

Improving Highways Agency Traffic Technology Procurement

Delivering Traffic Infrastructure, Business Management Capability and Value for Money through procurement of Traffic Technology solutions



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1 Introduction

This document sets out the Agency's proposals for Improving Traffic Technology Procurement (ITTP). It builds on and has the same Procurement Vision as our overarching 2009 Agency Procurement Strategy. It focuses on meeting the challenging demands we face in delivering future Traffic Technology solutions. Its audience includes the technology supply industry and other client stakeholders.

Overall, the implementation plan for delivery of these improvements will focus on better interaction between client stakeholders and better engagement with the technology supply chain. The aim is to identify opportunities to achieve the ITTP vision and reduce both risk and dependence on proprietary solutions and suppliers. However, as the Agency is committed to certain key delivery objectives during this period, (e.g. Managed Motorways and enhanced Traffic Operator capability), it will be essential to maintain full or enhanced capability of existing technology.



Over the last 20 years, our traffic technology infrastructure has generally developed as a result of the need to provide early solutions, often in response to rapidly changing policy and delivery requirements. As a result, solutions have tended to be developed in a reactive manner, custom built to meet specific Agency needs. Many of these technologies have developed through research and pilots that have then been 'adopted' as part of the established infrastructure.

This has had the effect of constraining the development of both traffic technology and of procurement processes and practices needed to improve future adaptation and maintenance arrangements. In particular:

- Managing and maintaining the current systems and contracts is complex and involves inter-dependency with numerous suppliers. For example, our Regional Control Centres (RCCs) Control Office Base System (COBS) involves bespoke technologies from 10 or so suppliers;
- Procurement practices focused on lower capital costs have not always considered whole life implications;
- There is increasing dependency on our traffic technology supply chain, often using specialist suppliers both to operate what exists and to procure enhancements;
- Administering the large number of existing contracts is time and resource intensive;
- Even where the HA owns Intellectual Property rights and has funded research and development (R&D), solutions have often been built using supplier owned proprietary software;
- Delivery risk remains with the Agency and is not passed to the supply chain where appropriate;
- The bulk purchase of bespoke equipment results in increased cost through provision of warehousing, distribution, cash flow, etc. The bulk approach also shields suppliers from market needs such as lead time, capacity and reliability.

The result is a complex web of diverse technologies, suppliers and contractors, including system integrators. Risk largely remains with the Agency and it demands exceptional skills to manage.

3 The Traffic Technology Strategy

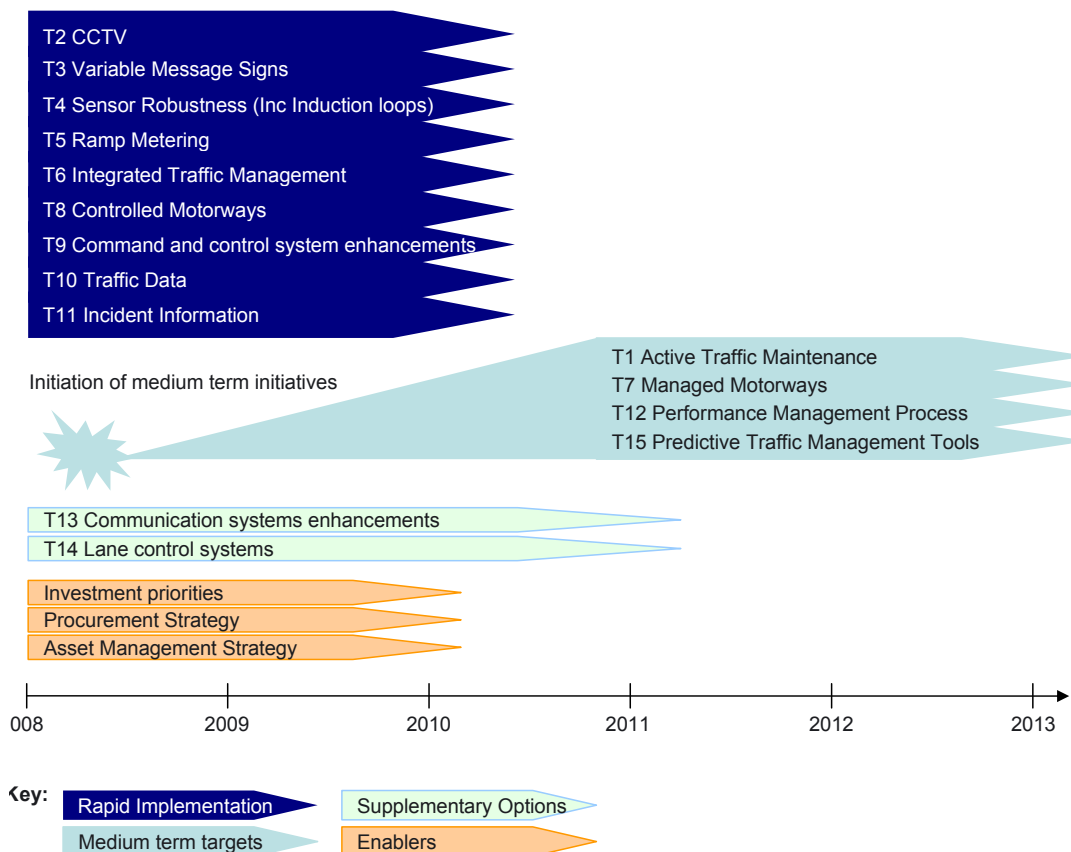
3.1 The Vision

Delivery of the Traffic Technology Strategy (TTS) will bring integrated, easily operated and adaptable systems to meet ever growing demands. It will use 'off-the-shelf / plug and play' components available from a range of suppliers thereby providing value for money, flexibility, and resilience. It will allow the incorporation of legacy systems as well as the addition of new technology and an end to the need for bulk purchase and warehousing.

3.2 Phased Implementation

The Agency's Traffic Technology Strategy is based on 15 Core and Growth technologies. Their introduction is phased as follows:

Figure 1: Anticipated Traffic Technology Delivery Timeline



3.3 Agency Traffic Technology Modernisation

Our proposed Technology Convergence Programme will support new and enhanced systems within the RCCs in line with their business needs. We will utilise service based contracts and Commercial off the Shelf (COTS) technology to enable provision of a unified operator interface to support both new and legacy systems.

4.1 Objectives

The proposed Traffic Technology procurement improvements seek to move the Agency from the current state outlined in section 2, to where it needs to be – i.e. capable of delivering the technology strategy and achieving significantly improved value through better supply chain engagement and management. It will do this by delivering a number of interrelated objectives, including:

- Reduced risks related to the supply chain that maintains legacy equipment.
- Current and future procurement should be supported but risks associated with the existing approach should not be perpetuated.
- The development and implementation of new technology should be supported with any associated risks being properly managed.
- The use of whole life costs in value for money assessment of technology solutions.
- A supply base that is responsive to the Agency's needs and that is efficient, resilient and actively supports operational delivery.

4.2 Vision

Our traffic technology procurement vision is of:

- A capable multi-tier supply chain providing solutions that deliver the outputs and outcomes specified by the Agency.
- An environment where the Agency works together with Local Authorities and its counterparts in Europe to develop common requirements.
- An industry that develops and uses off-the-shelf, standards-based solutions providing greater economies of scale leading to an increase in the industry's ability to add value and provide security of supply.

Overall, we want to develop an engaged and integrated supply chain that is incentivised to deliver high customer performance.

4.3 Industry Architecture

The services will be based on defined open standards so that different service providers within and across the supply chain can work together. Open standards will allow the supply chain to adjust itself in response to changes in operational needs and changes in contracts between the Agency and the various suppliers.

4.4 Strategic Benefits

The key benefits are to reduce risk through fewer, better-structured and more flexible contract arrangements. This will lead to better value for money, operational resilience and sustainability of supply and, therefore, levels of service to network customers.

5 Improving Traffic Technology Procurement Phases

The Procurement Improvements will take account of the restrictions arising from the need to maintain some of the existing procurement arrangements to secure operational continuity, and the importance of delivering the Managed Motorway programme. Future development of procurement options will be strongly influenced by the speed of delivery of the Traffic Technology Strategy, particularly the development and adoption of open standards

5.1 Two Phases

The phased approach of the ITTP complements the 2 phases of the TTS:

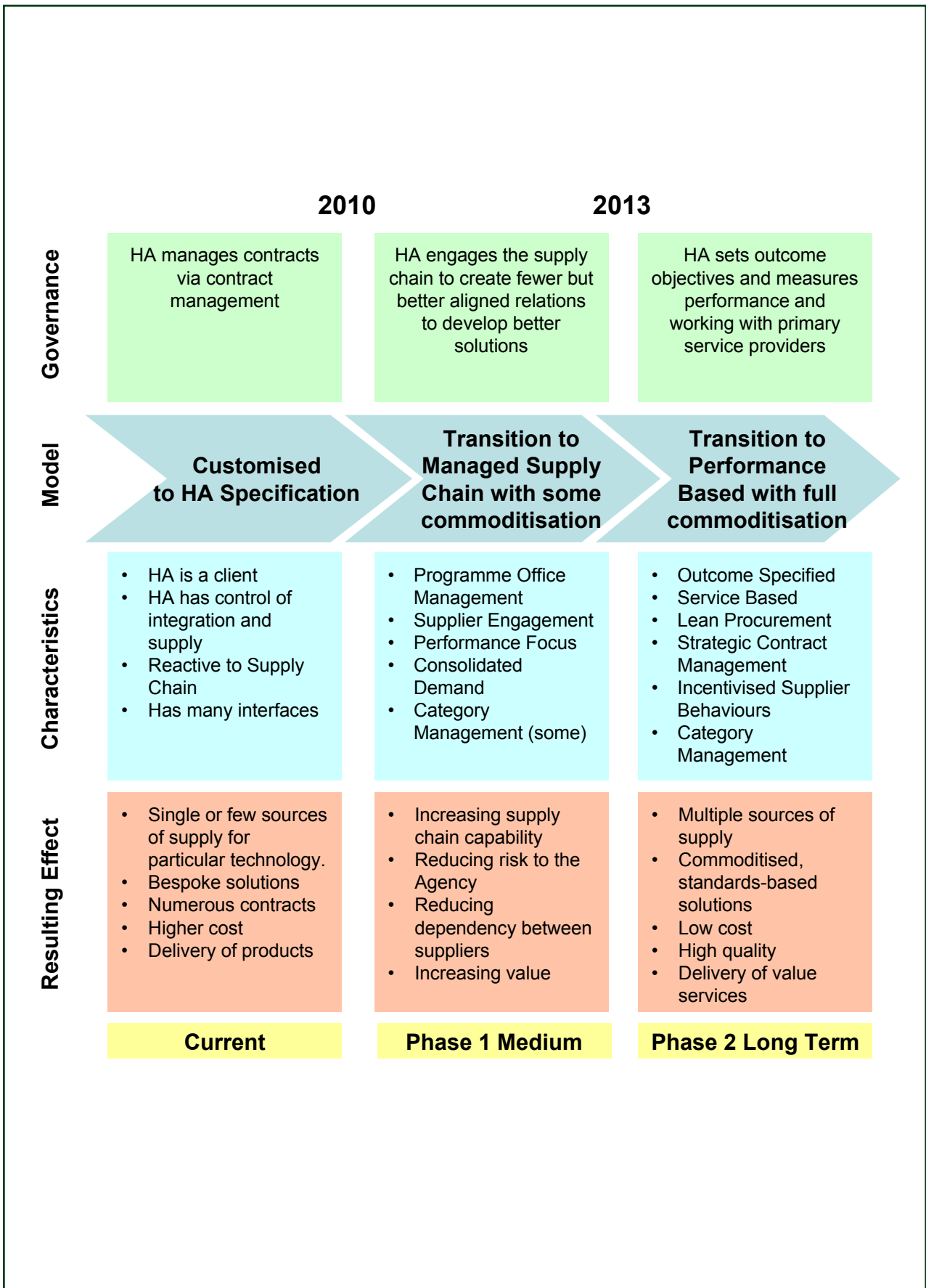
Phase 1: The focus will be on increasing efficiency and effectiveness to deliver better value and reducing supply chain risk for the Agency by moving to a Managed Supply Chain and by defining the Industry Architecture with its open standards and systems.

Phase 2: Longer term procurement will move the industry to a Service Level basis (Managed Services) where performance is measured on outcomes. Implementing the Industry Architecture will deliver adaptability, lower cost and additional value.

Communication with suppliers, client organisations, professional groups and within the Agency will be an essential aspect of both phases of delivery of Procurement Improvements.



Figure 2: Improving Traffic Technology Procurement



6 Delivering the Improvements

6.1 Phase 1 Managed Supply Chain

During this phase the Agency will:

1. **Review all contracts for specialist technology requirements to reduce overall number of contracts**, to identify options for the Agency to novate and/or consolidate the contracts prior to contract renewal or change.
2. **Engage with the industry** to build on the Traffic Technology Procurement vision in order to encourage and understand how the supply chain can add value and move quickly in the Agency's direction of travel.
3. **Engage with Department for Transport (DfT), Local Authorities, standards and technology organisations.** The Agency will work with DfT, Local Authorities (LAs), OGC Buying Solutions, Highways Efficiency Liaison Group, County Surveyors Society and others, to identify opportunities for lowering cost through aggregating demand and alignment of approaches.
4. **Identify existing bulk supply arrangements, particularly with limited net value and higher risk.** Where such contracts are due for renewal the Agency will explore the feasibility of the management of supply directly by the supply chain. Where such contracts are not due for early renewal we will look for opportunities for early termination or voluntary transfer to lead suppliers.
5. **Review contracts to include performance targets and measurement.** The review will consider retrofitting arrangements to existing contracts and ensure that all future contracts include performance targets and incentivisation developed from the Agency's Motivating Success Toolkit.
6. **Identify and produce a plan to better manage and apportion risk with the supply chain**, particularly in relation to arrangements involving specialist suppliers. It will encourage lead suppliers to consider how they can more effectively manage the Agency's requirements,
7. **Ensure Procurement Planning is integral to the development of the Traffic Technology Strategy.** This will ensure that all technology initiatives take "whole-life" considerations into account; these will include supply chain risks, as well as the most appropriate procurement route.
8. **Engage with suppliers to define an Industry Architecture** that supports standards-based commodity technology, allows value added services and facilitates supply chain integration and flexibility. The Architecture will complement the Agency's Enterprise Architecture
9. **Identify early opportunities for commoditisation.** The Agency will explore opportunities during Phase 1 to switch from customised or specialised technology to more generic technology with increased security of supply and lower cost.
10. **Develop the best contract model for delivering a Managed Supply Chain and Managed Services.** The Agency will work with the lead suppliers to consider the appropriateness of alternative, innovative contract models including 'Construction Management Frameworks' and 'Alliances'.

6.2 Phase 1 Industry Initiatives

During Phase 1 the industry will need to review and reconfigure its supply chain as appropriate, including:

1. Considering the creation of alliances, partnerships, consortiums etc. to research, develop, install, maintain, refresh, and retire products and services based on the Industry Architecture.
2. Tier 1 companies encouraging and co-ordinating the supply chain to participate in the Agency / Industry forum established to define the Industry Architecture.
3. Suppliers moving to Managed Supply Chain and output based performance incentivisation.



6.3 Phase 2 Service Level / Managed Services

During this phase we will aim to:

1. **Secure or renew traffic technology contracts with outcome based performance targets.** The Agency will develop services based contracts that include performance targets and payments based on outcomes.
2. **Review all new or renewed traffic technology contracts for opportunities to use commoditised products and services.** The procurement and use of standards based products and services will become more common and will be procured within the supply chain. Where the Agency continues to procure directly it will aim to procure commodity products and services available from more than one supplier.



7 How Can You Help to Deliver these Improvements?

After reading this document and the Agency's main Procurement Strategy, please write to the Agency suggesting:

- ways in which the Agency and industry can work more effectively together, particularly how the Industry Architecture can be quickly defined and adopted;
- how the industry will need to adapt to help deliver the Agency's vision and how quickly that can be achieved;
- how the industry can research, develop and deliver technology solutions based on open standards and systems in accordance with the Industry Architecture;
- how quickly the industry can move to managed supply chain and then to providing managed services;
- how new contracts might better motivate and reward suppliers who together deliver superior service whilst also ensuring competition, value propositions and innovation;
- the barriers and constraints that need to be overcome in the early stages and how these could be addressed.

Comments should be sent to **Neil Partridge** at ittp@highways.gsi.gov.uk



Glossary of Terms

Control Office Base System (COBS)

The COBS is the computer system used in the Control Offices by the police authorities for accessing the motorway monitoring equipment and matrix message signs.

Commoditisation

The process by which a good or service, once unique or superior, become similar goods and services. This facilitates mass production leading to lower prices.

Common Platform

Is a technology infrastructure that allows numerous suppliers to provide hardware & software that can interwork as they conform to a set specification.

Enhanced Traffic Management Capability

The ability to use Active Traffic Management Technology to facilitate improved incident response through the comprehensive driver information signalling and the ability to make temporary increases or reductions in lane availability.

Enterprise Architecture

This describes an organisation's IT applications, data and systems with their relationships to the enterprise business functions and goals. Together these deliver the IT solutions to meet both present and future business needs.

Managed motorways

This technique enables increased capacity on the motorway network by using the hard shoulder as an additional controlled running lane. Supported by Active Traffic Management, to manage and control traffic in each lane to ensure safety and free flow, it avoids the expense of building additional lanes.

Open Standard

An open standard is a standard that is publicly available and has various rights to use associated with it. Often proprietary or historic specifications become the de-facto standard. For example the internet standard TCP/IP does not exactly map onto the ISO Reference Model.

Reference Documents

Highways Agency Traffic Technology Strategy, April 2008
Highways Agency Procurement Strategy 2009
Highways Agency Managed Motorway Proposal
Traffic Management Act 2004 Order 2006
The Public Contracts Regulations 2006



