Tools for the Technology Operations Centre (T-TOC)

Pre-procurement briefing

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1. This pre-procurement briefing pack consists of, and refers to, the following documents and annexes. These documents are given in good faith; Highways England reserves the right to alter any aspects of these documents, or to not proceed with the procurements in any way:

a) Pre-procurement briefing (this document);

b) T-TOC Overview;

c) T-TOC Evaluation Criteria;

d) T-TOC Requirements Catalogue

e) Architecture Definition

f) Informational Annexes:

- Annex A: Operational Technology Strategy
    - This document provides a summary of the Operational Strategy for Highways England's Strategic Road Network and was published in 2015.
- Annex B: CHARM Overview
    - This document provides a summary of the CHARM Advanced Traffic Management System which is being provided by Kapsch TrafficCom.
- Annex C: Asset Delivery Booklet
    - This document provides a summary of the Asset Delivery model which outlines a new way of working where Highways England will directly manage both routine maintenance and the delivery of capital, renewal and improvement schemes.
- Annex D: Enterprise Service Bus Guidance
    - This document provides guidance on the application of an Enterprise Service Bus (ESB) capability within Highways England.

Introduction

2. The operation and maintenance of roadside technology is an important part of Highways England's management of the Strategic Road Network comprising nearly 100,000 devices with an estimated replacement cost of approximately £4.8bn. Maintenance of this technology ensures that it continues to provide the benefits required in the business cases of each scheme.
3. T-TOC is the name (Tools for the Technology Operations Centre) which has been used throughout this document, for an integrated software solution to provide the tools and capability required to support implementation of the Technology Operations Centre (TOC), as defined in the Operational Technology Strategy (OTS) with the aim of improving availability and reducing cost in addition to other strategic and safety benefits. It will also support the Asset Management Strategy which will adopt the ISO 55000 standard, through the provision of a centralised asset inventory subject to appropriate management and governance.
4. The service management tools delivered by T-TOC will build on work already undertaken in this area for Combined Highways Agency and Rijkswaterstaat Model (CHARM) and will also provide the capability to support our business IT service management requirements.
5. T-TOC also satisfies a need to replace a number of bespoke and costly to maintain legacy systems.

Objective

6. The development of T-TOC will support the objectives of the Roads Investment Strategy (RIS) and deliver the following:
   - Improvements to Health and Safety by reducing roadside visits;
   - Best practice Asset Management aligned with ISO 55000 standard;
   - Improved service to customers through better availability;
   - Building capability and knowledge within Highways England through the TOC.

Business Drivers

7. Challenges associated with the T-TOC project include:
   - Strategic imperatives to improve Health and Safety, Asset Management and service to customers;
   - Provision of operational support for the deployment of CHARM (expected mid-2018);
   - The growing adoption of Asset Delivery;
   - Must support the shift towards in-sourcing of key roles and capabilities;
   - Must support the enhanced monitoring of roadside technology, via the Simple Network Management Protocol (SNMP) for example;

- Must support objectives of the Roads Investment Strategy (RIS), including improved asset management;
- Required to support Cabinet Office initiatives to adopt Open Standards principles and for solutions which are not locked-in to a single contractor;
- Must support published standards for asset management as specified by ISO 55000, adopted as 'best practice' across other industries;
- Adopt ITIL recommendations for service management;
- Address concerns regarding a lack of future architecture, strategy or vision for Highways England technology.

Projected Outcome

8. The projected outcomes for the T-TOC project are to provide automatic monitoring and reporting on all of the roadside technology assets through the Technology Operations Centre.

Key Objectives

9. Key requirements for T-TOC are as follows:

Maintenance Capability

10. Technology maintenance is essential to delivering the operational management of the network. Without it, equipment will become unusable within a few years, either due to component failure or loss of calibration. Therefore, the key requirement is the ability to monitor and repair equipment used to manage the network and hence maintain that operational management capability.

Asset Management

11. Highways England has a responsibility to manage its resources in an efficient manner in order to deliver the maximum benefit to the public and its customer base. This requires equipment to be managed as assets, minimising cost and maximising value, from specification, through procurement, deployment and then retirement. It requires an understanding of the value of the service provided by the equipment and the associated costs.

Service Management

12. Highways England needs to align the delivery of its services with the service management principles recommended by the ITIL framework. These are recognised as 'best practice' by other industry sectors which manage significant numbers of technology assets across extensive geographic areas, such as telecommunications and utilities operators; this also builds on the approach already taken on our National Roads Telecommunications Services (NRTS) contract.

Scope of T-TOC Services

Objectives

13. The development of T-TOC will deliver the capability required to support implementation of the Technology Operations Centre (TOC), as defined in the Operational Technology Strategy (OTS). This will be delivered as part of a larger overriding change programme, which will adopt an agile approach allowing processes to be developed alongside tools and systems. It will also support the Asset Management Strategy, which will adopt the ISO 55000 standard, through the provision of a centralised asset inventory subject to appropriate management and governance.
14. A critical driver is the need to have a capability in place to replace the existing maintenance systems as the Combined Highways Agency and Rijkswaterstaat Model (CHARM) is deployed from 2018.
15. T-TOC objectives include:
    a) Provide tools to enable comprehensive and standardised management of roadside technology as assets (as specified in ISO 55000), to cover the following:
        - Full lifecycle (from procurement through to obsolescence and retirement);
        - Performance monitoring;
        - Corporate reporting;
        - Scheduled maintenance;
        - Incident forecasting;
        - Pre-emptive maintenance;
        - Support the development of more effective governance procedures.
    b) ITIL based service management aligned with operation affecting incidents;
    c) Provide tools to support greater flexibility and automation of business processes;
    d) Automated reporting which is more accurate and comprehensive;
    e) Automatic monitoring of all roadside technology for health and faults;
    f) Shared information about operational assets across CHARM, T-TOC and the civil asset systems;
    g) Enhancements to inventory and performance systems which will allow assets to be better managed;
    h) Building centralised intelligence around the TOC and support for knowledge management;
    i) Move towards a more flexible target architecture, owned by Highways England and supporting open integration with other systems.
16. We are seeking a Contractor:

- With a proven ability to take an established IT product and to deliver that into other Operational venues;
- Who understands and can accommodate IT migration in a live, 24/7, safety critical business environment with no impact on services, efficiency or safety;
- Who has a working knowledge of the current technology environment of Highways England or who has the ability to develop that knowledge quickly, based on previous experience in this field; and
- With a proven ability to deliver IT change projects on time, in scope and on cost.

17. T-TOC aims to deliver the following strategic benefits:

- Compliments delivery of the TOC and implementation of the operational model documented in the OTS;
- Better intelligence, complimented by new remote maintenance tools, resulting in improved safety through reduced need for roadside visits;
- Compliments and helps facilitate asset lifecycle management by providing the tools to support implementation of ISO 55000 processes;
- Better understanding of the causes of lost availability through improved and more transparent reporting mechanisms. Improved reporting of the causes of lost availability will give us the intelligence required to improve availability;
- Improved understanding of the cost of ownership, providing greater opportunities to reduce costs;
- More precise and detailed tracking of work, enabling more accurate and appropriate performance measurement.

High level scope

18. The responsibilities of the Contractor are as follows:

- An integrated software provision for monitoring of roadside Signs and signals, ramp metering sites, weather stations, Urban Traffic Management Control (UTMC) equipment (such as traffic lights), Tunnels, enforcement systems, emergency telephones etc.;
- Address limited tasking capability and provision a tool that can manage workflow in a meaningful way;
- Integration with Purchasing and Logistics, Network Occupancy (NOMS), and civil asset management systems, such as the Integrated Asset Management and Information Service (IAMIS);
- Enabling of enhanced knowledge sharing between maintainers, stores and other on-road resources;
- Provision a flexible solution which can easily accommodate future enhancements;
- Create a solution to manage assets through their lifecycle.

Business Assumptions

19. Highways England has based its scope on the following assumptions:

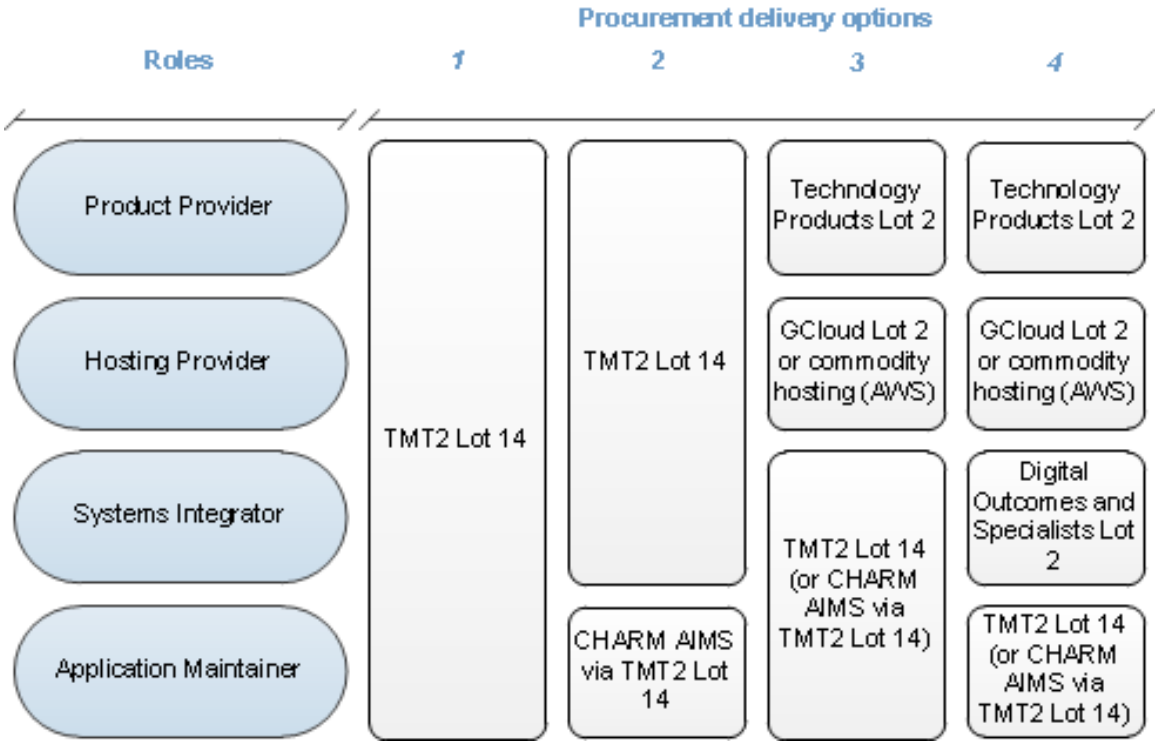
- Any solutions produced at the end of the initial contract term must be transferable to another provider i.e. Use of a development framework, appropriate license terms, hosting solutions etc. to ensure solution is transferable and supportable by alternative means;
- The contract term may be up to 10 years (e.g. 3+2+1+1+1+1+1).
- T-TOC will be procured via the Traffic Management Technology 2 (TMT2) Framework Lot 14 Intelligent Transport Systems.
- Highways England will highlight any IT assets which can be reused or utilised by Contractors;
- Any procured licenses should be perpetual or shall be scalable and not impose costly or limiting user restrictions;
- Care will be taken to ensure that key service management tools will *not* be co-hosted alongside operational systems (e.g. CHARM), so as to provide resilience. However, some performance management tools (e.g. SNMP Manager) with requirements to access roadside devices will be co-hosted with CHARM;
- IPR from any integration will be free for Highways England to use, free for Highways England partners to develop and support on behalf of Highways England, and free for Highways England to exploit commercially;
- The preference is for contractors to utilise COTS products with a wide user and developer base rather than developing bespoke solutions;
- CHARM hosting arrangements can be re-used for the development where this does not impact CHARM resilience and where elements of T-TOC are not delivered as SaaS;
- The T-TOC Enterprise Service Bus (ESB) should be separate but federated with the CHARM ESB;
- The CHARM team responsible for managing the configuration of CHARM can also manage the configuration of T-TOC;
- Technical assurance, independent of the T-TOC Contractor, shall assure the quality of the T-TOC Contractors approach and development framework.

Procurement approach

20. Whilst Highways England's overall requirements for a solution are clearly unique to the organisation, the individual components needed to satisfy those requirements are similar to those found in a wide range of organisations, as demonstrated by the depth of the market in areas such as service management and asset management.
21. It is recognised that there exists a number of major system integrators capable of delivering a single large bespoke solution, but it may be difficult to find a supplier with adequate experience of the full mix of business functions which need to be supported. Also note that Highways England has found such solutions to be insufficiently flexible in the past and that the preferred approach is to minimise the use of bespoke solutions.
22. Given there are a suite of COTS products that provide the functionality, Highways England are seeking to integrate COTS toolsets using a development framework that could be easily supported by multiple contractors, which should provide technical and commercial flexibility whilst also offering disaggregation options come the end of the development.

Overview of procurement delivery options

23. Four options have been considered for this procurement and are summarised below:



Preferred approach

24. *Procurement delivery option 1* – Procure Products, Hosting, Integration and Support via a single TMT2 Framework Lot 14 competition.

Advantages

- Covers Product Provision, Hosting, Application Maintenance and Integration as well as software development without further procurement activity.
- The suppliers on TMT2 Lot 14 are field engineers, therefore have a deep understanding and experience of deploying similar service management platforms in very similar environments (e.g. Service Management for Traffic Signal Installation and Maintenance), therefore leveraging best practice.
- The suppliers on TMT2 Lot 14 have experience in writing the types of interfaces required.
- There are no restrictions on the type of solutions (e.g. SaaS) that can be procured via TMT2 Lot 14.
- Aligns with Business IT Service Design preference for SaaS.
- Transfers the risk of product suitability to the parties who are best placed to make the product choice.
- Lower internal overhead to manage.
- Longer contract term.
- As long as the T-TOC solution is based on a common development framework and COTS products, the solution can be supported by a new supplier holistically or could be disaggregated so Highways England can support internally.
- Reduced number of support supplier interfaces.
- Allows the supplier to select the most suitable tools for integration as Highways England do not have internal expertise to fulfil this function completely.
- Licences for toolsets can be novated to Highways England at any point.
- Longer contract term allows for preparation to take on management and support internally, which aligns with overall Highways England business strategy.
- Contract can be structured to accommodate Agile methodology.
- Flexible contract term (e.g. 3+2+1+1+1+1+1) with appropriate break points will guard against vendor lock in and poor performance whilst providing essential continuity if successful.
- Justification for COTS product continuity is compelling using holistically delivered solution, particularly if solutions are licenced perpetually.

Disadvantages

- Contractors could select tools on the basis of commercial relationships with other suppliers.
- Risk of incumbents bidding and winning (no fresh perspective).

- TMT2 Lot 14 uses NEC form of contract, not traditionally used for Technology contracts.
- Procuring via TMT2 could see contractors adding a mark-up to COTS products.

Procurement timelines

25. The procurement timelines have to be flexible in order to be responsive to the changing landscape of Highways England projects, but the following programme is currently proposed:
    - 25th January 2017 – Market engagement day.
    - 6th March 2017 – RfQ published (7 weeks).
    - 21st April 2017 – Tender return date.
    - 24th April 2017-12th May 2017 – Tender assessment (3 weeks).
    - w/c 15th May 2017 – Tender consensus.
    - 22nd May 2017-1st June 2017 – 10 day standstill period.
    - 5th June 2017 – Contract award.

Market engagement day

26. To achieve the desired clarity on the scope and the commercial structure of the T-TOC services we tender, we will be holding a market engagement day 25th January 2017 10:00 -14:00hrs to understand:
    - The type and size of contract(s) that the market is capable of delivering;
    - How we ensure good competition for the package(s) to support best value for money;
    - The resource implications from contract(s) that requires organisational development;
    - The interface risks between contract packages;
    - The ability of the organisations to establish the right relationships with contractor(s) to develop the IT solutions and deliver the business objectives;
    - Programming considerations and how quickly migration can be delivered; and
    - How to use this contract to support our objective to effectively avoid long-term vendor lock-in.
27. Suppliers are requested to read the full suite of documents that accompany this briefing document, and to confirm their attendance at the market engagement day by emailing TechnologyProcurement@highwaysengland.co.uk should they wish to attend. Attendance is restricted to 1 attendee per organisation. Clarification questions may be asked at the market engagement event.