

## Project POSSE: introducing Europe to practical standards-based systems

Mark Cartwright, UTMIC Ltd, United Kingdom

### 1.1. About POSSE

- 1.1.1. POSSE was set up to raise awareness of the need for open specifications and standards for road-based transport management and to share the experiences of existing open system frameworks in Europe. A central objective of the project is to build the capacity of transport authorities to implement open specifications and standards. To this end, POSSE will facilitate knowledge transfer between the existing open standards and specifications frameworks (UTMC in the United Kingdom and OCIT/OTS in the German speaking part of Europe) and public authorities wishing to move towards open systems. These public authorities, referred to as the POSSE Transfer Sites, are the cities of Burgos (ES), Pisa and La Spezia (IT) and Klaipeda (LT), the Norwegian Public Roads Administration and the Czech Transport Research Centre (CDV). With the expertise of the main technical partners, they are each developing a plan for implementing open standards and specifications. POSSE is also drawing up good practice guidelines covering the processes and considerations required for the specification and implementation of open ITS systems and standards.
- 1.1.2. We are grateful to the funding bodies for POSSE, in particular the INTERREG IVC Programme of the European Commission, the national co-financing from the Department for Transport, and the contributions from all of the partner sites (including under the ERDF/Norwegian Fund). We are grateful for the information provided by the OCA, which (together with the UK's UTMIC) is the principal source of experience provided under the POSSE project.

### 1.2. UTMIC: a reminder

- 1.2.1. UTMIC is a UK-based initiative which aims to improve the effectiveness of traffic and transport management systems. It is managed by a community group (the "UTMIC Development Group", UDG) which brings together transport authorities and systems suppliers, and works closely with central Government.
- 1.2.2. Prior to UTMIC, traffic management systems in the UK were bespoke: designed and manufactured by each supplier to its private specification. As a result, transport authorities were "locked in" to their specific suppliers, for system maintenance, upgrade and replacement. More importantly, it was very difficult to connect systems together, which seriously held back the fulfilment of transport policy objectives such as emissions control and public transport priority.

- 1.2.3. The primary tool of UTMC, therefore, is its open systems framework: a continually-evolving set of specifications for interfaces between different systems. Unlike typical standards activities, it focuses on achieving practical solutions for today’s projects and tomorrow’s anticipated problems, rather than an idealised solution for all contexts.
- 1.2.4. The UTMC Technical Specification is freely available from the UTMC website (in English only). It covers many different functions: traffic signal management, variable message signs, CCTV, car park guidance, air quality sensors, automatic number plate recognition, etc. And the range is continually expanding, as new technology industries align with UTMC: for instance, we are currently extending the air quality specification to include a wider range of vehicle emissions data, and the incorporate weather sensor data. To use UTMC, both UK transport authorities and their suppliers have needed to learn new skills of system design and integration. These are not trivial – but the results have been worthwhile, in terms of improved flexibility, quicker projects, more innovation, and reduced costs.

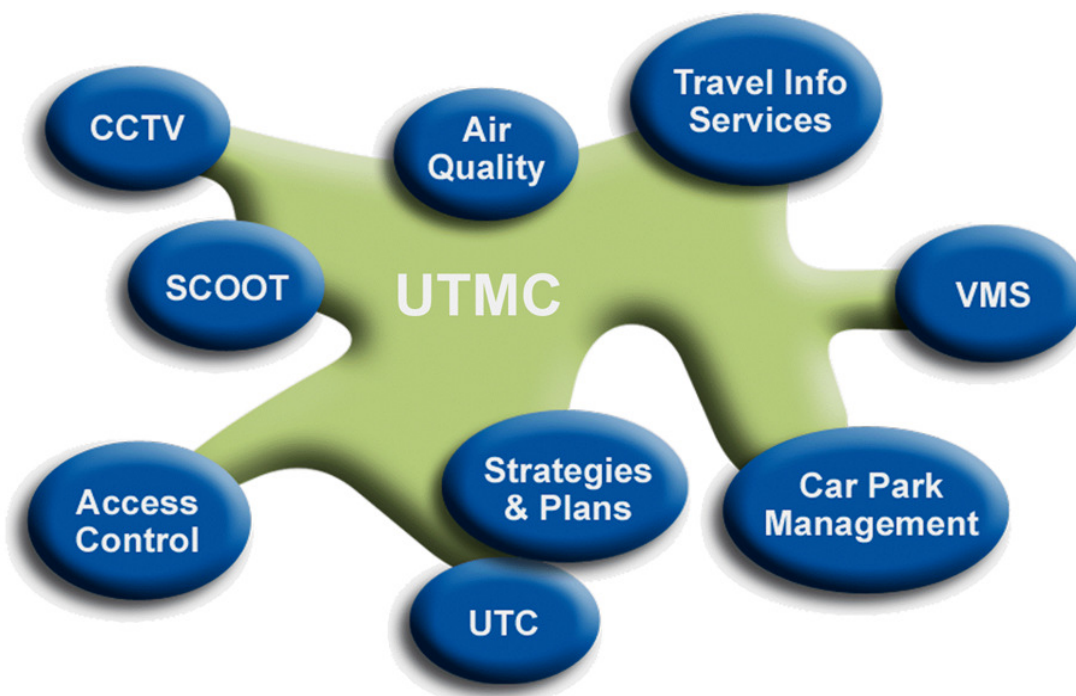


Figure – the UTMC Concept

- 1.2.5. UTMC will continue to respond to market demands. One of its aims – particularly in light of the European ITS Directive – is to become more capable of supporting transport authorities and system suppliers outside the UK.

### 1.3. OCIT/OTS

- 1.3.1. Local Authorities in the DACH area (Germany, Austria and Swiss) were already under pressure as early as the nineties to bring down costs for traffic signal procurement by opening up the market to competition. One initial reaction was to establish individual procurement standards within individual local authorities. Examples have been BEFA 15 derivatives (Hanover, Nuremberg), TELIS (Regensburg) and VNetS (Munich). These interface standards were designed to break the usual vendor lock-in so that traffic control centres and traffic signal controllers could be tendered as separate lots under competitive conditions. This local authority-led initiative would have created incalculable risks for the suppliers of these systems and therefore prompted them to act. The systems suppliers started the OCIT® initiative in 1999 (OCIT® stands for Open Communication Interface for Traffic Systems, see [www.ocit.org](http://www.ocit.org)), which aimed at replacing the local authority specific standards with a single, open industry standard. The local authorities then founded an association named OCA (Open Traffic System City Association e.V., see [www.OCA-eV.org](http://www.OCA-eV.org)) to determine their interests and to play a role alongside industry in this standardisation process.
- 1.3.2. The OCIT initiative was originally focused on traffic signal control. In parallel, the new domain of traffic management had evolved considerably, leading to new and more requirements on system-level interoperability and interfaces between urban traffic systems, but also beyond, on the urban/inter-urban interface as well as on the interface to public transport. OCA therefore took a decision in 2004 to launch the Open Traffic Systems (OTS) initiative, which resulted in 2009 in the so called OTS Framework as the conceptual foundation for the introduction of open distributed system architectures in the traffic domain. The OTS framework consists of several components, which include a guideline and a process model for the maintenance of OTS, as well as a meta-model for the architecture of urban ITS and the communication standard OTS for ITS data exchange.
- 1.3.3. One element of OTS is the OTS data model which covers the traffic signal control domain and is based on the results of the OCIT initiative. For traffic management requirements that go beyond traffic signal control, OTS incorporates the DATEX II data model and extends this where needed. It should be noted that the OTS communication standard is not restricted to the standardisation of the data to be exchanged, but also provides its own exchange protocol specification, with a special focus on requirements from urban traffic management related to bidirectional, cross-organisation data exchange.

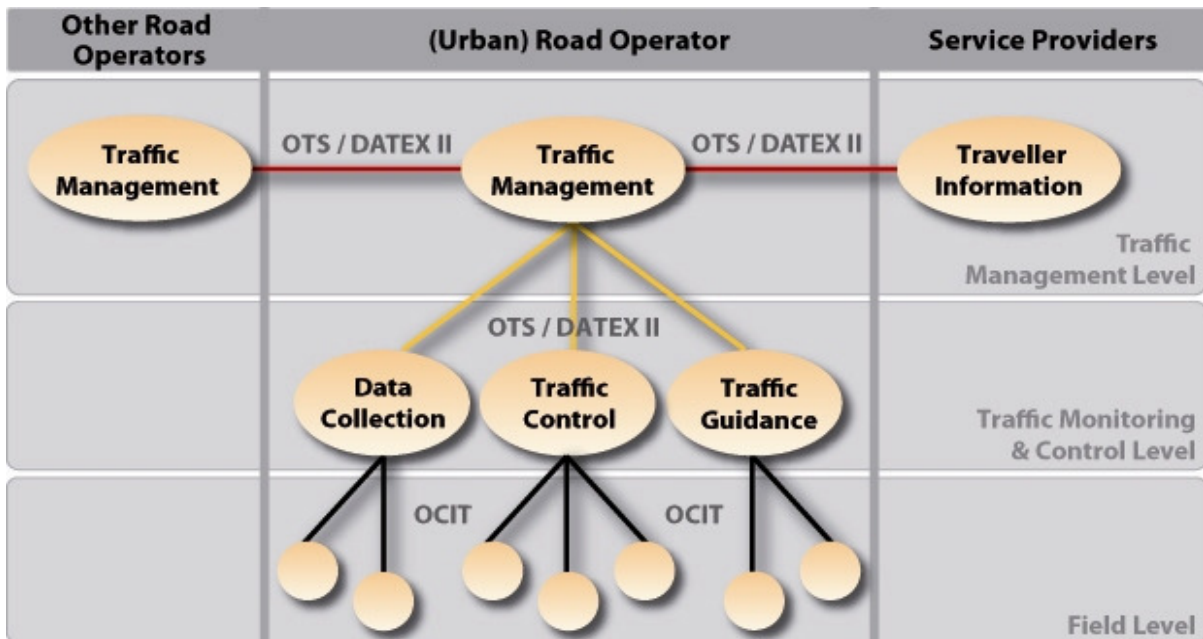


Figure - OTS System Model

### 1.4. The POSSE experience: one size does not fit all

- 1.4.1. The early stages of POSSE have focused on gaining a mutual understanding, among the project partners, of the context and challenges of individual cities. This has been highly beneficial in identifying both where there are similarities and where there are differences. Some similarities follow directly from the common European context. All cities are trying hard to improve the flow of public transport, to improve road safety, and to reduce overall vehicle emissions. Of course some have a bigger challenge than others.
- 1.4.2. Interestingly, the differences do not always reflect cross national boundaries. For instance, the presence of a seaport handling a lot of freight vehicles is critical to traffic management in Klaipeda and La Spezia, which are coastal, but irrelevant to inland cities Brno and Burgos. Based on this understanding, UTMC and OCA are now conducting a review of existing users, to identify where open specifications and standards have assisted in the delivery of cities’ objectives.
- 1.4.3. In order to be realistic, interviewees have been encouraged to say where things might have been better – as well as where they have gone well. The results will be published as an “existing user survey”. The initial reports are encouraging. UTMC for instance is seen as having been especially useful in areas where local authorities are relatively unskilled, as it has removed some of the risk of system procurement and operation. However there are still challenges, notably how to cost-effectively validate the compliance claims of suppliers.

- 1.4.4. Following on from this, a horizontal analysis will be undertaken to determine the approaches which have been most successful. This will be distilled into a “guidelines” document, to be published around the middle of 2013. It is hoped that this will help decision-makers around Europe develop their ITS policies – not only in the transfer sites themselves, and in their national Governments, but also in the UK and Germany, as they learn from mutual understanding and the feedback from transfer sites.