on Mobile is designed to be a highly secure method of ticketing. The fraud prevention features of NFC ticketing are clearly evidenced in the event ticketing arena. Native Operating System (OS) commands allow fast, over-the-air cancellation of tickets if they are lost, stolen or refunded.

Commitment to support from Apple and Google - Following extensive investment and development, both organisations have now committed to supporting ITSO within native wallet, for a seamless customer fulfilment and usage experience.

ITSO on Mobile tickets can be deployed at pace and rolled out nationally as a software-only upgrade to the existing ITSO infrastructure, thus making ITSO on Mobile available everywhere that ITSO smartcards are accepted. With hardware to support ITSO already available across all rail stations nationally, as well as London Underground, buses and trams across the country, no new infrastructure is required.

The implementation of ITSO on Mobile will:

• Complement existing industry digital ticketing projects.

• Support wider rail reform objectives.

• Ultimately make rail ticketing more cost effective and customer friendly.

The project will deliver upon the request from ITSO Ltd to update and publish a new version of the ITSO technical standard - (moving from version 2.1.4 to version 2.1.5) and to ensure a fast-tracked industry compliance. This new version not only unlocks the new specifications to allow the delivery of ITSO on Mobile, but also provides an opportunity to

bring the ITSO implementation on National Rail up to a uniform level thus supporting better interoperability. To support this, RDG is putting in a number of contracts with suppliers in the industry to bring their solutions up to the new standards.

Contract 1

Supplier

- CUBIC TRANSPORTATION SERVICES LIMITED

Contract value

- £2,189,427 excluding VAT
- £2,627,312 including VAT

Above the relevant threshold

Earliest date the contract will be signed

17 November 2025

Contract dates (estimated)

- 17 November 2025 to 30 April 2026
- 5 months, 14 days

Main procurement category

Services

CPV classifications

- 72222300 - Information technology services

Other information

Conflicts assessment prepared/revised

Yes

Procedure

Procedure type

Direct award

Special regime

Utilities

Direct award justification

- Single supplier - intellectual property or exclusive rights

- Single supplier - technical reasons

- Additional or repeat goods, services or works - extension or partial replacement

The ITSO on Mobile (IoM) enables customers to purchase digital smart tickets, which are stored in the wallet of their mobile phones. Smart tickets already exist in the form of a physical card, but currently, customers must scan the card with an app each time they want to know what ticket(s) they are currently holding.

The advantages of ITSO over existing ticketing media:

• Fraud reduction - Tickets marked as lost of refunded can be removed through native wallet commands, and are immediately rendered unusable. Copying of tickets is also prevented

• Ability to facilitate removal of magstripe - Existing infrastructure can be utilised for complex use cases currently still on magstripe tickets, avoiding costly hardware retrofits. IoM gives an option for the removal of magstripe ticketing at a potentially lower cost.

• Cost of completing the infrastructure rollout - Barcode is the single largest used ticket format in the railway industry today. However there are still some considerable challenges to completing the rollout to the remaining parts of the network and journey connections where through ticketing acceptance is in place. IoM provides an opportunity to resolve this issue.

• Speed of throughput - IoM in Apple Wallet with Express Mode, or in Google Wallet with Skip Device Unlock, can be expected to achieve the same throughput speed as contactless payment on mobile, as they both use the same NFC technology. Contactless is almost 40% faster than paper barcode tickets, and much more reliable.

• Speed of CPAY and cEMV expansion - IoM allows customers to bring their own device for ticketing, with similar ease of travelling and validation as cEMV, without the need for a new back office.

ITSO provides a smartcard standard in use across the UK public transport sector. The specification has been recently updated to version 2.1.5. Cubic's efforts are concentrated on delivering software and integration for all outboundary readers as a single, unified phase. These updates are required to achieve ITSO 2.1.5 specification compliance. This consolidated approach is enhanced by a vanguard period preceding the full rollout, facilitating early validation and refinement of the solution before network-wide implementation. Inboundary gates remain outside the scope at this stage.

Cubic will design, develop, test and deliver the Cubic gate reader and back office changes required to support the ITSO 2.1.5 and RSPS3002 specifications.

The work focuses on enabling ITSO 2.1.5 functionality across existing Cubic devices. No new hardware is introduced, and development will occur on the current infrastructure. As such, there are no proposed changes to the overall solution architecture. The impacted components include Reader Software, TR3 and IPV Software, and TOC back-office systems such as the BDP and DGC. Components such as the DPF, SCU, and SC remain unaffected.

A number of key enhancements are required to support ITSO 2.1.5. These include support for DESFire card emulation in Apple Wallet, enhanced contactless polling (v2.3), and acceptance of CMD11 and CMD12 commands on TR3 and MM6 devices. Additionally, updates to PDB Table 3810 are necessary to support these new commands.

Remote ISAM querying functionality will be introduced, enabling new ITSO request and response messages to be handled by both the TOC DGC and MM6 systems. Epoch handling is also addressed, with changes to support new DateTime stamp formats and message structures. These updates ensure compatibility with evolving ITSO standards and improve system resilience.

The RSPS3002 component of the work involves addressing gaps in validation logic and implementing necessary fixes. This includes validation of concessionary pass cost centres and class fields, as well as checks for TYP22, TYP23, and TYP24 product attributes. Fulfilment actions and expiry date updates are also covered.

Fixes are required for a range of journey validation scenarios, including break-of-journey logic, check-in and check-out behaviour, and OSI (Out of Station Interchange) handling. These updates ensure that the system behaves consistently and accurately under all expected operational conditions.

Testing will be begin using the I2F ITSO test environment at AFC House. This will include device-to-back office testing, regression testing of ITSO functionality. Scripted and ad hoc testing will be managed via the TestRail test management tool, with defects triaged and prioritised based on customer impact. Further end-to-end testing will be carried out at RDG test facility and final accreditation by ITSO.

Deployment activities include firmware and profile updates for CMDs 11 and 12 (non-Cubic), rollout of updated software to selected stations, and updates to BaseData including the TOC BDP and Table 3810. It should be noted that other table changes are required but these relate to content changes and not design changes. Training may be required to support these changes, and deployment will be managed as part of business-as-usual (BAU) processes.

The biggest risk to the industry by not going ahead with this programme will be detrimental to the customer. DfT have funded for the programme to go ahead and the funding amount for Cubic has come in below the expected cost in the GFA. The timeline

is tight, especially with managing other key integrated suppliers that if this was not approved, the programme would not be able to move forward. Cubic are a key component to the programme as one of our gate suppliers.

Any incompatibility between existing systems/equipment and new goods, services or works could also result in time consuming and complex redesign and modification which could be unacceptable in the circumstances, for example, resulting in significant cost and/or delay to an important service.

Supplier

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Small or medium-sized enterprise (SME): No

Voluntary, community or social enterprise (VCSE): No

Contract 1

Contracting authority

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