



Joint Chairs Group

The UK's National Technical Framework
for Intelligent Transport Systems

Introduction to the National Framework

NTFI00–1.0

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The National Framework for ITS is supported by:



Introduction

Technology in transport

The use of what we now call “information and communications technology” in the management of transport is not new: systems like traffic lights and railway signalling have been in use for something like 100 years. It has, however, increased dramatically over the past decade or so in terms of capability, cost-effectiveness, and centrality.

It is arguable that the transport world has been relatively slow to acknowledge what much of industry has recognised for some while: technology is now business-critical, and not just something to be left to “the IT department”. This is changing rapidly, and a new generation of leaders is bringing in information-age understanding to complement transport’s civil engineering and operations-led heritage.

But it is hard work. Traditional transport technology is specialised, and has its own language and concerns which can seem a long way from business or policy goals. Because of this, there is a risk that “ops” and “the techies” don’t speak to each other, and miss out on real opportunities for benefit.

Nowhere is this more significant than in local transport authorities: a highly diverse portfolio (highways maintenance, gritting, traffic management, car parking, safety schemes, public transport etc), complex links out into other departments (education, social services, waste, policing), strapped for resources and trying to fulfil a welter of policy targets.

The National Framework for ITS

“Intelligent Transport Systems” (ITS) refers to the use of information and communications technology in the transport context. It covers many different systems, from motorists’ satnav to traffic lights, from automated train announcements to web journey planners, from airline check-in kiosks to pollution monitors. Some ITS are localised and have a technical function – sensors, for example, or barrier actuators; some are much more broad and strategic – management information systems. And new ITS are constantly emerging.

To help senior managers understand ITS, and exploit them effectively, the National Framework for ITS has been conceived. This Framework builds on a huge amount of existing work within public and private sectors, much of it collaborative, and documents a set of common recommendations for the development and deployment of ITS.

About the Joint Chairs Group

The Joint Chairs Group (JCG) is the national body responsible for developing and publishing the National ITS Framework.

JCG brings together a wide range of stakeholders involved in setting UK ITS standards and specifications. Its role is to collate and harmonise the work of key sector-specific groups:

- ITSO, for smartcards and related media
- RTIG, for public transport: primarily buses at present, but beginning to work more closely with the rail industry
- UTMC, for road network and traffic management (incorporating TIH, for business-to-business exchange of travel data)

Each of these groups produces more detailed guidance for practitioners and industry in their specific area, and is happy to be contacted directly on relevant matters. Contacts are provided at the back of this note.

JCG benefits from representations from Department for Transport, Highways Agency, innovITS and ITS(UK), whose support for this project we welcome and acknowledge. We are also delighted to acknowledge the support of PTEG and ADEPT for the National Framework project.

About the Framework

History

The concept of a National Framework for ITS in the UK has been around for at least twenty years, in various forms, at least in part because other developed countries have had something similar. There were diverse views on what it should look like, or how it should operate, or how strongly it should be enforced.

From about 2000 the idea of something looser than a formal “systems architecture” began to gain currency, as something that enabled a degree of practical coordination without constraining local innovation. By the middle of the decade, the Joint Chairs Group was practising a degree of coordination at programme level, behind the scenes, with some of the UK’s most significant specification groups.

In 2009 it became clear that, in some areas, there was sufficient technical commonality among the various initiatives to justify the publication of some agreed “ways of doing things” which transcend locality, sector or function. The JCG is now in the process of creating and releasing these as the National Framework.

Nature

The Framework consists of a series of Guidelines, each of which summarises the current state of play in a relevant technical area. High level recommendations are provided on how the area should be approached, and why.

The Framework (and its component parts) is not a regulation or a standard, and has no force other than the force of consensus.

The Framework is aimed principally at the UK context. It is built on the UK market structure and policy directions, and takes into account our position in Europe and our technical strengths. However it is not “restricted” in any sense, and we are happy to hear from overseas practitioners of how it may or may not be relevant in their contexts.

Some parts of the Framework are necessarily a little technical. However we have tried to keep this to the minimum necessary to explain context. Framework Guidelines are not detailed standards to develop systems against.

Audience

In content, the Framework provides both a Business Manager's introduction to the role of technology (and some of the systems he/she will encounter), and a guide to good practice in transport technology strategy, suitable for a Chief Information Officer or IT Director. It aims to help these people understand the opportunities and efficiencies to be gained by sharing transport systems resources.

Equally importantly, it helps set a direction for those who write specifications and develop systems, so that they can "plug into" transport business networks quickly, cheaply and easily.

Development

The JCG is developing the National Framework for ITS principally by distilling common elements out of the more detailed work undertaken by its constituent groups.

It is likely that this will continue to be the predominant development channel. Accordingly, each component of the Framework will have a "lead group" chosen from among JCG participants, which undertakes the principal work and coordinates with other relevant parties. Comment on a specific Guideline should be addressed, in the first instance, to the lead group.

However the JCG welcomes feedback on the nature and structure of the Framework as a whole, including areas where stakeholders feel that there is unexplored scope for improving efficiencies. We cannot commit to fulfilling all requests but will give them all serious consideration.

Current components of the Framework

The National Framework for ITS is being generated and released over a period of time. Partly this is to allow for consultation and feedback on individual Guidelines; but it also allows JCG to monitor the marketplace value, in a measured way, of the Framework as a whole.

At the publication date of this document, the Framework contains one published Guideline with one further Guideline in development.

NTFI-01 Communications

Communications networks underpin many kinds of transport technology. There are major efficiencies that can be gained by sharing network capacity, especially now that so many systems use internet standards. However technology projects still often establish separate comms solutions. This Guideline explores some of the commercial, operational and technical issues involved in achieving a joined-up (if complex) comms network for transport systems.

Status: version 1.0 published April 2011.

NTFI-02 Data exchange

Many of the more complex transport business systems require the exchange of data between systems or between organisations. There are numerous technical ways to do this, and a significant amount of unpicking and re-knitting can be required to achieve efficient business processes. This Guideline will outline some of the challenges and the recommended approaches, as well as describing how some of the key technologies (such as XML) should be used.

Status: version 0.1 in development, no completion date announced.

Future components of the Framework

The JCG is open to suggestions for additional components of the National Framework for ITS. As at the publication date of this document, the following additional components have been suggested.

Incident management

Information standards are beginning to emerge which will make it easier for the right information to get to the right people, quickly. This Guideline would survey the current framework and suggest some operational practices that will make it quicker and easier to respond to unforeseen events.

Status: under consideration

Data protection and privacy

Some ITS handle sensitive data, in particular personal data which is subject to Data Protection legislation. There are legitimate concerns about the where and how these systems may be used, and the constraints that need to be put in place to provide adequate protection. However the details are complex and practitioners will often err on the side of caution, and miss out on opportunities, or (worse) fail to take adequate precautions. This Guideline would provide a review of Information Commissioner advice and other key rulings, in the context of integrated transport systems.

Status: under consideration

Smartcards

Smartcards are cheap but powerful mechanisms for individual users of the transport network, usable for services from simple access control to fare optimisation. DfT published its *Smart and Integrated Ticketing Strategy* in December 2009 and the Government has confirmed its support for the smartcard agenda. However there is widespread uncertainty about how to go about implementing a practical smartcard project beyond the simplest services. This Guideline would explore some of the practical considerations in designing and implementing systems, including for cross-boundary use.

Status: under consideration – ITSO currently reviewing its published guidance

Organisational

Implementing ITS in a coherent form requires input from a wide range of different stakeholders, and this inevitably poses a risk. The principal way of mitigating this risk is to adopt a structured approach where people all understand their roles and can contribute actively. This Guideline would review the project management issues that arise, and how and where they have succeeded. In particular it would deal with issues like when to seek outside help and when not to, how to deal with personnel changes, and how to design a system that will be robust in a crisis.

Status: under consideration

Data Harmonisation

This Guideline would encourage the use of the same data everywhere, e.g. traffic flow is always measured in vehicles/hour, or if not when is it appropriate to use another form of measurement.

Status: initial suggestion

Standards

This Guideline could cover standards, their use, their creation and from where they can be obtained.

Status: initial suggestion

Services

This Guideline would provide advice on how to define services. It could include examples of the most commonly used services, and in particular covers cooperative systems. It could define a core of basic services that potential users of ITS should know about.

Status: initial suggestion

Applications

Similar to (and possibly linked with) the previous Guideline, this would aim to define a set of core applications that potential users of ITS should know about. In order not to completely stifle innovation, the Guideline should say what the applications do but not how they do it.

Status: initial suggestion

Contact details

The Joint Chairs Group is grateful for the hard work of all those that have contributed to the National Framework either directly or through its member groups. Please feel free to contact any of the following for further information:

ITSO

Email: info@itso.org.uk

RTIG

Email: secretariat@rtig.org.uk

UTMC/TIH

Email: secretariat@utmc.uk.com

For specifically JCG matters, please contact the JCG Secretary directly at mark.cartwright@centaurconsulting.co.uk