

# **ATLANTIC / e-Europe 2002**

## Practitioners' Handbook for TTI Service Implementation in European Cities & Regions

### Deliverable D6.4

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## **Disclaimer**

The views contained in all ATLANTIC publications and on the ATLANTIC web site are those of the authors concerned and do not necessarily represent the policies of any of the funding bodies. Users are advised to make their own independent checks on the accuracy of forecasts or opinions quoted.

## ATLANTIC WP5 & WP6: Deliverables overview and relation

The deliverables in ATLANTIC workpackage 5 and 6 provide a structured overview of achievements, findings and conclusions. They equally reflect the methodological approach and the strategy for a targeted dissemination of results and recommendations. With respect to the extent of the information gathered, analysed and documented, the following overview should facilitate orientation and reference for the reader (Table 0.1).

**Focused  
documentation of  
results**

**Table 0.1: Overview and relation of WP5 & WP6 deliverables**

*Italics = high-quality printed edition*

Rationale	No.	Title	Target Group(s)
Empirical Analysis	D5.0	TTI Implementation Status Analysis in Europe Vol.I: Approach and key findings Vol.II: National reports Vol.III: TTI service descriptions	All stakeholders of TTI service implementation in Europe
	D5.1	TTI service delivery in Europe - Good practice case studies and key actor interviews	European Commission
Stakeholder discussion	D6.2	Focus Group Proceedings on TTI deployment	All stakeholders of TTI service implementation in Europe
	D6.6	Final Conference and proceedings	All stakeholders of TTI service implementation in Europe
Targeted recommendations	D5.2	Recommendations on framework conditions for the deployment of TTI services in Europe	European Commission, decision makers at national level, private sector, European networks and associations
	D6.4	<i>Practitioner's handbook for TTI service implementation</i>	<i>Practitioners of TTI service implementation in European cities and regions (public &amp; private sector)</i>
Dissemination of results	D6.1	Powerpoint presentation on framework for TTI deployment and eEurope Transport objectives and recommendations for use at conferences and outreach events	All stakeholders of TTI service implementation in Europe
	D6.3	<i>Good Practice in TTI service implementation (glossy edition)</i>	<i>All stakeholders of TTI service implementation in Europe</i>
	D6.5	<i>Joint Country reports (glossy edition)</i>	<i>All stakeholders of TTI service implementation in Europe</i>

In order to improve the practical utility of reports and ease the problem of cross-referencing, all deliverables in workpackage 5 and 6 have been conceived as self-standing documents. Since the target groups partly differ, the objective was to provide any reader of the deliverables with all necessary components to comprehend the respective topic and scope without requiring a parallel consultation of reports. For this reason, some chapters have been included in more than one deliverable (Table 0.2).

**Deliverables are self-standing documents**

**Table 0.2: Partial repetition of deliverable chapters**

Chapter heading	Content	as contained in (chapter no.)
ATLANTIC objectives and approach	General introduction to the project (for readers not familiar with ATLANTIC)	D5.2 (1), D6.4 (1)
Objectives and vision for TTI service deployment	Present policy orientation and goals at European level	D5.2 (2), D6.4 (2)
State-of-the-art in TTI service deployment	Framework conditions, current status and trends for TTI service implementation in Europe	D5.0 (Vol.I, 2), D5.2 (3.1-3.3), D6.4 (3.1-3.3)
Conceptual frame for implementation	Results of empirical analysis and stakeholder discussions regarding service delivery models, framework conditions and stakeholder positions	D5.2 (4.1-4.3), D6.4 (4.1-4.3)

# 1 ATLANTIC objectives and approach

## 1.1 General objectives

ATLANTIC is a thematic network funded by the Directorate General Information Society of the European Commission. The aim of ATLANTIC has been to enhance discussion and knowledge exchange between researchers in the field of Intelligent Transportation Systems (ITS) in the US, Canada and Europe. Through the web-based ATLANTIC electronic Forum<sup>1</sup> and international meetings, key individuals involved in ITS research and development have participated in a common benchmarking initiative. This concerns the coverage, content and results of ITS programmes in the participating countries on both sides of the Atlantic.

A particular focus within ATLANTIC has been the analysis of framework conditions required for a successful implementation of telematics-based Traffic and Traveller Information (TTI) services in the EU and Central and East European (CEE) countries. ATLANTIC has aimed to support the European Commission in defining a Community TTI policy through the collation and dissemination of current knowledge and good practice from leading examples of telematics-based TTI services.

Therefore, the work on TTI services within the ATLANTIC project has been targeted at three overall goals:

- To generate a pool of expertise and know-how of TTI service implementation in cities and regions across Europe, analyzing regulative frameworks for the information chain, feasible business models, new technological concepts and organisational structures in enabling the delivery of quality TTI.
- To help establish consensus amongst public and private stakeholders on their respective roles in TTI service provision.
- To provide recommendations for European, national and local policy decisions, taking into account the specific interests and objectives of public and private actors.

**Analysis of  
conditions for a  
successful  
implementation of  
TTI services**

**Knowledge base,  
stakeholder involve-  
ment and policy  
recommendations**

## 1.2 Operational approach of ATLANTIC

ATLANTIC has started with a broad information collection campaign across Europe and carried out general analyses as well as detailed case studies. The project has invited all principal actors and stakeholders in TTI service deployment to participate, facilitating the discussion and analysis of key issues between them. In logical order the different worksteps undertaken have been:

<sup>1</sup> <http://www.atlan-tic.net>

- Reports on the state-of-the-art, current trends and obstacles in TTI service deployment in 25 European countries have been prepared by national experts and validated by government officials from the respective country. The reports include a totality of 187 short descriptions of implemented TTI services based on a common format.<sup>2</sup>
- 45 individual interviews have been held with selected key stakeholders from the public and the private sector in Europe, in order to obtain a detailed insight into crucial issues of TTI service implementation.
- 19 good practice reference cases with particularly positive results in terms of policy compliance, service delivery efficiency and/or user benefits have been prepared, focusing implementation frameworks and impacts.<sup>3</sup>
- 2 web-based discussion groups on TTI have been moderated, where experts and practitioners exchanged their views and insights on the topics identified.
- 5 Focus Group meetings have been held between April and December 2002 for the discussion of key topics in TTI service deployment, each involving 6-12 stakeholders from the public and the private sector from across Europe
- 2 major TTI service stakeholder Fora have been organised in parallel to the POLIS annual conference and to the Smart Moving Conference prepare by ITS UK, each involving over 100 participants.<sup>4</sup>
- 3 final Validation Workshops have been held for the discussion of the ATLANTIC draft recommendations, each involving 6-12 stakeholders from the public and the private sector from across Europe

All worksteps have thus contributed to the final formulation of policy recommendations.<sup>5</sup> To improve their practical relevance and impact, these have been divided into two sets according to the respective target groups and implementation levels:

1. Recommendations on framework conditions for TTI service deployment in Europe, addressing the main stakeholder groups (See D.5.2).
2. Recommendations on TTI implementation in cities and regions, addressing practitioners at the local level (this issue).

<sup>2</sup> See ATLANTIC D5.0 and D6.5

<sup>3</sup> See ATLANTIC D.5.1 and D6.3

<sup>4</sup> [www.polis-online.org](http://www.polis-online.org)

<sup>5</sup> ATLANTIC Tasks 5.5, 6.2 – 6.5





## 2 Objectives and vision for TTI service deployment

### 2.1 Policy objectives

The cross-sectoral implications of TTI services and the borderless nature of traffic as a societal phenomenon result in a need to examine broader framework conditions when addressing service implementation at the urban and regional level.

Traffic and traveller information (TTI) services are a crucial component of intelligent transport systems (ITS). They are designed to provide relevant information to passengers and freight carriers at the different stages of their journey (pre-, on-, post-trip) and via various delivery channels (phone, internet, VMS, RDS-TMC, etc.).

The development of TTI services addresses a number of interrelated European policy goals that can be divided into two major strands, namely:

1. Sustainable transport development
2. Competitiveness and cohesion

Regarding the first orientation, with its 2001 White Paper on transport policy for 2010 the European Commission defined four overall objectives for transport development:<sup>6</sup>

- Shifting the balance between transport modes
- Eliminating bottlenecks
- Placing users at the heart of transport policy
- Managing the globalisation of transport

TTI services are expected to contribute to these aims, and they do this through the generally accepted policy goals for Intelligent Transport Systems (ITS) applications, namely to:

- improve the efficient use of existing infrastructures
- advance transport safety
- promote intermodality and modal shift
- improve traffic management & control

TTI services' specific functions in pursuit of these goals are the following:

- provide (intermodal) pre-trip planning

**Conditions for  
urban / regional TTI  
services**

**2001 transport policy  
White Paper**

**Policy goals for ITS  
and TTI services**

<sup>6</sup> COM(2001) 370; Annex IV

- provide (intermodal) on-trip orientation & guidance
- more easily facilitate ticketing and billing

In performing these functions TTI services are expected to:

- address the needs of logistics, commuters, travellers, etc
- ensure continuity across spatial boundaries

One aim of TTI services is to influence decisions of travellers about using transport modes and travel routes, enabling multi-modal travel planning and routing in real-time.

Closely tied in with the policy goal of sustainable transport development are certain cross-sector policy goals which form part of the second “competitiveness and cohesion” policy strand. These include, in particular, the promotion of the competitiveness of a city/region (e.g. the enhancement of IT image and business investment, development of a tourism and leisure profile); and the promotion of public services (e.g. improving the image of public transport services). TTI services can also offer users convenient choices for buying value-added services (e.g. location based information), which makes the purchase and availability of services more widespread.

This second orientation is implied in the strategic objective stated at the 2000 Lisbon summit for the EU to become “the world's most competitive and dynamic economy”. This ambitious goal is closely linked to the deployment of information society technologies and the development of a “knowledge economy”.

In order to accelerate the development of the information society in Europe and to ensure its potential is available for everybody, the European Council and the European Commission have launched the e-Europe 2002 initiative. In February 2002 the responsible EU ministers agreed to extend the e-Europe 2002 Action Plan to 2005.<sup>7</sup> The development and implementation of TTI services addresses most priority areas that have been identified for e-Europe:

- Implement the new framework for the delivery of electronic communication services<sup>8</sup>
- Build up high-speed communication infrastructures
- Encourage applications for e-Commerce, especially in the business-to-consumer (B2C) sector
- Ensure social inclusion
- Enhance public information procurement and e-Government
- Safeguard secure networks and data protection

<sup>7</sup> COM(2001) 140 final; COM(2002) 263 final

<sup>8</sup> COM(2001) 372 final

**TTI services can support intermodal traffic management and route planning ...**

**...promote cities, improve the image provide added value and ensure social inclusion**

**2000 Lisbon Summit targets**

**e-Europe 2005: Develop the information society & ensure social inclusion**

- Improve mobile communications (3G networks, Galileo)

Stimulating effects for the economy and competitiveness may result in particular from the potentials of integrating TTI services with other services and products, and from the emergence of value-added service providers (VASP) combining multiple data sources.

**Stimulating economic effects and location policy**

## **2.2 European policy guidance on TTI**

### **2.2.1 Commission Recommendation**

Until now, the only EU policy document explicitly addressing TTI services is the Commission Recommendation on the development of a legal and business framework for the participation of the private sector in deploying TTI services, issued in July 2001.<sup>9</sup> This EC instrument has been devised to enhance TTI service implementation by facilitating private sector involvement and developing an open market for TTI services. It suggests in particular the following key tasks for public authorities:

- Provide and disseminate a regulatory framework for TTI services
- Adopt principles for access to public traffic data, the exchange of public and private data and the interconnection of transport databases (inter-administrative)
- Regulate the usage and requirements of proprietary traffic and travel data
- Ensure observance of road infrastructure hierarchies and traffic management strategies
- Create an enabling framework for public-private partnerships
- Facilitate TTI services and reduce constraints

Private sector involvement is expected to facilitate public administration tasks, reduce financial burdens on public budgets, improve the quality of services, allow more and faster realisations, and increase the transparency and acceptance of implementation projects. This can only happen if an adequate policy frame is in place.

**Facilitate private sector involvement to achieve policy goals**

### **2.2.2 TTI related EU policies and initiatives**

Apart from the above mentioned, there are a number of policies, programmes and initiatives developed by the European Commission that have an important impact on the further deployment of TTI services.<sup>10</sup>

<sup>9</sup> C(2001) 1102 final

<sup>10</sup> For a general overview see also: <http://europa.eu.int/comm/transport/themes/network/english/its/html/index.html>

A revision of the guidelines for the development of the Transeuro-pean Transport Networks (TEN-T) is currently under way.<sup>11</sup> While the initial version of the guidelines dating from 1996 already addressed the implementation of ITS, the revision is expected to make ITS a condition for funding. It therefore provides a ground for the deployment of basic "infostructure".<sup>12</sup>

### **Revision of TEN-T guidelines**

The EC is proposing a directive on tolling schemes for road user charging.<sup>13</sup> The proposal aims to ensure full interoperability by 2010 between the different (and partly incompatible) national systems currently deployed. The directive will of course influence the availability of traffic data and the cross-border delivery of information services.

### **Proposal directive on road toll systems**

In the domain of e-Safety for road transport a working group was established by the European Commission and other stakeholders in 2001. In 2002 this group published its final recommendations, including the establishment of an e-Safety Forum as a joint platform for all stakeholders to promote and monitor the implementation of the recommendations.<sup>14</sup> For 2003, eight thematic sub-groups have been created, one of which is dealing with TTI. The sub-groups aim to elaborate recommendations and prepare consensus between the different players involved.

### **e-Safety Forum**

The guidelines for transeuropean telecommunications networks (e-TEN) address interoperability, deployment of services and applications of common interest, improving access to all kinds of information and cross-border delivery as priorities, among others. Action line 1 of the e-TEN working programme includes TTI as part of public service procurement and a means to improve its effectiveness, efficiency and quality.<sup>15</sup>

### **e-TEN guidelines and programme**

A considerable impact on TTI service development can also be expected from the launch of the Galileo initiative, providing a system for global satellite navigation in real-time. This system will enable a large number of ITS applications offering referencing and transmission for free and on a commercial basis (service guarantee).<sup>16</sup>

### **Galileo initiative**

A new Memorandum of Understanding (MoU) is being envisaged for DATEX, a standard for the exchange of traffic information widely used in Europe. It is maintained through a dedicated organisation and has been proposed for CEN standardisation. The European Commission is financing a study to identify requirements for a modification of DATEX by 2004, in particular focusing on the availability of data for third parties (service providers). This study

### **Revision of the DATEX MoU**

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<sup>11</sup> <http://europa.eu.int/comm/transport/themes/network/english/ten-t-en.html>

<sup>12</sup> *ibid.* decision No.1692/96/EC and COM(2002) 0542 final

<sup>13</sup> <http://europa.eu.int/comm/transport/themes/network/english/ten-t-en.html>; cf. COM(2003) 132 final;

<sup>14</sup> [http://europa.eu.int/information\\_society/programmes/esafety/index\\_en.htm](http://europa.eu.int/information_society/programmes/esafety/index_en.htm)

<sup>15</sup> [http://europa.eu.int/information\\_society/programmes/eten/index\\_en.htm](http://europa.eu.int/information_society/programmes/eten/index_en.htm)

<sup>16</sup> [http://europa.eu.int/comm/dgs/energy\\_transport/galileo/index\\_en.htm](http://europa.eu.int/comm/dgs/energy_transport/galileo/index_en.htm)

will form the basis for a cooperative discussion process involving all stakeholders.<sup>17</sup>

TTI services are also addressed by the e-Content programme, a market oriented programme which aims to support the production, use and distribution of European digital content and to promote linguistic and cultural diversity on the global networks.<sup>18</sup> This includes the objective of using the potential for the exploitation of public sector information, and thus the development of (cross-border) TTI services. Since the current programme will finish in 2004, there are different options for a continuation, e.g. a split-up of the programme along the various sectors concerned (transport being one of them) or a concentration on common core themes that will have to be discussed.

**e-Content programme  
continuity**

Furthermore, also the creation of the European Research Area supported by the 6<sup>th</sup> framework programme (FP6), as well as the structural funds, accession funds and social inclusion policy respectively have important implications for the further deployment TTI services in Europe.

**Further EU policy  
implications ...**

### **2.3 A vision: TTI service implementation in 2010**

Promoting new applications and procedures requires a vision to guide development and provide the motivation for change.

Throughout the ATLANTIC project, the broad discussion with stakeholders has led to identify a common vision for the development of TTI services in Europe towards the horizon of 2010.<sup>19</sup> This vision describes a (desired) future status of TTI service implementation in reference to the establishment of a common policy framework, operational features, and the actually achieved service levels.

**Vision based on  
stakeholder debate**

This vision provides only a rough outlook on what could be achieved in the years to come, provided that all stakeholders cooperate closely and resolve their respective conflicts of interest. It represents however a benchmark that should guide all actions in the field of TTI services. Starting from this perspective it assumes the Europe-wide availability of the following service features by 2010:

- An evolving common European TTI policy framework, relying on emerging public and commercial TTI services, offering the user a choice of service types.
- Europe-wide minimum service standards developed in response to user needs and based on national and cross-border demonstration projects that have been subject to consistent evaluation.

**TTI services in 2010:  
An overall benchmark  
to aim at**

<sup>17</sup> <http://www.datex.eu.org>

<sup>18</sup> <http://www.cordis.lu/econtent/>

<sup>19</sup> This vision also reflects the results of the DG TREN TEN-T policy/ ITS expert group meeting of 27.6.2002

- Relevant data made available from integrated open data platforms that allow a free development of reliable and affordable user-oriented TTI services.
- All information for the user available from single access points, including a wide choice of delivery channels/devices, covering:
  - Personalised information for end-to-end journey planning (pre-trip, on-trip, any mode, intermodal, door-to-door).
  - Comprehensive information about travel- and service costs, integrating all necessary booking options.
  - Real-time journey support (journey options and user-friendly guidance pre- and on-trip).
  - Easy user interfaces, especially for people with a hearing disability or partially sighted, plus multi-language/ language independent support for commercial drivers, travelers and tourists

### 3 State-of-the-art in TTI service deployment

#### 3.1 Framework conditions

The state-of-the-art regarding framework conditions in Europe shows a complex picture. We find a considerable variety of conditions for TTI service deployment in terms of institutional settings, policy frameworks and regulation, economic and infrastructural development, as well as cultural and cognitive patterns.

**Wide variety of  
framework conditions**

In order to identify the influence of framework conditions, the national status analysis reports prepared by ATLANTIC have been reviewed with respect to a limited number of framework parameters allowing only the values of “yes” / “no”. This approach has been chosen to provide a rough but comprehensive and condensed overview of the status of framework conditions for TTI service deployment in Europe (Table 3.1). The selected parameters are:

**Analysis of  
framework parameters**

##### *National policy*

- Status of ITS in national transport policy as an established key element with a dedicated budget?
- Availability of an approved legal framework for the participation of the private sector in TTI service delivery?
- Availability of a national strategy for the deployment of ITS/TTI, addressing stakeholder roles and a general “road map” for implementation?
- Availability of evaluation guidelines for ITS/TTI for the (voluntary or obligatory) use by stakeholders?
- Financiation and realisation of national R&D projects for the deployment of ITS/TTI?

##### *Data availability*


- Free availability of public traffic data for service providers?
- Legal possibility for private sector parties to collect their own traffic data?
- Existence of currently operative private value added service providers (VASP's)?

##### *Institutional frame*

- Existence of a national “ITS Forum” (formal or informal) for the cooperation of public and private stakeholders?
- Existence of a formal national “ITS association”?



**Table 3.1: Framework conditions and implementation levels of TTI services in Europe**

																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
<b>country</b>	<b>PT</b>	<b>ES</b>	<b>IE</b>	<b>UK</b>	<b>FR</b>	<b>BE</b>	<b>NL</b>	<b>LU</b>	<b>DE</b>	<b>DK</b>	<b>IT</b>	<b>AT</b>	<b>SE</b>	<b>FI</b>	<b>GR</b>	<b>NO</b>	<b>CH</b>	<b>CZ</b>	<b>SI</b>	<b>PL</b>	<b>HU</b>	<b>SK</b>	<b>LI</b>	<b>RO</b>	<b>BU</b>
ITS = key element of transport policy	yes	yes	no	yes	yes	yes <sup>(1)</sup>	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes <sup>(2)</sup>	yes	yes <sup>(2)</sup>	yes	no	yes	no	no
Legal framework for private sector	no	no	no	yes	yes	no	yes	no	yes	yes	yes	no	yes	yes	no	no	yes	no	no <sup>(3)</sup>	no	no	no	no	no	no
national ITS/TTI strategy	no	no	no	no	no	no	yes	no	yes	no	yes	no	yes	yes	no	yes	yes	yes <sup>(2)</sup>	yes	no	no <sup>(5)</sup>	no	no	no <sup>(6)</sup>	no
ITS/TTI evaluation guidelines	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
R&D projects for ITS deployment	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
ITS Forum (open cooperation)	no	no	no	no	no	no	no	no	yes	no	no	yes	no	no	no	no	no	no	no	no	no	no	no	no	no
ITS association	no	yes	no	yes	yes	no	yes	no	no	no	yes	no	yes	no	no	no	no	yes	no	yes	no	yes	no	yes	no
public data available for free	yes	yes	yes	yes	yes	yes	yes	yes	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
private data collection enabled	yes	yes	no	yes	yes	no	no	no	yes	no	yes	yes	no	no	yes	no	yes	no	no	no <sup>(4)</sup>		no			
private VASP's operating	no	yes	no	yes	yes	no	yes	no	yes	yes	yes	no	yes	yes	no	yes	yes	yes	yes	yes	yes		yes	yes	no
19 GPC's selected		1		3	2		2		1	1	1			1		2	1	3		1					

(1) Regional policy; (2) Not much emphasis on TTI; (3) Being considered in CORVETTE project; Possible in PPP projects; (5) But Information Society Strategy including TTI; (6) In development

The picture emerging on the basis of this analysis allows to draw some general conclusions. Concerning the implementation of the Commission Recommendation, only 9 out of 25 countries have approved a legal framework for the participation of the private sector so far. However, without consideration of the CEE region the ratio would read 9 out of 17 countries, which reflect the general divide across Europe.

The existence of catalysing organisations such as the 10 ITS associations (6 EU and 4 CEE) or the national Fora in Austria and Germany appear to favour the cooperation of stakeholders and the emergence of legal frameworks as well as a more strategic approach to ITS (strategic deployment plans).

Conversely, the correlation between the absence of legal frameworks and ITS strategies, and the absence of private VASP's operating is very high: none of the countries without private VASP's actually have either a legal frame or an ITS strategy. Also, the free availability of public traffic data appears to positively influence the emergence of VASP's without being a sufficient condition.

Concerning the regulation of data availability, in most countries public traffic data is provided free of charge to service providers, thus fulfilling one of the basic requirements of the Commission Recommendation. However, so far only 9 countries have approved regulations that allow private sector parties to collect their own traffic data.

Interestingly enough this does not always coincide with the existence of a legal framework for private sector participation, since four of these do not envisage private data collection. Apparently there are two different approaches to this topic: a) private data collection is integral part of a legal frame for private sector participation in TTI delivery, or b) the legal frame builds on exclusive (and well-established) *public* data collection and regulates participation of the private sector only for the later stages of the information chain.

Finally, important common features of the framework conditions for TTI service deployment in Europe are the realisation of R&D activities and demonstration projects in practically all countries, based on a great variation of financing models regarding the use of public and private funds, and the total absence of guidelines for the evaluation of ITS/TTI. While the first issue represents an important reference, the latter points to a serious gap in the general deployment process for ITS/TTI.

**9 of 25 countries have implemented the Commission Recommendation**

**Catalysing organisations favour legal frames and ITS strategies**

**Private VASP's require clear framework conditions**

**Different approaches to private data collection**

**R&D activities - but no common evaluation guides**

### 3.2 Implementation status

As a result of the variety of framework conditions, there is an equally wide array of TTI services available for commercial and individual users across Europe, offering multiple information content, features, and ways of user interaction. They comprise services free at the point of use, commercial pay-per-use services and less apparent forms of commercial service delivery (e.g. paid by transmission costs). Their coverage varies from pan-European to national, regional and local networks, as well as single mode, multimode and intermodal information.<sup>20</sup>

**Broad variety of TTI services available**

However, TTI service implementation in Europe is still far from the the vision of TTI described above. The overall quantitative and qualitative results of the TTI service deployment process have remained below expectations, although with considerable regional differences of achievement.<sup>21</sup>

**TTI service deployment below expectation**

Regarding relative levels of TTI service implementation from a geographical point of view, roughly speaking western and northern Europe show the highest diversity and penetration, followed by a slower take-up process in the southern periphery of Europe, and a substantially lower implementation level in central and eastern European countries.

**Euro-regional differences**

In spite of all this diversity, some commonalities of general validity can be identified:

- basic TTI services for public transport (static timetables via phone or internet) and for motorways (traffic status in real-time via phone or internet) are becoming a common standard throughout Europe;
- more advanced services for public transport (e.g. next bus/tram/train in real-time; advice on service disruption, inter-modal journey planning) are available only in big cities and medium-sized towns, and for the railways (public & private operators). For private transport, more advanced services (e.g. real-time dynamic traffic responsive navigation; advisories in real-time on incidents on the driver's pre-specified route) are limited to private niche services; and
- only RDS/TMC (public & private) is becoming available Europe-wide.

**Common implementation features**

Furthermore, it should be highlighted that:

- the level of integration and coordination across spatial levels, boundaries and transport modes remains low. Cross-border TTI services are only about to emerge with the help of R&D (e.g. Euro-regional projects). In particular, there are still very

<sup>20</sup> See also: 25 National status reports and 187 short descriptions of TTI services in ATLANTIC D5.0, and TTI service taxonomy in ATLANTIC D1.1

<sup>21</sup> e.g. an initial goal of e-Europe 2002 was to have TTI services available in at least 50% of the larger European cities

few multi-modal and intermodal services available covering public and private transport;

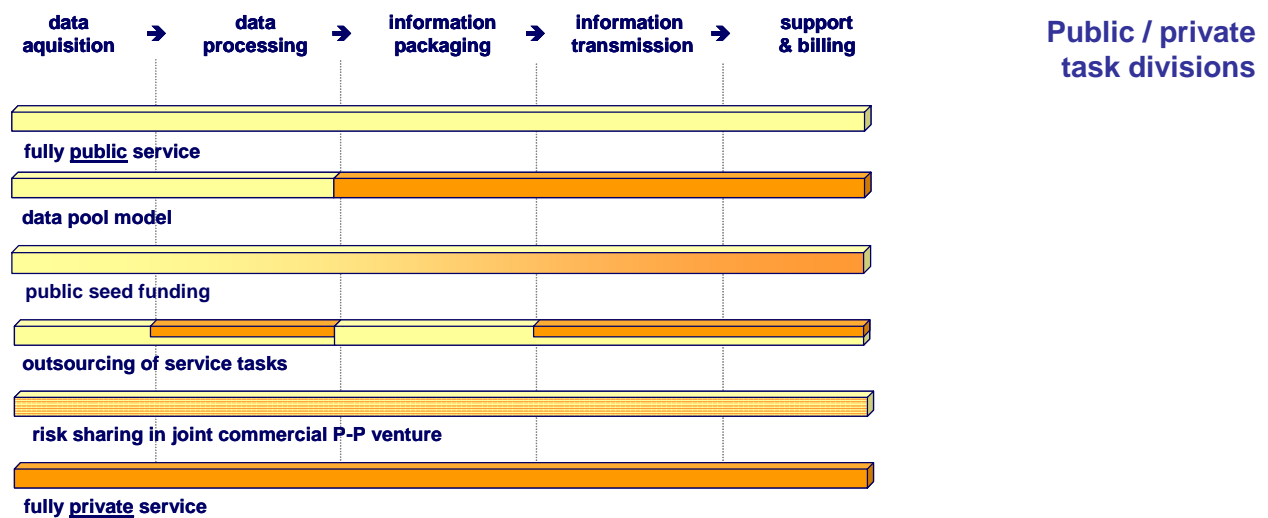
- the discussion about and promotion of public-private partnership in TTI service delivery has not yet resulted in many joint-ventures and concessions to the private sector;
- most TTI services are free at the point of use - pay-services are the exception;
- so far only very few sustainable business cases have been verified for TTI service delivery, including sponsorship deals and bundling of TTI with other services; and
- for most travellers, broadcast travel news remains the primary means of obtaining TTI.

### 3.3 TTI service delivery models

The variety of available TTI services as outlined is based on many different delivery models regarding the roles of public and private parties and the organisation of the information supply chain. By analysing this variety, ATLANTIC has identified a simplified typology of models for TTI service delivery consisting of six basic types (Fig.3.1). Their characteristics can be outlined as follows:

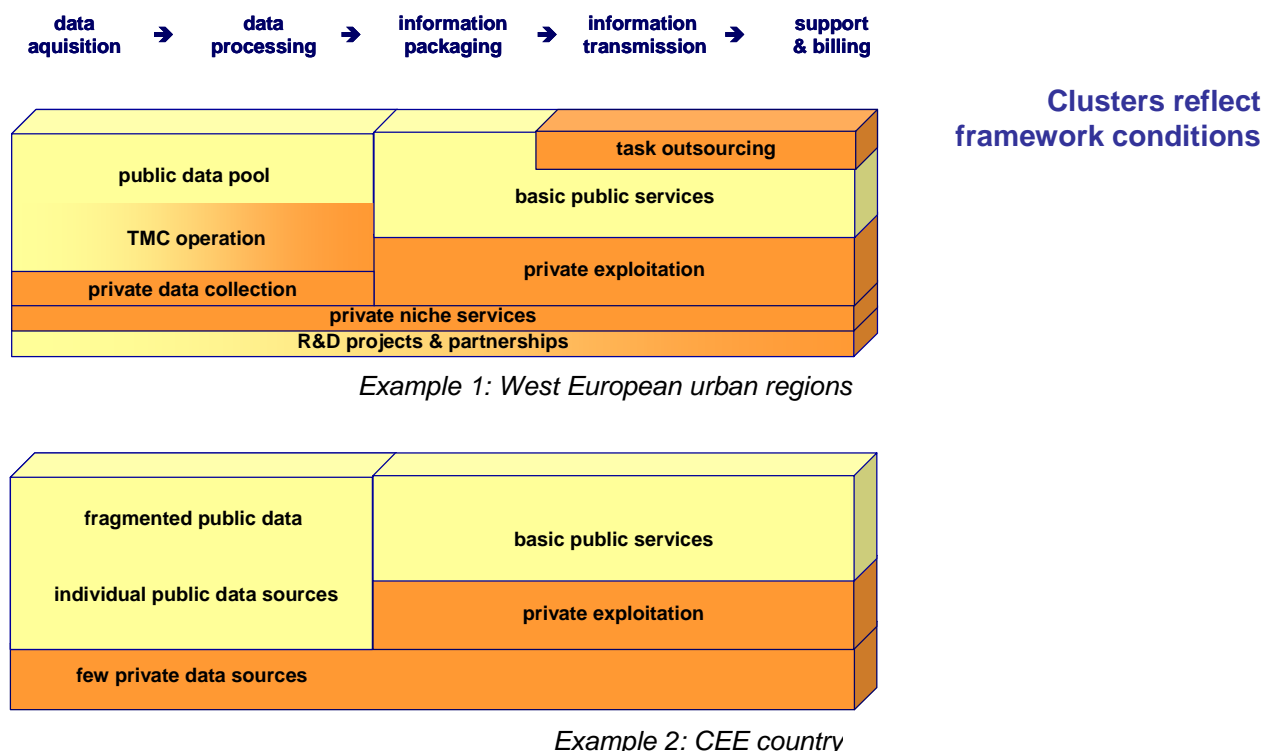
- *fully public service* – all tasks undertaken by public authorities; essential for basic services with a high policy relevance (social inclusion, traffic management);
- *data pool model* – public data is pooled and offered to private VASP's; complex institutional and technical requirements (especially when integrating also private data), but a strong driver for broad dissemination on multiple channels;
- *public seed funding* – provided for the start-up of services (esp. infrastructures); important in big cities and also for CEE countries;
- *outsourcing of service tasks* – e.g. data collection, processing or transmission to private agencies; important for policy-driven services to maintain control but reduce financial risks;
- *risk sharing public-private venture* – so far only in the frame of R&D projects; creation of mutual trust and a stable alliances is key, but perspectives for risk sharing are uncertain; and
- *fully private service* – focusing utility and convenience for the (paying) user, while policy objectives may not be met or even counteracted; mainly for niche markets.

### 6 Basic TTI service delivery models

**Figure 3.1: Basic TTI service delivery models and public/private task divisions**

In practice, however, these models hardly ever appear in an isolated form. Within a specific country or region, TTI services are mostly in “clusters” that combine various or even all delivery models (Fig.3.2). The make-up of these clusters reflects the framework conditions in place, in particular the prevailing policy orientation and regulations concerning TTI services, but also the stage of market development.

“Clustered” delivery of TTI services

**Figure 3.2: Examples of national/regional TTI service model clusters**

## 4 Conceptual frame for implementation

### 4.1 Stakeholder positions

Whilst the vision for the role of TTI services in Europe is clear the path to realising it is very difficult. This is because widespread implementation requires a cultural and behavioural shift on behalf of users, requires heavy investment in infrastructure, involves the use of fast-developing technologies, and concerns major public policy considerations. Behaviours and actions of many different key stakeholders are involved. Therefore they all have to 'buy in' not only to the overall vision but also to the implementation process to make the vision a reality.

The harmonisation between the positions of the principal stakeholder groups is actually the most important aspect for the deployment of TTI services in Europe. Only if their motivations and interests can be brought into line, can a successful development of new TTI services be expected. Whilst there will be multiple differences between individual institutions, three broad groups can be distinguished here (Table 4.1):

- In the first place, the actual users (corporate or individual) require TTI services that are oriented towards their real needs. Expectations regarding service quality, reliability and availability (dissemination channels) are very high. The willingness to pay for services strongly depends on the actual and perceived utility of the service as well as on the service's image. The acceptable price, however, does not usually correspond to the actual costs of service generation and delivery and is usually lower.
- The public sector aims to use TTI services as a multifaceted tool for various objectives and strategies, although these are often not made explicit. Where these are explicit, public interests in TTI service development are usually justified by impacts on traffic management and modal shift, economic development, business location image and social inclusion. Public authorities then seek to involve the private sector in order to limit public expenditures and increase efficiency.
- Private sector players share the objectives of marketing their products/services through TTI, entering a future growth market and/or developing a new profitable business area. In this, private sector actors depend heavily on the framework conditions established by the public sector, which they often see as an obstacle to the free market. On the other hand, differences between various private sector players imply differing orientations and priorities when defining new TTI service delivery models, thus also requiring strategic agreements.

**User groups:**  
**Cost versus utility**

**Public sector:**  
**Cost versus public benefit**

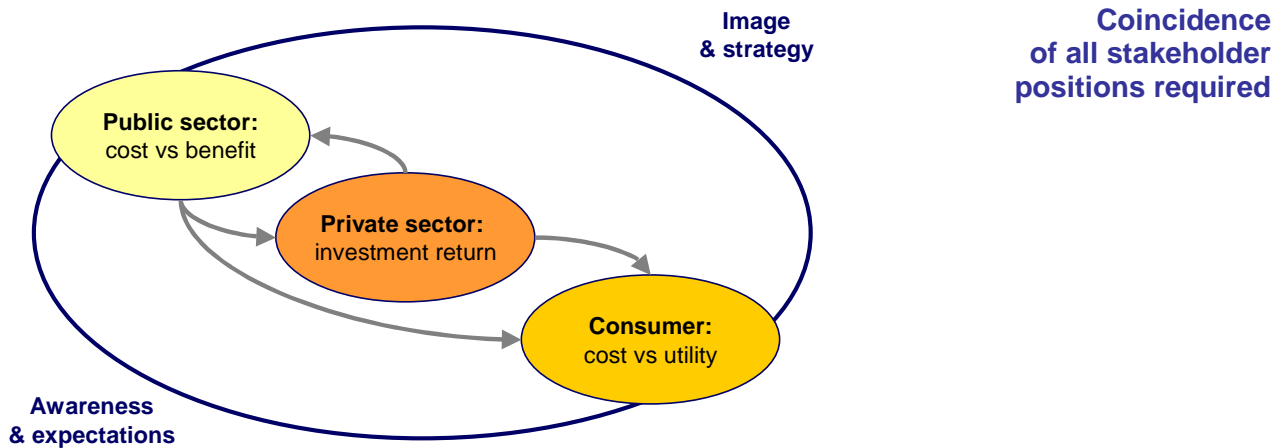
**Private sector:**  
**Investment versus profit**

It is clear that all three stakeholder groups depend on each other for the development of TTI services. Establishing the information chain, ensuring policy compliance, creating added value, and attracting sufficient users requires a shared understanding of the various stakeholder positions and interrelations (Table & Figure 4.1).

**Table 4.1: Overview of stakeholder strategies and interests**

Stakeholder	Strategies & interests
<b>User groups</b>	
Travellers	information accuracy, non-transport content, seamless delivery, no cost (virtually), specific needs and requirements: elderly, disabled, young people, families, commuters, business travellers, tourists, etc.
Freight operators	fleet management, information accuracy, seamless delivery, long-term availability, least cost
<b>Public authorities</b>	
European Commission	interoperability, data availability, market development, transport policy
National ministries (IT, economy, transport), local/regional authorities	traffic management, modal shift, economic development, business location development, image improvement
<b>Private sector</b>	
Value added service providers (VASP)	data availability and quality; freedom of information re-packaging and service delivery, customised services, various business models
Transport operators	customer loyalty, modal preference, protection from performance control, data selling, (B2C)
Infrastructure operators	customer loyalty, modal preference, data selling, (B2A), (B2B)
Mobile network operators	air time selling, (B2C)
Vehicle manufacturers	customer loyalty, branding and marketing, competitive advantage (USP), regulation (HMI), premium services
System and software developers	data and interface standards, sophisticated applications, public sector dependence
Content providers	content-rich services, customised services, (B2A), (B2B)
Device manufacturers / OEM's	data and interface standards, regulation (HMI)

**Figure 4.1: Stakeholder positions and interdependencies**



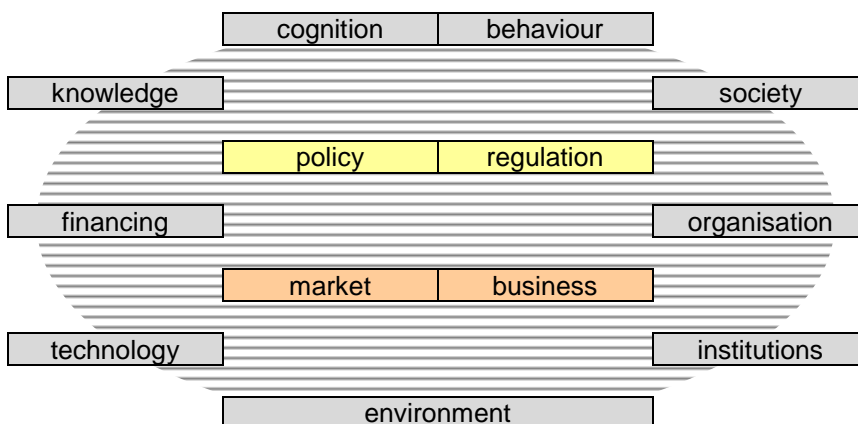
In order for the TTI service to be successful, its image and development strategy must be perceived in a similar light by all the key stakeholder groups, and their awareness of it and expectations for it must be similar or compatible.

## 4.2 “Building blocks” of TTI service implementation

ATLANTIC has helped to develop a more comprehensive view of the complex process of TTI service implementation; both its basic conditions as well as the detail implications. Problems and obstacles, risks and opportunities, and possible approaches and solutions across all levels have been discussed with stakeholders from the public and the private sector throughout the project. The important sectoral dimensions of implementing TTI services have been explored, including in respect of interdependencies (Figure 4.2).

Sectoral implications of TTI services

**Figure 4.2: Multi-sectoral dimensions of TTI service implementation**





This analysis has led to the construction of a simplified conceptual framework that highlights the reasoning of the key stakeholder groups (public sector, private sector, individual), the conditions of implementation and the characteristics of the respective service. These have been conceived as mutually dependent “building blocks” (Figure 4.3).

This framework assumes that successful TTI service implementation largely depends on whether public and private stakeholders and corporate users have answered four interdependent questions, detailed below. They need to answer these not only for themselves but also to try to consider the views of all other stakeholders

#### **Four questions for implementation**

- What level of service should be achieved - in terms of content, coverage, depth and quality, user interaction and product development? A precise description has to be developed first, or derived from the answers to all other questions.<sup>22</sup>
- What are the impacts that can be expected from the implementation of this service? From a public policy perspective this will require a clarification of the different goals related to TTI, while also the benefits for users (corporate or individual) will need to be made explicit.
- What justifies the required investments for planning, infrastructures and organisation? Here the public sector will have to demonstrate the public character of the expected benefits, while private actors will focus on profitability and strategic market perspectives.
- What shapes the practical implementation of the service? This requires taking into account the general framework conditions (institutions, regulation, “IT culture”, market development, available services, etc.), as well as the concrete options for setting up the service (partners, technologies, delivery models, etc.)

**What level of service?**

**What are the impacts?**

**What justifies the  
investments?**

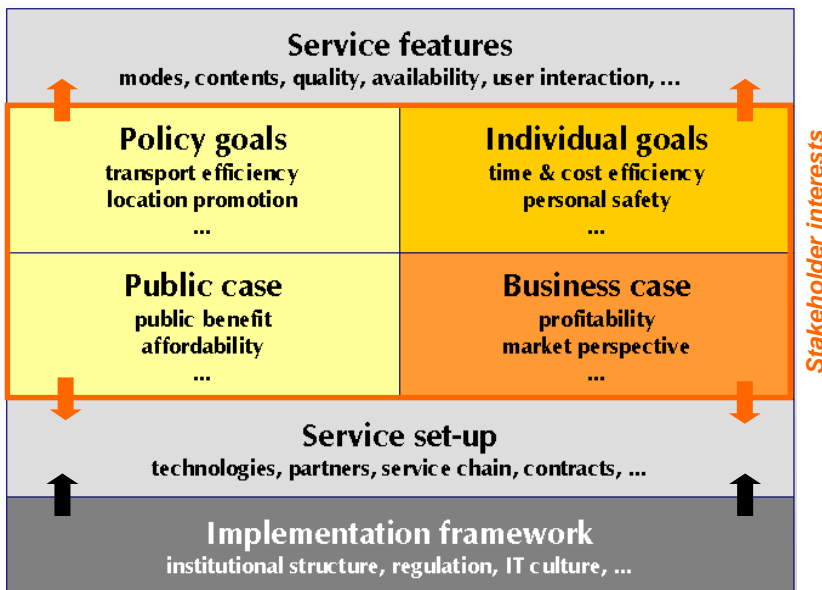
**What shapes the imple-  
mentation?**

The suggested conceptual framework is not only relevant for policy and strategy development, in particular it is a guidance for the practical implementation of TTI services. Practitioners will have to take into account every “building block” and the related stakeholder calculations in order to move towards the desired service level output.

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<sup>22</sup> cf. ATLANTIC D1.1 – TTI service taxonomy

**Figure 4.3: TTI service “building blocks” to be considered and coordinated for successful service implementation:**



### 4.3 TTI service taxonomy

Building on the results of the e-Europe 2002 benchmarking activities and the implementation status analysis carried out by ATLANTIC,<sup>23</sup> a comprehensive classification system of TTI services (a taxonomy) has been developed.

The main purpose of this taxonomy is to provide a framework for describing the key features of TTI services on a consistent basis, and to provide some overall objective measure of the sophistication, user friendliness, level and coverage of the service. It is particularly helpful for benchmarking activities to be able to classify TTI services according to measurable key attributes important to both service providers and users. Five “service vectors” are suggested to fulfil this purpose, namely:

- *Information content* - refers to the information items that are available to users, including features that serve minority users, like foreign visitors and people with a handicap or disability.
- *Information coverage* - refers to the transport networks that are included, single or multiple travel modes, geographical coverage and the extent to which “live” (real-time) information is available.
- *Information depth and quality* - concerns the locational accuracy of information, its reliability and timeliness.

**Objective measure of service features**

**Five TTI service vectors**

<sup>23</sup> See ATLANTIC D5.0 TTI status analysis report for EU and CEE countries

- *User interaction* - is about the degree to which users can specify the information required interactively and the degree of access offered at different stages of the journey.
- *Product development* - reflects the extent to which a market in TTI services is developing, the variety of user interfaces that are supported and the extent to which services are personalised, as distinct from “one service fits all”.

This classification contains descriptive indicators that show the degree to which certain service characteristics are developed (Table 4.2). These indicators enable any service to be assigned a category in each vector – basic, intermediate or advanced - using objective criteria for each attribute. The taxonomy therefore provides a quantitative framework for benchmarking TTI service levels.

**Benchmarking TTI  
service levels:  
Basic, intermediate,  
advanced**

**Table 4.2: TTI service taxonomy**

Information content	Basic	Intermediate	Advanced
<b>Traveller information</b>	Basic journey planning Service routes and timetables Travel times as scheduled	Intermediate journey planning including: Guidance on inter-change connections (including intermodal connections) Trip cost information Facilities on-board and at terminals	Advanced journey planning including: Diversions and service disruptions Incidents and delays Real-time service departure and arrival times Forecast travel times Information for deaf and partially sighted Information for mobility impaired Foreign language information
<b>Driver information</b>	Route planning  Distances and “normal” travel times  Seasonal advice on weather and traffic conditions	On-route weather and route safety (non-incident) information  Static navigation  Major incidents and exceptional traffic conditions	Current incidents and real-time traffic and congestion information Forecasts and near-term prediction of weather and traffic conditions Forecast delays Dynamic (real-time) navigation Parking information Current CCTV images Other user and location-based services
Information coverage	Basic	Intermediate	Advanced
<b>Transport mode</b>	One mode only (Private or Public)	Multiple Public Transport Modes (for comparison) Limited Public Transport /Car integrated information	Multiple Public Transport Modes (integrated) “Seamless” multi modal system
<b>Network</b>	Local area only	City wide Region wide	Country wide Europe / world-wide
<b>Real-time operations</b>	Static service	Daytime or Peak periods only	Continuous 7/24
Information depth and quality	Basic	Intermediate	Advanced
<b>Timeliness</b>	Static only: no “live” (real-time) information	Limited “live” data	Modelled “live” data Knowledge-based “live” data Predictive or historic trend data
<b>Location referencing</b>	Localised or service-specific (non-standard) location referencing	National or City/region-wide location referencing scheme	Advanced location referencing Compatibility with navigation databases and satellite navigation (full latitude & longitude)

<b>Accuracy</b>	Coarse (zonal) location system  Standard (scheduled) journey times	Positioning accurate to more than 10m Predictive journey times to nearest 30 mins (or longer)	Positioning accurate to within 10m Predictive journey times to within 30 mins
<b>Reliability</b>	Inconsistent reporting of incident start and end times	Reporting of incident start and end times within ½ hour Occasional lapses in service provision	Reporting of incident start and end times within 10 minute  Consistently reliable 24/7 service provision
<b>User interaction</b>	<b>Basic</b>	<b>Intermediate</b>	<b>Advanced</b>
<b>Level of interaction</b>	Non interactive – at-stop/ on-board displays, VMS	Fixed interactive – user-selected information at fixed locations - public interactive & enquiry office terminals, Web sites	Mobile interactive – user-selected personalised information on the move – handheld & in-car terminals, WAP-phones
<b>Access to information</b>	Pre-trip information only	Pre-trip and on-trip information	Seamless: Information available at all stages including trip end
<b>Advice and guidance</b>	Basic information: no positive guidance offered to users	Offers positive guidance based on individual and/or contextual variables – cheapest/ fastest route, number of changes etc	Offers decisional assistance for personal journey optimisation
<b>Product development</b>	<b>Basic</b>	<b>Intermediate</b>	<b>Advanced</b>
<b>Market orientation</b>	Public service (100% public financing)	Bundled service (Mixed public and private financing with sponsorship or cross-subsidy)	Value-added service (pay per use)
<b>Exclusivity</b>	One service fits all	Options to select service mode by broad categories of user and/or location	Personalised service for individual clients
<b>Media</b>	Single mode of presentation	Choice of platforms mode of presentation	Multiple platforms and options for personalising the user interface
<b>Booking and payment</b>	Conventional single mode	Integrated multi modal payment systems	SMART multifunctional integrated booking and payment system
<b>Security of personal information</b>	No procedures	Weak procedures - risk of security breaches	Robust security & personal information procedures

## 5 ATLANTIC recommendations

### 5.1 Goals and instruments for implementation

Through the discussions with stakeholders, the ATLANTIC project team has identified a number of overall goals for TTI service deployment that should guide action at all levels and across sectors. These goals appear to be the common ground on which all stakeholders are willing to cooperate. The suggested TTI service implementation process is therefore oriented at achieving the following overall goals:

#### Shared goals for TTI service implementation

<b>G<sub>1</sub></b>	Develop clear policy statements and a rationale for TTI service implementation.	<b>I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>8</sub></b>
<b>G<sub>2</sub></b>	Reach consensus between stakeholders on their respective roles.	<b>I<sub>3</sub>, I<sub>4</sub></b>
<b>G<sub>3</sub></b>	Raise the profile of TTI in sectoral policies and programmes.	<b>I<sub>1</sub>, I<sub>2</sub></b>
<b>G<sub>4</sub></b>	Expand the availability of data.	<b>I<sub>4</sub>, I<sub>6</sub>, I<sub>7</sub></b>
<b>G<sub>5</sub></b>	Improve the financial feasibility.	<b>I<sub>1</sub>, I<sub>2</sub>, I<sub>7</sub></b>
<b>G<sub>6</sub></b>	Enhance the coordination process on system architecture, interfaces and delivery practice.	<b>I<sub>3</sub>, I<sub>6</sub></b>
<b>G<sub>7</sub></b>	Foster the development of intermodal content and services.	<b>I<sub>1</sub>, I<sub>2</sub>, I<sub>5</sub>, I<sub>6</sub></b>
<b>G<sub>8</sub></b>	Increase the rate of successful take-ups and transitions from development to "business".	<b>I<sub>5</sub>, I<sub>7</sub>, I<sub>8</sub></b>
<b>G<sub>9</sub></b>	Develop a more entrepreneurial culture.	<b>I<sub>1</sub>, I<sub>3</sub>, I<sub>4</sub></b>
<b>G<sub>10</sub></b>	Aim for flexible and cooperative service developments.	<b>I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>8</sub></b>

For the practical achievement of these goals, eight corresponding instrumental areas have been identified that need to be used in principle. The detailing of the implementation process as goals and instruments aims to facilitate operationalisation and to provide a structured reference for the formulation of policies and the coordination of actions:

#### Instrumental areas for implementation

<b>I<sub>1</sub></b>	ITS/TTI policy	<b>G<sub>1</sub>, G<sub>3</sub>, G<sub>5</sub>, G<sub>7</sub>, G<sub>9</sub></b>
<b>I<sub>2</sub></b>	RTD and mainstream policies	<b>G<sub>1</sub>, G<sub>3</sub>, G<sub>5</sub>, G<sub>7</sub></b>
<b>I<sub>3</sub></b>	Consensus support actions	<b>G<sub>1</sub>, G<sub>2</sub>, G<sub>6</sub>, G<sub>9</sub>, G<sub>10</sub></b>
<b>I<sub>4</sub></b>	Awareness raising and training measures	<b>G<sub>2</sub>, G<sub>4</sub>, G<sub>9</sub>, G<sub>10</sub></b>
<b>I<sub>5</sub></b>	Benchmarking, good practice & delivery model development	<b>G<sub>7</sub>, G<sub>8</sub>, G<sub>10</sub></b>
<b>I<sub>6</sub></b>	Laws and (self-)regulation	<b>G<sub>4</sub>, G<sub>6</sub>, G<sub>7</sub></b>
<b>I<sub>7</sub></b>	Financial incentives	<b>G<sub>4</sub>, G<sub>5</sub>, G<sub>8</sub></b>
<b>I<sub>8</sub></b>	Evaluation and assessment	<b>G<sub>1</sub>, G<sub>8</sub>, G<sub>10</sub></b>

## 5.2 Towards TTI service implementation in European cities and regions

The following ATLANTIC recommendations outline a concrete strategy for the implementation of TTI services in European cities and regions. They are addressed to all practitioners involved in the process of TTI service implementation, regardless of the respective implementation stage. Thus, they may serve both as a checklist for advanced actors, and as guidelines for beginners.

Ranging from basic framework conditions to specific measures, these recommendations relate to co-ordination between stakeholders and are intended to enable gradual implementation. Because measures are interdependent and because each city / region has different starting points, the recommendations cannot represent a simple chronological “programme” however. Instead, they provide a focused overview of all the actions and the actors that need to be coordinated in order for successful implementation to take place.

ATLANTIC has formulated ten recommendations that are subdivided into 41 concrete actions. Each recommendation is accompanied by a rationale and reference to the present status quo, explaining the validity and relevance of the topic and the recommended measures.

Where the need to take action can be derived for particular stakeholder groups, this is indicated explicitly to clarify the respective roles and tasks in the overall process, and to maximise practical usefulness and significance. This is particularly important because all recommendations need a “driver” to actually become implemented.

The order of the recommendations reflects that TTI service deployment requires to organise a process, starting with the most fundamental conditions and developing towards more specific arrangements. Despite this implicit hierarchy, *all ten* recommendations need to be fully taken into account as necessary components for a successful realisation of the suggested TTI service implementation process.

The focus of the recommendations in this report is the local and regional level of cooperation and decision making. The European and national level is addressed by specific recommendations published in a separate report (ATLANTIC deliverable D5.2 – Recommendations on framework conditions for TTI service deployment in Europe), which also contains issues and recommendations of specific or exclusive importance for CEE countries.

**Check-list or guideline  
for practitioners**

**Ten recommendations  
for coordinating  
actions & actors**

**Roles and tasks of  
stakeholder groups**

**Necessary  
components of the  
implementation  
process**

**Focus on local and  
regional level**

Finally, in order to have a significant impact it is of crucial importance to have (at least) these ten recommendations translated into all official languages of the EU and the accession countries. Translation is the basic condition to ensure that stakeholders throughout Europe can actually take the recommendations into account. As this task exceeds the brief of the project, ATLANTIC advises the European Commission of the need to provide the required funds and action the translations as soon as possible.

**Translations into all  
official languages  
absolutely required!**

The ATLANTIC practitioner's handbook offers the following recommendations that will be dealt with in detail below:

1. **Provide enabling framework conditions for TTI service implementation in your City / Region.**
2. **Devise a process for awareness raising and consensus building among stakeholders in your City / Region.**
3. **Define and justify the specific policy goals related to TTI for your City / Region.**
4. **Develop capacities and initiate a learning process, involving the private sector.**
5. **Recognise the position of your own City / Region in TTI service delivery and carry out benchmarking.**
6. **Develop and establish a TTI service delivery model for your City / Region.**
7. **Develop a sustainable financing scheme for the set-up, operation and maintenance of local / regional TTI services.**
8. **Arrange for professional operations management of local / regional TTI services.**
9. **Carry out product development and marketing for local / regional TTI services.**
10. **Perform continuous monitoring and evaluation of TTI service delivery practice in your City / Region.**

**ATLANTIC  
recommendations  
overview**



## Provide enabling framework conditions for TTI service implementation in your City / Region.

1

Developing TTI services is a complex task that involves multiple players from the public and private sectors at all levels. Moreover, this process depends also on conditions that cannot be influenced at the urban or regional level, but instead require national or European intervention or basic structural changes.

### Rationale

However, much can be done in Cities and Regions already in order to create favourable conditions for all stakeholders and to direct future developments in the field. Many good practice examples illustrate the importance of a local and regional framework that enables TTI service development, even though higher level guidance and support is not yet provided.

The following recommended actions highlight the most important framework aspects to be addressed at local and regional level. For a comprehensive overview of the interdependencies with higher tiers please refer to the ATLANTIC recommendations on framework conditions for the deployment of TTI service in Europe (numbers in squares refer to the respective recommendation).<sup>24</sup>

### Actions

### Responsibilities

#### 1.1 Expand the availability of public data through regulation and common codes of practice.

Member States  
Local/Regional Gov.

As a basic requirement for TTI service development, all relevant and available public data (transport-, geo-, address- weather-, event-) has to be made accessible, according to the same conditions and based on a clear regulatory framework, to anyone wishing to provide TTI services.

6

To this end, regional and local authorities have to cooperate closely with their national governments to develop common codes of practice adapted to their respective institutional and regulatory contexts and along the lines of EU policy (see 2.2.1 on the Commission Recommendation).

<sup>24</sup> ATLANTIC D5.2: *Recommendations on framework conditions for TTI service deployment in Europe* – [www.atlan-tic.net](http://www.atlan-tic.net)

## 1.2 Enhance the coordination of system architectures and delivery practices.

Member States  
Local/Regional Gov.  
Private sector

5 7

Data retrieval and exchange already faces different system architectures and interfaces at the local and regional level. Different administrations have invested in different systems and developed different practices of data delivery.

However, for TTI service development “insular” solutions are not sustainable and cannot be justified by lower (short-term) costs. Cities and Regions have to actively foster the dialogue between actors concerned and find answers in cooperation with the private sector. Key aspects of delivery that need to be addressed are the development of model contracts (data collection and exchange), data quality control arrangements, liability agreements between partners and the preservation of end-user privacy.

## 1.3 Raise the profile of TTI in sectoral policies, programmes and initiatives

Member States  
Local/Regional Gov.

2

There is often a lack of integration regarding different sectors. Various policies with a direct impact or relevant implication for TTI service development are often implemented in parallel. This implies not only missed opportunities for synergies between policies, but also efficiency losses in the public sector or even counterproductive effects.

Local and Regional authorities in cooperation with the Member States should therefore seek to coordinate at least the following domains:

- *Transport*: intermodality, traffic management, traffic safety
- *Social inclusion*: different user groups, spatial coverage, HMI
- *Information society technologies*: e-services, mobile communication, public data exploitation, data exchange
- *Economic development*: structural change, competitiveness
- *Tourism and cultural heritage*: image, identity
- *Research & Development*: specific knowledge gaps

## 1.4 Enhance the financial feasibility of TTI service implementation.

Member States  
Local/Regional Gov.

8

Dedicated funding for TTI services is rarely available. Particular problems are the focus on providing “hard” infrastructures, insufficient recognition of the need for public support in the important phases of the implementation process, and also the high risks for private investment.

Local and Regional authorities should therefore integrate funding for transport infrastructure and “infostructure”, and make funding conditional on the integration of ITS/TTI components. They should also support, in particular, the start-up, transition and take-up of TTI service implementations.

**1.5 Foster the development of intermodal content for TTI services.**

Member States  
Local/Regional Gov.  
Transport operators  
Service providers

**6**

Intermodal TTI requires working across institutional and technological boundaries, linking formerly unrelated data sources and producing new service contents. However, current practice is mainly oriented at creating mono-modal services. In order to enhance intermodal TTI service development stakeholders should plan to:

- Make full use of mobile communication technologies
- Recognise intermodality as a value added, which can grow transport service demand relative to the amount of information provided more than can mono-modal information

**1.6 Stimulate entrepreneurial thinking and the recognition of TTI as a tool to grow “business”.**

Local/Regional Gov.  
Transport operators  
SME

**1****3**

TTI services are located on the borderline between public service provision and private business. Successful service implementation and delivery requires thinking of users as clients that need to be convinced, and to understand TTI as a marketing tool for other services. Therefore local and regional authorities should plan to:

- Make TTI service delivery sufficiently attractive such that it will be a well-used tool for traffic management.
- Incentivise public transport operators to grow their business through TTI
- Structure incentives to encourage initiative and innovation through the participation of Small and Medium Enterprises (SME).

## Devise a process for awareness raising and consensus building among stakeholders in your City / Region.

### Rationale

Despite the existing Good Practice examples, TTI services are not broadly recognised by stakeholders as an important feature of tomorrow's cities and regions. The common emphasis is still on traffic management - as the only ITS application - and infrastructure development to combat problems of congestion.

Developing TTI services is a multifaceted task that transcends the conventional delimiters of transport policy. This is true not only with regard to the technological and organisational know-how, but is equally the case with respect to other areas. For instance, TTI is relevant to social inclusion, economic development, tourism and commercial services. In practice it is here that TTI service development has been experiencing its first drawbacks.

### 2.1 Develop a cooperative culture among stakeholders, enhancing the mutual trust and the recognition of different interests and legitimate goals.

Local/Regional Gov.  
Transport operators  
Chambers  
Associations  
Media

1

Through a regular interaction and meetings between public and private stakeholders, service users and providers, basic awareness of TTI and its potential can be raised. An open dialogue about interests and goals can help to create the necessary trust for decisions about long-term investments. Mutual recognition is the basic condition for cooperation and for a growing understanding of each other's needs.

### 2.2 Create a local/regional "Forum" or network and develop a common Memorandum of Understanding.

Local/Regional Gov.  
Transport operators  
Chambers  
Associations  
Media

Local and regional authorities should work towards a certain "formalisation" of stakeholder exchange, organizing regular encounters, proposing the agenda and, most importantly, ensuring balanced participation. The immediate objective should be to agree upon a Memorandum of Understanding (MoU) that outlines the common goals and principles.

### 2.3 Establish a "TTI agency" or a recognized "champion" as a catalyst.

Local/Regional Gov.

To drive the process, establish contacts, define a schedule, formulate hypotheses and synthesize statements, an independent catalyst in the form of a "responsible officer", "steering group" or "TTI agency" should be appointed. In this, the affiliation or exact work-area of the catalyst(s) is less important than their personal integrity and recognition as individuals among stakeholders.

**2.4 Take account of local/regional politics and its potential impacts on the implementation process.**

Local/Regional Gov.

TTI service development is highly sensitive to political change and the related shifts of priorities. It is also likely to be affected by the confusions between the (politically desired) “visibility” of investments, and their actual effectiveness and efficiency. TTI services fall into the category of long-term strategic investments and may therefore not “pay off” before the next elections.

**Trafikinfo<sup>25</sup> – A largely public-sector forum providing a shared vision and acting as a “buffer” protecting TTI to an extent from the pressures of political change.**

The traffic and transport authorities in Copenhagen have joined together in a voluntary Forum with a common vision for providing integrated TTI services. Subscriptions to the Trafikinfo Forum are used to fund joint initiatives, which are implemented in stages by securing small achievable improvements in the context of longer-term plans for common systems and flexible architectures.

**Good Practice Example**  
[www.trafikinfo.dk](http://www.trafikinfo.dk)

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<sup>25</sup> See summary of case studies in the Annex; Full case study in: ATLANTIC D5.1 - *Good Practice case studies and key actor interviews* - [www.atlan-tic.net](http://www.atlan-tic.net)

## Define and justify the specific policy goals related to TTI for your City / Region.

### Rationale

Objectives of the public sector regarding TTI services are often not clearly defined and not harmonised between authorities. In addition, there is a lack of integration regarding the various policy domains concerned (transport, information technologies, social inclusion, etc.).

Against this backdrop, TTI service applications often develop on an arbitrary and inconsistent basis, following opportunities for funding or investment, or focusing on particular features that challenge the ambitions of the actors involved.

Before investing in TTI services it is however crucial to clarify what the public sector wants to achieve, how it intends to achieve it, and what the role of the private sector in this process will be.

### Actions

### Responsibilities

#### 3.1 Consult available knowledge from European and national R&D projects in the area of ITS and TTI services.

Local/Regional Gov.

9

Many of the problems that local and regional TTI policies have to deal with have been analysed by R&D projects already. These results represent a valuable source for practitioners seeking solutions. It is, however, necessary to look beyond the national context and identify relevant projects that have been carried out in other European regions.

To support this, ATLANTIC provides an information store on ITS and TTI research across Europe and beyond that serves as a basic reference and starting point for enquiries.

[www.atlan-tic.net](http://www.atlan-tic.net)

#### 3.2 Identify user needs and benefits, distinguishing specific target groups and their respective requirements.

Local/Regional Gov.

2

TTI services are designed for users. Understanding their needs in quantitative and qualitative terms, estimating the “value” that they place on different TTI services, and thereby identifying different target groups and sub-markets is vital. It is a necessary condition for implementation, and should be the focus of a new study, commissioned as soon as possible.

#### 3.3 Carry out an ex-ante evaluation of potential TTI service impacts.

Local/Regional Gov.

Based on the user needs analysis, a prospective study should be launched on what the impacts of the suggested services might be. This ex-ante evaluation should address quantitative and qualitative outcomes in all the domains concerned (transport, information technologies, social inclusion, economic development, tourism and cultural heritage, R&D). It should also develop alternative scenarios to facilitate decision-making.

### 3.4 Demonstrate the costs, the benefits and the community added-value of TTI investments and service delivery.

Local/Regional Gov.

Actual costs of recommended TTI services should be made transparent, while expected community benefits and other beneficiaries of TTI service delivery should be clarified. Particular emphasis has to be put on the following:

- actual benefits - not technology as an end in itself
- economic costs of regional road congestion

Furthermore, possible divisions of financial responsibilities and tasks between public and private sector parties should be identified. The focus of the public sector needs to be on those services that have no commercial potential.

### 3.5 Identify synergies between public and private sector goals.

Local/Regional Gov.  
Private sector

As the different roles of the public and private sector become clearer, stakeholders should identify possible “win-win” situations in TTI service delivery. These are where both sectors can achieve their respective goals while contributing to the overall quality of performance.

This implies the consideration of strategic interests and image aspects as well as alternative delivery models and their combinations (see 3.3). Synergies and interdependencies between both sectors will decisively improve commitment and enhance the implementation process.

**stadtinfoKöln<sup>26</sup> – A public-private partnership set up to establish an urban traffic information centre, co-funded by a federal government R&D programme. Now extended to cover multimodal TTI. Established in the context of an existing municipal action plan for ITS applications.**

“stadtinfoKöln” is a research and demonstration project focusing on urban traffic management, traffic information and mobility services in an integrated way. It represents a crucial building block within a long-term local policy framework for ITS implementation. Particular achievements have been the development of new high-quality services for collective and individual users and the definition of an operating model for the TIC in a public-private partnership.

**Good Practice Example**  
[www.stadtinfoKoeln.de](http://www.stadtinfoKoeln.de)

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<sup>26</sup> See summary of case studies in the Annex; Full case study in: ATLANTIC D5.1 - *Good Practice case studies and key actor interviews* - [www.atlan-tic.net](http://www.atlan-tic.net)

## Develop capacities and initiate a learning process, involving the private sector.

### Rationale

Economies and technologies are developing fast, making constant adaptation and learning a necessity, especially for public authorities. In this perspective and in the context of well-established (transport) policies and practices, the relatively new field of TTI service development forms only one aspect among many. Thus, TTI is often not attributed sufficient importance - or it is even considered a "gadget".

Already at the level of decision making, the required awareness and strategic outlook, as well as the practical know-how for designing a successful implementation process, are often insufficient. The same applies to the mid-level management and staff that have to find the practical solutions for realisation. Moreover, the private sector is only infrequently requested to bring in the required knowledge.

Yet, all levels of public administration need to develop a good understanding of TTI services and the required framework conditions, which certainly implies crucial input from private sector parties.

### Actions

### Responsibilities

#### 4.1 Implement specific training measures for decision makers and staff in (semi-)public agencies.

Local/Regional Gov.  
European networks

9

TTI services have to be integrated into existing training measures for all domains concerned. Specific training sessions should be designed for the core group of individuals dealing with TTI service implementation across all institutions involved (city/region, transport authority, operators, departments of social affairs, economic development, urban development, information technologies, tourism, environment and legal affairs).

Training sessions should also be tailored to the needs of decision makers first, then continuing with the staff. Key issues to be addressed are:

- Data value and exploitation of public sector data
- Interests and tasks of public and private sector parties
- TTI service delivery models

#### 4.2 Organise study tours and practitioner's exchange with other cities and regions.

Local/Regional Gov.

An important component of the overall training process represents the realisation of study tours and personal exchange with practitioners from other cities and regions. Practical experiences - both positive and negative - of peers dealing with the same type of problems form an important orientation and encourage creative thinking to develop new solutions.



#### 4.3 Ensure a close involvement of the private sector to enable mutual learning.

Local/Regional Gov.

The overlaps between interests and activities of the public and private sector in TTI service development demand that there be close cooperation between both parties from the outset. Beyond awareness-raising there is a need to commonly develop concrete tools and practices that enable TTI service delivery. To this end, the private sector should form an integral part of the envisaged learning process.

**Mattisse<sup>27</sup> – A joint public-private partnership delivering a range of real-time and other TTI services for a region.**

Mattisse is a traffic and travel 'information wholesaler' for the Midlands area of the UK. It collects information on public and private transport from a range of sources and repackages it for dissemination to the public, road hauliers and Value-Added Service Providers. Mattisse is a partnership between local authorities and two private-sector technology service providers, with innovative contracting and procurement processes. It enables up-to-the-minute travel information to be exchanged easily between transport authorities, allowing them to respond more quickly and efficiently to travel problems.

**Good Practice Example**  
[www.mattisse.org.uk](http://www.mattisse.org.uk)

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<sup>27</sup> See summary of case studies in the Annex; Full case study in: ATLANTIC D5.1 - *Good Practice case studies and key actor interviews* - [www.atlan-tic.net](http://www.atlan-tic.net)

## Recognise the position of your own City / Region in TTI service delivery and carry out benchmarking.

### Rationale

As a local or regional authority, not being aware of TTI services and their potentials represents a strategic deficit. Yet, even if TTI services are already a concern of public policy making and practice, it would be equally insufficient to start implementations without knowing exactly one's own position and having compared it to other cities and regions.

This refers not only to the risk of developing stand-alone applications that offer only limited options for future integration, but also to the general loss of efficiency by "inventing the wheel" once again or repeating the errors others have made before. Instead of focusing on particular TTI service features or technologies, the whole picture has to be taken into account in order to be able to compare with the situation of other cities and regions and the specific solutions they developed.

The method of benchmarking offers a helpful tool to create awareness of gaps and potentials, set development targets and gradually improve the performance. However, it is not yet widely employed by the TTI service stakeholders. Both quantitative and qualitative aspects of TTI service implementation should be subject to benchmarking.

### Actions

### Responsibilities

#### 5.1 Make an inventory of available data, technologies and applicable regulation.

Local/Regional Gov.

A basic condition of developing a strategy for TTI service implementation is to clarify the availability of:

- Data (transport- and traffic-, geo-, address-, weather-, event-, tourism-)
- Applicable regulation (data delivery, safety, privacy, etc.)
- Technologies (hard- and software systems, communication channels)

#### 5.2 Identify and compare Good Practice reference cases with your starting position and objectives.

Local/Regional Gov.

10

Once the existing building blocks in terms of data sources, system architecture and regulation are clearly identified, examples of cities and regions with a similar starting position should be identified. For orientation, learning and inspiration, Good Practice reference cases should be selected in respect of both the initial situation and the TTI service implementation and delivery levels aimed at. Both types of comparison have to be made in order to derive different types of lessons.

### 5.3 Establish a benchmarking process and identify areas for improvement.

Local/Regional Gov.  
Private partners

10

Benchmarking is a continuous process that accompanies all steps of implementation and operation. It consists of the comparison between the area's own performance in TTI service delivery with that of an advanced example - the benchmark. Benchmarking will therefore necessarily address all the different features of TTI service delivery (see service taxonomy in 4.3), as well as the framework conditions for implementation (see building blocks in 4.2).

In an initial phase, benchmarking can be an important driver for the political decision-making process by highlighting the deficits and opportunities. It should, however, be used to reassess all steps of the entire decision making and implementation process after a defined period of time - including roles and responsibilities, ownership of infrastructures and data, business and delivery models - in order to enable learning, adaptation, innovation and performance improvement.

**ATLANTIC** – The thematic network funded by the DG Information Society of the European Commission has also carried out a broad information collection campaign on TTI services and identified Good Practice. As a result it provides, among others, the following references available on the project website:

D5.0 – Status analysis report for the EU and CEE countries  
D6.5 – Joint country reports  
D5.1 – Good practice case studies and key actor interviews  
D6.3 – Good Practice in TTI service implementation

The short summaries of the Good Practice case studies are contained in the Annex.

**Good Practice Examples**  
[www.atlan-tic.net](http://www.atlan-tic.net)

## Develop and establish a TTI service delivery model for your City / Region.

### Rationale

Across Europe, TTI service delivery models are as multifaceted as the cities and regions that develop them: There are no standard recipes. Distinguishing factors and conditions range from institutional and legal contexts, to available data and systems, language, cultural aspects or the individuals acting a “driving-foeces”.

To define a TTI service delivery model implies not only making decisions about system architectures and transmission channels. Most importantly it requires the drawing of a line(s) between public and private sector roles along the information chain (see 3.3). Therefore, local and regional authorities first have to be clear about the service delivery levels they want to achieve, in order to derive adequate mechanisms that will help them to do so.

### Actions

### Responsibilities

#### 6.1 Define the basic TTI service delivery levels to be developed in your City / Region.

Local/Regional Gov.

7

At a “basic” TTI service delivery level, it should be understood what the public sector wants to be delivered and is also willing to pay for. This refers to clearly policy-related service characteristics such as incident warning or intermodal journey planning.

Local and regional authorities should be committed to finance only universally available services that justify public investment, thus leaving the necessary room for private value added service providers (VASPs). It should be borne in mind that the free (public) delivery of high-quality TTI services risks undermining the business case of private VASPs.

#### 6.2 Identify successive development stages for implementation.

Local/Regional Gov.

TTI service implementation is a long and perhaps never-ending process. Incorporation of data sources, integration of systems, and modification of delivery channels or technological innovation, as well as changes in the market, the business case and the partnerships that support them, are continuous and alternating tasks.

Therefore, the implementation process should be planned and scheduled (according to best knowledge) by identifying clear stages as intermediate targets. For each stage the technical, organisational and financial viability have to be ensured.

**6.3 Develop a risk management approach.**

Local/Regional Gov.

All decisions and development steps in the implementation process relate to various types of risks. The clear identification of risks, their assessment against the objectives formulated and the development of possible reactions are an important condition to create transparency for all stakeholders and avoid strong negative impacts. The approach should cover in particular:

- Political risk – political support as against political opposition
- Technical risk – technology choices, technical failure, innovation cycles
- Market risk – market demography, market development, image
- Financial risk – public funding, private investment, bank loans

**6.4 Establish a cooperation model and select the “right” partners.**

Local/Regional Gov.

To ensure the basic TTI service delivery levels and gradually improve the overall quality and coverage of available services through private sector involvement, a cooperation model can be chosen. It will not be a static model but may require adaptation at any stage in the implementation process. Different options have to be evaluated in the light of:

- Cost efficiency criteria
- Policy compliance and goal achievement
- Strategy and image aspects

The selection of private sector partners represents a crucial aspect here. Even though this is done through a tendering process, strategic aspects should not be overlooked. Large players may offer experience and security, whereas small ones emphasise flexibility and innovation. Most importantly, there should be trust between the actors involved and a commitment to long-term cooperation.

## Develop a sustainable financing scheme for the set-up, operation and maintenance of local / regional TTI services.

### Rationale

Achieving financial support for a long process of TTI service implementation is not an easy task. At present, dedicated funding for TTI service development is rarely available. Public funds often focus on the provision of “hard” infrastructures but fail to address the need for the integration of ITS/TTI. Public authorities willing to engage in the field are thus confronted with a problem of “declaring” their ITS investments, while others are not incentivised to consider integration.

Another financial drawback for TTI service implementation represents the transition to permanent operation. After having developed systems and services successfully, many R&D projects remain fruitless due to a lack of funds for this decisive phase. Partnerships established for the projects are abandoned if the financial responsibilities and business models remain unclear.

Furthermore, successful examples of ITS/TTI implementations still mainly have a local impact as the transfer of knowledge and experiences, especially across borders, is currently not financed.

### Actions

### Responsibilities

#### 7.1 Acknowledge investment, operation and maintenance costs separately from the outset.

Local/Regional Gov.  
Private partners

An elementary lesson for financing TTI services consists in the recognition of three different types of costs: Investment-, operation- and maintenance costs. Investment costs are often assumed to be limited to the start-up, although careful planning may indicate future investment requirements (e.g. for simulation capacity). In turn, operation and maintenance costs tend to be underestimated or even overlooked. Yet, all three positions have to be fully accounted for when setting up a financing scheme, which requires close synchronisation with the stages of the implementation schedule.

#### 7.2 Envisage start-up funding and make the required cost allocations in public budgets with foresight.

Local/Regional Gov.

Self-sustaining TTI service development is not a realistic assumption yet. Public funds are still required especially for initial system development, while revenues may cover operation and maintenance costs. If public funds are to be used for this purpose, the corresponding allocations have to be made with a view to the financial requirements of the implementation process (e.g. R&D funds for start-up and a combination of sectoral funds for specific features or transition).

### 7.3 Clarify the financial responsibilities of public and private partners.

Local/Regional Gov.  
Private partners

All financial contributions (investment, operation, maintenance) as well as the distribution of revenues have to be clearly regulated between public and private partners. Any vagueness or inconsideration in this respect will lead to conflicts and delays.

### 7.4 Draw up a realistic business plan and a viable cash-flow plan.

Local/Regional Gov.  
Private partners

Business planning is a requirement for both public and private sector parties. As a strategic rule, business development should “start small” with realistic implementation steps, but provide a clear vision for further expansion. As business cases are actually changing continuously, partners should define the life-time of their cooperation depending on the respective business case in order to maintain flexibility and clarify responsibilities, for otherwise they risk losing the financial basis of their undertaking.

With a view to the slow market development, cash-flow problems are a substantial threat to TTI service implementation and have to be anticipated. It should be recognised that the general public is not willing to pay for TTI services directly. Payment could therefore be included in the overall price of a service/product (e.g. smart cards, subscriptions, mobile communication).

**ITIS<sup>28</sup> – By developing or operating a range of unique services with different business models, ITIS achieved a successful stock market flotation, thus aiding cash flow. It has also established exclusive but limited-life agreements with data providers.**

Important lessons in terms of financing schemes and business planning can be learned looking at private sector initiatives: ITIS Holdings plc is a private-sector transport telematics company, which has developed a unique system for collecting and analysing traffic information. Information is collected from floating vehicles through contractual arrangements with some major fleet operators, providing national coverage of the UK road network, and from traffic broadcast journalists. ITIS has launched its own consumer telematics brand and provides a range of traffic information services, using several business models.

**Good Practice Example**  
[www.itisholdings.com](http://www.itisholdings.com)

### 7.5 Develop a transition scheme from R&D to sustainable operation.

Local/Regional Gov.  
Private partners

The successful implementation of an R&D project dealing with TTI services does not equal successful TTI service implementation. The actual problems start as soon as the protective “research” label is being removed from the projects. As a condition for funding, demonstration projects should therefore be required to elaborate a transition scheme that shows the way towards sustainable operation. The transition process itself, however, still requires additional public funding to achieve this objective.

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<sup>28</sup> See summary of case studies in the Annex; Full case study in: ATLANTIC D5.1 - *Good Practice case studies and key actor interviews* - [www.atlan-tic.net](http://www.atlan-tic.net)

## Arrange for professional operations management of local / regional TTI services.

To drive the implementation of TTI services is not a task that actors with other assignments can fulfil as a “sideline”. It also requires professional skills that cannot be found in every department. The relevance that the responsible policy makers attribute to TTI service deployment is clearly reflected in the choice for the operations management.

### Rationale

As illustrated by many practical examples, the complexity of TTI service implementation requires a strong management to “make things happen”. Ideally, the management combines excellent professional skills with a high recognition among stakeholders, since it needs to negotiate and defend the business and policy in all contractual arrangements regarding data availability and quality, service levels, user privacy and value added protection.

### Actions

### Responsibilities

#### 8.1 Nominate a responsible body and/or individual as a catalyst.

Local/Regional Gov.  
Private partners

A small core group of individuals or a single person should be assigned the task to provide a strong management for TTI service implementation. While the public authority is responsible for nomination, this should be done in close cooperation with the private sector (see recommendation no.2). The person(s) in charge should be fully authorised for budget allocations and negotiations with the private sector, while being responsible to the city council / regional assembly.

#### 8.2 Ensure data availability and quality control contractually.

Local/Regional Gov.  
Private partners

Access to data is a basic condition for TTI service delivery: Data ownership, the access rights of other partners and third parties, and the data delivery formats, as well as the quality of the data have to be laid down in a contract in order to avoid conflict and ensure stable service levels.

6

**OVR<sup>29</sup> – Public transport operators are contractually obliged to supply OVR with data in a timely fashion. There is a great emphasis on the quality of the data.**

Openbaar Vervoer Reisinformatie (OVR) is a private sector company providing a national public transport information service for the Netherlands. All public transport operators are obliged to supply OVR with details of their services. Initially, OVR received government funding, but is now funded by public transport operators. OVR focuses on providing high quality accurate information for the whole journey, which is disseminated through a telephone enquiry service and a well-used Internet service.

**Good Practice Example**  
[www.ovr.nl](http://www.ovr.nl)

<sup>29</sup> See summary of case studies in the Annex; Full case study in: ATLANTIC D5.1 - *Good Practice case studies and key actor interviews* - [www.atlan-tic.net](http://www.atlan-tic.net)



**8.3 Establish performance-based service level agreements.**Local/Regional Gov.  
Private partners

To ensure the overall quality of TTI service delivery, the actual level of service should be the measure for payments. This should be contractually defined, including the required control mechanisms. If low performance implies reduction of revenues, all partners are clearly committed to quality service delivery.

**8.4 Assure the privacy of user data contractually.**Local/Regional Gov.  
Private partners

The unauthorised use of private data (e.g. location references) has to be restricted. However, users could be given the choice to give up their privacy rights as part of a service agreement e.g. by selecting a degree of private data transmission.

**6****8.5 Ensure the protection of value added data contractually.**Local/Regional Gov.  
Private partners

All data that implies the creation of value-added has to be contractually protected from the use by third parties in order to safeguard the business case of the respective partners.

## Carry out product development and marketing for local / regional TTI services.

### Rationale

Most public TTI delivery is not perceived by users as a distinguished service. Due to a lack of targeted service design and limited coordination between different providers, public TTI services often present a fragmented image and do not fully reach their audience.

In addition, the development of new features or components does not always correspond to policy or business requirements. Although TTI services should be extended and improved step-by-step, practical implementation sometimes follows an “opportunistic” approach, developing what is feasible or fashionable at a time.

In order to improve service impacts and ensure return on investments, clear priorities have to be defined through a strategy for product development and marketing. This entails not only having a good understanding of the local / regional TTI market, but also requires considering the personalisation of contents, channels or interfaces, the provision of added value, as well as the integration of booking and payment with the objective of attracting users and ensuring their “customer loyalty”.

### Actions

### Responsibilities

#### 9.1 Carry out basic market analysis for TTI services.

Local/Regional Gov.

The policy-relevant impacts and the business case of TTI service delivery depend on the ability to achieve a good market response. As a minimum, market analysis should therefore focus on the following:

- Analyse mobility patterns and behaviour
- Identify user needs and target groups for TTI
- Analyse the market size and possible dynamics
- Explore the willingness to pay of potential users – not only based on questionnaires, but using demonstration

#### 9.2 Develop differentiated service products.

Local/Regional Gov.

Users will only draw on TTI services that from their individual perspective offer a clearly positive cost / benefit ratio. This requires the adaptation of the service design (contents, coverage, quality, user interaction, delivery channels and platforms) to specific target groups and to enhance the actual utility of the service product.

### 9.3 Identify and establish links to other service products.

Local/Regional Gov.  
Private partners

The delivery of TTI is not necessarily a self-standing service, but can often be integrated with other services or products. "Packaged" service delivery creates synergies as it improves the competitive position of all components.

This comprises, for instance, the integration of TTI service provision and public transport ticketing (e.g. subscriber services), booking and payment for other services (e.g. integrated smart card solutions) or the promotion of tourism (e.g. electronic guides). But the possibilities for packaging are almost unlimited.

### 9.4 Develop a TTI service brand and image.

Local/Regional Gov.

In order to address the target group(s) and improve the visibility of TTI services, a service brand should be established. The service brand(s) should cover all aspects (name, graphic design, communication style, etc.) and define a particular image. It/they should facilitate recognition and identification, enhance the attractiveness of the service and allow acknowledgment in the case of service packaging.

### 9.5 Realise targeted marketing measures.

Local/Regional Gov.

Apart from the targeted promotion of TTI services and advertising to gain new users, marketing should also function as a reaffirmation of user choices already made to improve customer loyalty.

Local media are a particularly important target group for TTI marketing at an early stage since their support should be ensured from the beginning. Providing convincing arguments to the respective individuals and channels will influence the perception of the general public in the long run.

#### **CitéFutée<sup>30</sup> – Targeted marketing and corporate image creation for public transport services through TTI service provision.**

CitéFutée is an inter-modal traveller information service for the greater Paris region. It is provided by the Regional Transport Authority (RATP) free of charge via an Internet site. CitéFutée pays particular attention to the specific TTI target groups and is adapted to their interests. Information on travel by public and private transport is presented in an integrated way with leisure and city information, making the site an attractive reference even for the user that is not intending to travel.

**Good Practice Example**  
[www.citefutee.fr](http://www.citefutee.fr)

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<sup>30</sup> Full case study in: ATLANTIC publication 2003. *Good Practice in TTI service implementation* - [www.atlan-tic.net](http://www.atlan-tic.net)

## Perform continuous monitoring and evaluation of TTI service delivery practice in your City / Region.

Results from TTI service evaluation are not yet widely available. For many applications, actual costs and impacts have not been demonstrated so far. Furthermore, the results from European and national R&D projects employ different evaluation methods with different priorities. This makes orientation for stakeholders difficult and increases the risks for long-term investment decisions.

### Rationale

Most evaluation methods currently in use concentrate on economic aspects, but neglect the social and environmental impacts, costs and benefits. The focus on monetary input/output schemes also distracts from the assessment of the performance over time. A methodological reorientation is required that assures comparability and allows the measurement of different sectoral impacts consistently.

### Actions

### Responsibilities

#### 10.1 Monitor and evaluate TTI service implementation, sectoral impacts and market response.

Local/Regional Gov.  
Private partners  
European networks

Arrangements for independent monitoring and evaluation throughout the implementation process and of service operation and performance should be made in accordance with all partners. This includes a clear definition of the criteria and methods to be used. Guidance and orientation can be obtained through European networks providing contacts and references.

4

Furthermore, the path towards common European evaluation guidelines can be followed out through the activities of the IBEC group (International Benefits Evaluation and Cost - Cooperative Working Group), established through ATLANTIC.

[www.ibec-its.org](http://www.ibec-its.org)

#### **TransBasel<sup>31</sup> – Consistent evaluation of TTI service implementation regarding user response and service impacts.**

TransBasel is an Internet-based travel information service for the Basel area. The service co-ordinates public and private transport information from authorities and transport operators in three countries, and provides intermodal trip planning, journey times and real-time information. The service was set up as a research and development project and has been evaluated consistently. TransBasel is now in a phase of transition towards a partnership arrangement for delivering basic public services and private value-added services.

#### Good Practice Example

[www.transbasel.com](http://www.transbasel.com)

<sup>31</sup> See summary of case studies in the Annex; Full case study in: ATLANTIC D5.1 - *Good Practice case studies and key actor interviews* - [www.atlan-tic.net](http://www.atlan-tic.net)

### 5.3 Overview of recommendations and actions

Recommendations	Actions
<b>1</b> Provide enabling framework conditions for TTI service implementation in your City / Region.	<b>1.1</b> Expand the availability of public data through regulation and common codes of practice. <b>1.2</b> Enhance the coordination of system architectures and delivery practices. <b>1.3</b> Raise the profile of TTI in sectoral policies, programmes and initiatives <b>1.4</b> Enhance the financial feasibility of TTI service implementation. <b>1.5</b> Foster the development of intermodal content for TTI services. <b>1.6</b> Stimulate entrepreneurial thinking and the recognition of TTI as a tool to grow "business".
<b>2</b> Devise a process for awareness raising and consensus building among stakeholders in your City / Region.	<b>2.1</b> Develop a cooperative culture among stakeholders, enhancing the mutual trust and the recognition of different interests and legitimate goals. <b>2.2</b> Create a local/regional "Forum" or network and develop a common Memorandum of Understanding. <b>2.3</b> Establish a "TTI agency" or a recognized "champion" as a catalyst. <b>2.4</b> Take account of local/regional politics and its potential impacts on the implementation process.
<b>3</b> Define and justify the specific policy goals related to TTI for your City / Region.	<b>3.1</b> Consult available knowledge from European and national R&D projects in the area of ITS and TTI services. <b>3.2</b> Identify user needs and benefits, distinguishing specific target groups and their respective requirements. <b>3.3</b> Carry out an ex-ante evaluation of potential TTI service impacts. <b>3.4</b> Demonstrate the costs, the benefits and the community added-value of TTI investments and service delivery. <b>3.5</b> Identify synergies between public and private sector goals.
<b>4</b> Develop capacities and initiate a learning process, involving the private sector.	<b>4.1</b> Implement specific training measures for decision makers and staff in (semi-)public agencies. <b>4.2</b> Organise study tours and practitioner's exchange with other cities and regions. <b>4.3</b> Ensure a close involvement of the private sector to enable mutual learning.

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|---|--|
| <p><b>5</b> <b>Recognise the position of your own City / Region in TTI service delivery and carry out benchmarking.</b></p>               | <p>5.1 Make an inventory of available data, technologies and applicable regulation.</p> <p>5.2 Identify and compare Good Practice reference cases with your starting position and objectives.</p> <p>5.3 Establish a benchmarking process and identify areas for improvement.</p>  |
| <p><b>6</b> <b>Develop and establish a TTI service delivery model for your City / Region.</b></p>   | <p>6.1 Define the basic TTI service delivery levels to be developed in your City / Region.</p> <p>6.2 Identify successive development stages for implementation.</p> <p>6.3 Develop a risk management approach.</p> <p>6.4 Establish a cooperation model and select the “right” partners.</p>  |
| <p><b>7</b> <b>Develop a sustainable financing scheme for the set-up, operation and maintenance of local / regional TTI services.</b></p> | <p>7.1 Acknowledge investment, operation and maintenance costs separately from the outset.</p> <p>7.2 Envisage start-up funding and make the required cost allocations in public budgets with foresight.</p> <p>7.3 Clarify the financial responsibilities of public and private partners.</p> <p>7.4 Draw up a realistic business plan and a viable cash-flow plan.</p> <p>7.5 Develop a transition scheme from R&amp;D to sustainable operation.</p> |
| <p><b>8</b> <b>Arrange for professional operations management of local / regional TTI services.</b></p>                                   | <p>8.1 Nominate a responsible body and/or individual as a catalyst.</p> <p>8.2 Ensure data availability and quality control contractually.</p> <p>8.3 Establish performance-based service level agreements.</p> <p>8.4 Assure the privacy of user data contractually.</p> <p>8.5 Ensure the protection of value added data contractually.</p>  |
| <p><b>9</b> <b>Carry out product development and marketing for local / regional TTI services.</b></p>                                     | <p>9.1 Carry out basic market analysis for TTI services.</p> <p>9.2 Develop differentiated service products.</p> <p>9.3 Identify and establish links to other service products.</p> <p>9.4 Develop a TTI service brand and image.</p> <p>9.5 Realise targeted marketing measures.</p>  |
| <p><b>10</b> <b>Perform continuous monitoring and evaluation of TTI service delivery practice in your City / Region.</b></p>              | <p>10.1 Monitor and evaluate TTI service implementation, sectoral impacts and market response.</p>   |

## 6 Annex

### 6.1 Summary of Good Practice case studies

by Jean Hopkin, May 2003; Modified by John Austin, July 2003

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# 1 ABA national road traffic information centre in the Czech Republic

<i>Type of activity: National road traffic information centre set up by private sector organisations</i>
<i>Geographical location: The Czech Republic</i>
<i>Other Key Features: Private-sector service providing comprehensive national driver-information service, 'Marketing the organisation' is a key part of the Business model</i>
<i>Key 'Good Practices': Clear Business Model for the present time; Multi-partite research is being done to secure a long-term business model for the future</i>
<i>TTI dissemination media used: Radio, Teletext, TV, Call centre, Internet, SMS, Fax</i>

## 1.1 Abstract

In a private sector initiative, the ABA motorists' club set up an unofficial traffic information centre serving the whole of the Czech Republic, in partnership with the national radio station. The centre is the main source of traffic information for third party information service providers. When it was set up there were no plans for a government-funded information service, but the government has subsequently funded a project to develop a traffic information centre based on the current service. Other options for the future include extending the partnership to involve the other main motorists' club.

## 1.2 Background

The ABA motoring club and Czech Radio set up a privately run national road traffic information centre for the Czech Republic in 2000. A government-funded research study including ABA is working to define the model for an official national traffic and travel information centre.

## 1.3 Objectives

The centre was originally set up by ABA to provide co-ordinated and reliable traffic information for drivers. ABA now aims to develop the service into an independent national traffic and travel information centre providing good quality up-to-date information meeting the needs of road users, road managers and other service providers.

The centre has been developed as a marketing tool for ABA services, and it is funded largely from the ABA marketing budget. Some revenue comes from third party providers, who pay for information according to audience size and number of news items broadcast.

## 1.4 Implementation

Traffic information nationally includes incidents and delays, weather conditions, road works and waiting time at borders. For Prague, it includes information on traffic conditions on main routes. Data is collected from recovery vehicles, volunteer drivers, police, local authorities, border controls and two surveillance aircraft; only a minority is from automatic monitoring equipment.

Information is available through a free Internet site, RDS, radio, television, and teletext broadcasts. Motoring organisations in other countries, mobile phone operators and car manufacturers also use the information. Individuals and businesses can obtain information by SMS, fax and telephone, including information for specific routes or areas.

The initiative for the service came from the motoring club, providing a co-ordinated information service as part of their package of services to drivers. The partnership with the national radio station gave the service a semi-official status.

## 1.5 Evaluation

Drivers welcome the information and many use it to change their route or journey. The Internet service is popular among people under 45, while over 45s use television, teletext and radio. The SMS and WAP services are less popular but use of these services is growing.



## **1.6 Conclusions**

Use of data from other sources is difficult for a commercial organisation. Public sector support is needed to ensure that data is comprehensive. In Central and Eastern Europe, a private sector initiative can be the most effective way of starting a 'public interest' service, avoiding the inertia involved in state funding. State funding can come later, once success has been proven.

Other ways of accessing the information are being developed, including a car information portal. The service could continue expanding under the current business model, another option would be to extend the partnership, for example to include the other main motoring club. The research project is developing the concept of a state-backed service operating in the public interest, with support to ensure comprehensive good quality data.

## CHAPS National Schedule Database (CIS) in the Czech Republic

<i>Type of activity: National public transport timetable information service set up by a private company</i>
<i>Geographical location: The Czech Republic</i>
<i>Other Key Features: Specific conditions in Regulatory framework ensure TTI data supply and protect its business case. The business case is also based on selling data to 3<sup>rd</sup>-party providers</i>
<i>Key 'Good Practices': Clear link between Business Model and Regulatory Framework; Use of multiple dissemination channels and partners bolsters the Business Case</i>
<i>TTI dissemination media used: Internet, WAP, SMS, Call-centre (3<sup>rd</sup> party), CD-ROM, Kiosks, PDA (planned)</i>

### 2.1 Abstract

CHAPS, a private sector company, has set up the only national data source on public transport timetables in the Czech Republic, using an Internet service. The information contributes to the government objective of freely available inter-modal public transport information for travellers, and the state has supported the service by setting up a regulatory framework which ensures that public transport operators provide good quality information only to this database. CHAPS meets its commercial objectives by selling information to third party service suppliers.

### 2.2 Background

Since 1993 CHAPS spol. sr.o. has provided the only national source of inter-modal public transport information in the Czech republic. In 1995, partnership with Czech Railways (DATIS unit) added rail information to the service. The information is available on the Internet: [www.chaps.cz](http://www.chaps.cz) The government does not contribute financially, but supports the service through legislation requiring public transport operators to provide timetable information in a standard form, and through contractual arrangements for the service.

### 2.3 Objectives

The government objective is to enable high quality public transport timetables to be freely available. CHAPS has a commercial objective to provide high quality data to value-added service providers. DATIS objectives involve commercial sale of information and promotion of its transport services. The general public have the benefit of a national inter-modal Internet-based public transport route finder service which is available free of charge.

### 2.4 Implementation

Legislation defines the minimum contents and the format of the data provided by operators, ensuring a minimum level of service. New timetables are made available at least 15 days in advance. Inter-modal information is available for journeys on national and regional services and on urban public transport in the three largest cities. Elsewhere, information on single public transport modes can be obtained. Real time information is available for train services.

The Internet information is also available as WAP services. Third party information providers include mobile phone companies. Eurotel uses the data in a door-to-door navigation service, which is available in map form on WAP phones or in SMS directions for other phones. The service helps the government to achieve its policy objectives, while the commercial position for CHAPS is strengthened, so that income from sale of the information and advertising on the Internet is enough to ensure that the service is financially viable. The main source of income is from sale of information to mobile phone operators.

## **2.5 Evaluation**

Experience of the CIS is very positive, the information is inter-modal, covers all regional transport and many towns, is of high quality and is well used through several relatively ubiquitous media and reaches most information providers. In one month in 2002, mobile phone operators received over a million requests for information: one for every 14 in the population.

## **2.6 Conclusions**

The service highlights the benefits of well balanced co-operation on TTI projects between the state (providing service regulation and institutional support) and private sector (in the role of service management, data marketing and system development). The arrangement allows for some innovation, but because new developments are financed by sales of existing information, the scope of new developments is restricted.

Future developments will include detailed information about interchanges, and real time information is being tested for bus services, in partnership with a mobile phone operator.

## Cite Futee, Paris

<i>Type of activity: Public transport operator providing Internet-based traveller information service</i>
<i>Geographical location: Paris, France</i>
<i>Other Key Features: Whilst the service is provided by the main public transport operator (RATP) it also includes traffic information; strongly promotes RATP's image and promotes RATP as a 'one-stop shop'</i>
<i>Key 'Good Practices': Integration of travel information with leisure and city information; uses TTI as a strong tool within the organisation's marketing plan, aiming towards travel information market dominance; collaboration with other content and service providers</i>
<i>TTI dissemination media used: Web</i>

### 3.1 Abstract

CitéFutée provides an inter-modal traveller information service for the Paris area via an Internet site, which is available free of charge. Information on travel by public and private transport is integrated with leisure and city information, under agreements to share data with other information owners.

### 3.2 Background

CitéFutée ("sharp/crafty/smart/clever city") is the traffic and travel information website for Paris and its suburbs. The service is multimodal, and includes details of leisure activities and other local information. CitéFutée is provided by RATP, the main public transport operator. RATP is publicly owned but operates as a commercial company, providing transport and services. RATP is contracted to the public transport authority to provide transport services and deliver optimal quality, and is paid according to performance. RATP has been developing electronic information services since 1985, and the current service, combining road, transport and local information, has been operating since 2001.

### 3.3 Objectives

RATP aims to provide an information service as part of their service to the public, and to encourage public transport use. RATP aims to serve public transport users and car users. Multi-modal information helps to promote RATP's image as a service provider and the site promotes a positive and modern image for public transport by linking it with leisure activities, Internet resources, maps and local information.

Users benefit from having a single web site where they can obtain leisure information and plan outings. Drivers can compare their trips with public transport alternatives, so the site will become the point of contact for road information, and drivers seeking route information may be encouraged to look at public transport alternatives.

### 3.4 Implementation

The site is reached by: [www.citefutee.fr](http://www.citefutee.fr) and [www.citefutee.com](http://www.citefutee.com). The service includes route calculation for road and public transport, taking into account real-time information. This real time information is generally received by telephone or fax from transport and service operators and local authorities. There is a common database, created and managed by RATP and shared with other operators. Public transport is part of a comprehensive package of information including local directories, local street plans, cinemas and other leisure activities. Co-operation with other agencies involves sharing data, generally at no cost.

### **3.5 Evaluation**

The service is successful, with the number of users growing rapidly. Requests for public transport information have grown to over 40 000 hits each day. The SMS service has been less successful, with only 400 users.

### **3.6 Conclusions**

Awareness and respect for RATP as a public entity and source of transport information have contributed to the success of the service. Maps are a key to making the service easy to use, and are found on many of the Internet pages. Door-to-door information is important, linking public transport with final destinations. The inter-modal aspect of the service is crucial, and in Paris, journey time comparisons between modes are favourable to public transport.

RATP is continuing with investing in updating and improving the web site to improve the service, and its future success seems assured. To offset the investment in the less successful SMS service, its role may be changed to become a mechanism for promoting season ticket use, by offering it as a free service to season-ticket holders.

## LogicaCMG plc, The Netherlands

<i>Type of activity: Private IT company providing a range of traffic and travel information and mobile ticketing services for travellers</i>
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<i>Geographical location: The Netherlands</i>
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<i>Other Key Features: The company is involved in several other fields with IT, and has strong expertise in integrating individual components of information and communication systems</i>
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<i>Key 'Good Practices': Wide range of TTI services; traffic centres development function includes a clear systems model to ease implementation</i>
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<i>TTI dissemination media used: SMS, other mobile phone services various other media (through third-parties)</i>
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### 4.1 Abstract

LogicaCMG is a private company offering IT systems and services in a range of industries, which has developed a range of traffic and travel information services in the Netherlands. These include traffic management services, traffic and travel information services, and mobile ticketing services for public transport. Services are developed in integrated packages through close cooperation with suppliers and building on the latest technological developments.

### 4.2 Background

CMG started as a small UK-based IT company in the 1960s, developing accounting software. The company gradually expanded in both size and scope, and by the 1990s, was an international information and communications technology group. After a merger in 2002, LogicaCMG became the second largest provider of IT services in Europe.

CMG started developing traveller information services in 1991 and services for travellers now account for 5% of CMG's turnover. The services include traffic data services, using mobile phones to collect real time traffic information, traffic management centres, SMS traffic information, and mobile phone based ticketing services. The Mobile Ticketing Service for NoordNed's bus and train services in the Netherlands is an example of one of CMG's services.

### 4.3 Objectives

CMG's objective is to lead the creation and development of the most advanced IT services and wireless data solutions. CMG aims to deliver enhanced operational efficiency and competitive advantage to their clients.

In the case of mobile ticketing for NoordNed bus and train services, CMG plans to use the data collected from its Mobile Ticket Service to expand the service to include mobile phone based real time information, which will also be an additional selling point for NoordNed's services.

### 4.4 Implementation

CMG bases its traveller information services on mobile phones; CMG's figures show that 70% of people in Europe carry mobile phones, providing a market for the information services.

The Mobile Ticketing Service is in the process of being tested in trials with users. When users buy tickets by phone or on the Internet, a code is sent to their mobile phone; when they travel they present the phone to a ticket collector who checks it using a hand-held computer. There is a free phone number to use for buying tickets when no Internet access is available.

CMG develop a new business model for each new project. They specialise in integrating separate components and partial solutions in information and communication technology, and they can offer a variety of roles in projects. For the Mobile Ticketing Service, CMG is the project manager, co-ordinating the work of a bank, transport specialists, university, and others.

#### **4.5 Evaluation**

As an IT company, CMG can develop technologies into effective solutions. Cooperation is a key to success and good relationships with suppliers help the company to keep ahead of technological developments. Travellers benefit from easier journeys, with fewer processes and events; information and communications technologies can help achieve this.

#### **4.6 Conclusions**

To enhance the development of traveller information services, CMG recommends use of common standards for public transport information, and development of services based on new mobile phone technology.

For the future, CMG have a long term plan to develop global traffic information services.

## DGT, Spain

<i>Type of activity: National road authority delivering road traffic information to users and private road operators</i>
<i>Geographical location: Spain (map)</i>
<i>Other Key Features: Extensive national data coverage, disseminated through multiple channels, extensive public-private agreements to disseminate data</i>
<i>Key 'Good Practices': Based on clear national ITS strategy; dissemination media used reflect real demand and practices of users; possible involvement of private-sector in outsourcing is being actively researched</i>
<i>TTI dissemination media used: Call centre, Radio, TV, RDS/TMC, DAB, SMS, WAP, Internet, VMS, commercial 3<sup>d</sup> parties</i>

### 5.1 Abstract

The Spanish national road authority DGT (Ministry of Interior) is the main agency responsible for processing traffic data in Spain. It operates a network of traffic management centres across the country and distributes high-quality road information services via several media, to meet a rapidly growing demand. Traffic data is also delivered to private operators, who are free to create commercial information services, complying with basic operating conditions defined by the DGT.

### 5.2 Background

DGT started delivering basic TTI services to the public in 1986 with a telephone enquiry service, and national radio broadcasts. The range of media for delivering services has gradually been extended. By 1997 television, RDS-TMC, SMS, WAP, and Internet services were available and a Digital Audio Broadcast service has been operating experimentally since 1999. Since 1990 these services have been based on a formal data sharing policy, close co-operation with the private sector being recognised as important in using traveller information to manage traffic.

### 5.3 Objectives

DGT aims to use TTI services as a tool for traffic management and control, thereby improving road safety. DGT has a public obligation to deliver high quality services free of charge. While DGT services are primarily policy- and supply-driven, aimed at drivers on major routes, they are also responding to the increasing demand for information arising from traffic growth and availability of information and communications technologies among users.

### 5.4 Implementation

DGT services are based on wide network coverage and ownership of detection equipment and traffic data. The police, city authorities and road users also supply information. The private motorway operators collect information for their routes and are obliged to supply it to DGT. Cross-border information is exchanged with centres in France and Portugal. Nine traffic centres located in major cities carry out data processing.

Dynamic TTI is used to manage traffic instantly. In addition to the information services delivered through public channels, there are various private service providers offering services (GSM, internet, radio, TV). Private sector involvement in TTI dissemination has made it possible to diversify and at the same time personalise the services offered. The DGT requires all private TTI services to be free of charge and to fulfil technical, privacy and quality conditions. All risks are assumed by the private agencies. Due to the strong growth in demand, the telephone call-centre operation is being outsourced. For the first time, users will be charged the cost of calls.



## **5.5 Evaluation**

The varying success of the different information channels reflects the needs of the users and penetration of technologies. The phone, SMS and Internet services have grown dramatically (there was a 64% growth in Internet use between 2000 and 2001). In 2001 there were 2.2 million SMS messages and 12 million web page accesses. At the same time, the demand for WAP, DAB and RDS-TMC has been slow to develop because the number of users with the necessary equipment remains small (800 DAB receivers in 2001).

## **5.6 Conclusions**

For the future, there is a potential for private service providers building on the growing market for mobile devices to develop personalised and location-based services, using DGT data. Integrating Floating Vehicle Data for urban areas with the data on the national network would enhance the quality of information and could be a key driver for service developments.

## Eurotel 'Mobile Guide' in the Czech Republic

<i>Type of activity: Private sector inter-modal door-to-door traveller information service using mobile phones</i>
<i>Geographical location: The Czech Republic</i>
<i>Other Key Features: Part of a location-based service offering information about 'nearest' features of interest in different categories. Integrated with high-quality maps and the company's patented 'Mobile Compass'</i>
<i>Key 'Good Practices': An innovative application which is designed to enhance the company's existing product offerings; by being integrated with the company's other applications its Business Case is strengthened and a 'climate' of TTI use by customers is encouraged.</i>
<i>TTI dissemination media used: WAP, SMS</i>

### 6.1 Abstract

A mobile phone company in the Czech Republic has developed an inter-modal traveller information service providing a high quality service for door-to-door public transport and walking information, as part of a 'Mobile Guide' package, including retail and leisure information.

### 6.2 Background

Eurotel is the leading mobile phone company in the Czech Republic. It set up a local information service in 2000, to help users find the location of nearby services and destinations. This 'Mobile Guide' provides transport information in the context of reaching local destinations and services.

### 6.3 Objectives

Eurotel's commercial goals are to expand the range of uses for mobile phones, maintain market position and support its image as an innovator. Users' needs are met by providing them with location details for local facilities and instructions for reaching them, including walking and public transport. 'Mobile guide' is most attractive to people with high specification WAP phones, but an SMS service is also available.

### 6.4 Implementation

Eurotel buys data from several sources under commercial arrangements for co-operation with data owners and providers. Eurotel has exclusive rights to use the strategically important data. High quality maps are bought for the service from an external developer, but Eurotel developed the navigation software internally.

The Mobile Guide uses a series of search criteria to find local facilities. The optimal route by public transport or on foot is calculated, and directions or a map are provided. The map displays can be seen at several different scales, and the user can move around the display or zoom in and out. The phone can be used as an electronic compass, which is unique to Eurotel. The SMS service is a cheaper option for users with slow mobile phones, for whom the cost of calls to maintain the connection while receiving map information would be high.

The transport information is seen as a complementary part of the wider information package, and does not need to be commercially viable in its own right. Marketing is aimed at business users, people with a high disposable income, and young people. The market for the service is expanding as people buy new models of mobile phone, but this is a long term process.

Eurotel has recently started offering a multi-media messaging service which is likely to encourage people to buy new higher quality phones with displays that are more suitable for using the Mobile Guide.

## **6.5 Evaluation**

The service is innovative and the Mobile Compass and door-to-door navigation services are unique in the Czech Republic. For users it is vital that the service is simple to use, with logical links between different features and economical use of the space available on the screen to display instructions.

The commercial approach means that the current service is aimed at a particular part of the market, and is not suitable as a mass application for users whose main need is for transport information.

## **6.6 Conclusions**

Future plans include an Internet service, for which there will be a charge, and real time traffic information for mobile phone users. As use of new generation mobile phones grows, real time navigation may be added to the Mobile Guide service.

## ITIS Holdings plc, UK

<i>Type of activity: Full service transport telematics company</i>
<i>Geographical location: Various areas of the UK</i>
<i>Other Key Features: Wide range of products / services, including strong consumer telematics brand (NavTrak)</i>
<i>Key 'Good Practices': multiple business models (different models for different services);; innovative use of 'floating vehicle' data sources with innovative partner agreements; close relationships with car manufacturers gives secure revenue channel, with a service that is attractive to the user in terms of perceived cost; emphasis on good quality of data; low fixed costs by expanding on existing systems</i>
<i>TTI dissemination media used: RDS-TMC, Digital Radio, in-vehicle receivers, phone (automated service), web, radio</i>

### 7.1 Abstract

ITIS Holdings plc is a privately run UK transport telematics company, which has developed a unique system for collecting and analysing traffic information. Information is collected from floating vehicles through contractual arrangements with some major fleet operators, providing national coverage of the UK road network, and from traffic broadcast journalists. ITIS has launched its own consumer telematics brand and provides a range of traffic information services, using several business models.

### 7.2 Background

ITIS Holdings plc is the UK's leading full-service transport telematics company. Formed in 1997, it now works with vehicle manufacturers, mobile networks, broadcast media, Internet service providers and fleet logistics companies, having established a traffic information centre to collate and then analyse the information gained from these organisations.

ITIS collects data from floating vehicles and traffic journalists, analyses it in the traffic information centre, and provides a range of real-time information services. Information services are provided using RDS-TMC, mobile phones and in-vehicle devices through agreements with mobile communications and internet service providers and car manufacturers.

### 7.3 Objectives

ITIS aims to integrate information services into road vehicles, helping users to avoid congestion and experience smoother journeys. A large number of probe vehicles is crucial to the accuracy of the data.

### 7.4 Implementation

The probe vehicles use GPS/GSM technology to provide the control centre with data on the speed and position of each vehicle at any time.

To maximise quality of data on congested roads, the data collection focuses on the busiest roads at busiest times, using high mileage probe vehicles. Agreements with fleet operators enable a fleet of lorries and a nationwide coach fleet to provide much of the data.

Traffic broadcast journalists, the police and road operators provide information. Their information includes details of planned and unplanned events, and the impact of these is included in the ITIS traffic forecasting models.

ITIS has the UK licence for broadcasting traffic information via RDS-TMC. ITIS has an agreement with Toyota to provide in-car information using RDS-TMC. ITIS also provides Siemens in-car navigation units with real time traffic information.

ITIS owns a digital traffic and travel radio station 'Travel Now'. An agreement with the motoring organisation, the AA, provides information and marketing opportunities, and ITIS operates the AA Roadwatch commercial information service.

### **7.5 Evaluation**

Due to the commercial nature of ITIS activities, detailed evaluation results are not available. Nevertheless, ITIS serves thousands of users each day, and numbers are growing.

### **7.6 Conclusions**

Success has been due to good quality data, effective delivery, low fixed costs, use of existing standards and systems, and a niche market. ITIS has adopted several different business models depending on the data available. Agreements with specific companies in the information chain have been important in expanding the services provided.

ITIS's main aim for the future is to expand their network of traffic information dissemination. The company will continue to focus on services for the motor and telecommunications industries.

## Kizoom Personalised Public Transport Information over the Mobile Internet in the UK

<i>Type of activity: Private sector IT company providing personalised user interfaces for a range of travel information service providers</i>
<i>Geographical location: Various areas of the UK</i>
<i>Other Key Features: Single-mode and Multi-modal Public transport TTI services specifically designed for mobile devices. Both scheduled and real-time services are provided.</i>
<i>Key 'Good Practices': Exploits national and mode-specific ITS database and standards developments to build new TTI services; innovative design based on specific features of dissemination media, including personalisation capabilities</i>
<i>TTI dissemination media used: SMS, WAP, PDA</i>

### 8.1 Abstract

Kizoom, a private sector company involved in data fusion and processing, develops software applications for TTI services in the UK. It builds user interfaces, back-end platforms and personalisation engines. Kizoom provides personalised user interfaces for TTI service providers covering rail and other public transport. It connects its systems to information disseminators, which convey Kizoom's information via the internet and mobile internet, including SMS, email, WAP and PDA.

### 8.2 Background

Kizoom provides journey planning and real time travel information services for rail, public transport, and in London, a service for all modes, using mobile telecommunications technology.

The services are based on an increased expectation of better public transport information, supported by UK government funding. The UK government has introduced several initiatives to improve public transport information. The ultimate goal is 'Transport Direct', a service which will provide real time and scheduled timetable information over the internet and via mobile devices. Kizoom's portfolio of travel information products are designed to support these initiatives.

### 8.3 Objectives

The aim is to develop a mass market for mobile, personalised travel information services. Users benefit from relevant and timely information appropriate to their needs and delivered to them directly, wherever they are.

### 8.4 Implementation

Kizoom offers information both on demand and in response to events for its mobile customers. Users can personalise the service and obtain real-time information in case of delays. Kizoom places great emphasis on the careful structuring of applications to make them easy and fast to use on small devices. Kizoom has developed a range of payment mechanisms, including micro-billing, and these are ready for implementation.

Different business agreements for use of the data have been reached for different services.

### 8.5 Evaluation

Use of the national rail enquiry service grew from 40000 to 100000 enquiries per week in one year. It is not clear whether users are willing to pay for the service.

Kizoom was a technology start-up company formed to exploit a potential business opportunity arising from the growth in the number of mobile telecoms devices. It took advantage of rapid software programming development techniques developed by the company's founder. The

company developed a family of mobile, personalised public transport TTI applications in a short time. A key event was agreeing a partnership with Railtrack (responsible for national rail information) in 2000.

## **8.6 Conclusions**

The current business model depends heavily on government funding and leadership, to create a business climate where all parts of the delivery chain can survive. The government needs to act as the driving force for infrastructure development, and for creating TTI systems and processes. The need to find a sustainable long-term business model and a mass market are crucial. More insight into user needs is also important.

The roll-out of third generation mobile phones will create more opportunities for developing services. Kizoom's strategy involves using research and development to "develop, demonstrate and adapt" services, led by changes in the market.

## Korkonet, Poland

<i>Type of activity: Private company providing traffic information service on the Internet, with SMS service for mobile phone users</i>
<i>Geographical location: Warsaw, Poland (map)</i>
<i>Other Key Features: Private data collection system, developed using own infrastructure in advance of interest from public authorities, with advertising a key source of revenue</i>
<i>Key 'Good Practices': Innovation in the ways that the service provider 'pays' for data and in the service offering 'packages' it offers to subscribers; well-designed websites for disseminating data to users</i>
<i>TTI dissemination media used: Internet, SMS</i>

### 9.1 Abstract

Korkonet (Bottleneck-net in English) is an Internet site operated by private company to provide real-time traffic information for Warsaw. Revenue from advertising is an important source of funding. The range of services is being expanded, in co-operation with mobile phone companies, but the future of the service may be threatened by a parallel public sector initiative.

### 9.2 Background

*Korkonet* - Warsaw is the first web site offering real-time CCTV scans of traffic in Poland free of charge: [www.korkonet.pl](http://www.korkonet.pl). The service was set up initially by a small group of technology enthusiasts in 1999 who saw the need for information and developed a service in the context in which there were no ITS systems in place.

The company was bought by an investment company in 2001, and a new company, E-Monitoring, was set up to develop the service to cover a range of traffic and travel information available in various forms.

The first of these new services was *Infokorek*, launched in 2002, and providing SMS information on traffic conditions on selected routes using mobile phones: [www.infokorek.pl](http://www.infokorek.pl).

### 9.3 Objectives

The commercial goals are to provide a profitable service for travellers, and commercial benefits for those advertising their services on the Internet site. Costs are reduced by giving benefits in kind to those involved in providing information.

There are plans to expand the services to other cities in Poland, and to widen the scope, for example to include monitoring public spaces in the city.

Users benefit from an alternative to radio traffic broadcasts, which was previously the only way of finding out about traffic conditions on the increasingly congested streets of Warsaw.

### 9.4 Implementation

CCTV cameras (21 to date) at strategic points provide views of traffic conditions on main routes in Warsaw. The cameras are installed on buildings with direct Internet access, avoiding the need for dedicated communications. Taxi operators and couriers also provide information.

In addition to the views from the cameras, the Internet site provides other traffic and travel information, and links to public transport sites. The SMS service enables mobile phone users to buy traffic information for their selected routes, either on a one-off basis or on a monthly subscription.



## **9.5 Evaluation**

Both of the Internet sites are well designed, and are being used by a growing number of people. There are 5 000 'hits' on the Korkonet web site each day. The SMS service has 400 clients.

## **9.6 Conclusions**

Initially the company experienced severe difficulties because their financial resources were very limited. One of the obstacles to development was that there was only limited interest in the project from the local authorities, so that the company had to set up equipment and infrastructure independently. Despite this, the first phase was sufficiently successful to demonstrate the potential for such services, which attracted the interest of the investment company which now owns Korkonet.

The services are still developing, and not yet self-financing. The local authority is developing a parallel service as part of a package of traffic management and information services. The future of the private services depends on whether they can have a role in that package of services.

## Mappy, Western Europe

<i>Type of activity: Private company providing travel information for drivers on the Internet</i>
<i>Geographical location: Based in France, covers 15 countries in Western Europe</i>
<i>Other Key Features: International service; develops a strong brand name through wide coverage</i>
<i>Key 'Good Practices': multiple-language, as it has an international user base; comprehensive information service</i>
<i>TTI dissemination media used: Web</i>

### 10.1 Abstract

MAPPY is an Internet service providing road travel information for Western Europe free of charge. It was set up by a subsidiary of a French Telecommunications company, and includes route planning, maps and tourist information.

### 10.2 Background

Mappy is a European Internet service providing maps and route planning for drivers, and tourist information. The 15 countries covered are France, Italy, Switzerland, Austria, Germany, Belgium, the Netherlands, Luxembourg, Portugal, Spain, Andorra, the UK, Denmark, Sweden, and Norway. The service is operated by Wanadoo (a subsidiary of France Télécom), which is the largest provider of Internet access, portal and directory ('Yellow Pages') services in France.

Mappy was set up in 1987, and was available on Minitel, the French audiotext service. The service was extended from France to other European countries in 1993 and the Internet service was launched in 1997.

### 10.3 Objectives

Mappy is a commercial service for the travelling public, financed by France Télécom. It is used to promote the image of Wanadoo and France Télécom. Mappy aims to attract business users by providing an access point for mapping and related business services. It is already the leading provider in France of mapping and route planning for road journeys, and Mappy aims to achieve this elsewhere. The service is being used to establish a customer base for new services in the future.

Users benefit from a one-stop shop for information when driving to unfamiliar areas and finding their way around when they arrive.

### 10.4 Implementation

The site is reached by: [www.mappy.com](http://www.mappy.com) and seven other national sites (e.g. [www.mappy.be](http://www.mappy.be), [www.mappy.co.uk](http://www.mappy.co.uk)) providing services in English, French, German, Italian, Dutch and Spanish. Users obtain map-based information which they can either print before starting their journeys, or download on mobile devices (e. g. WAP phones or Palm) which they can refer to when they need it. Information includes route planning, cost calculation, town maps, personal maps, and in France there is also traffic flow information and traffic prediction for the motorway network.

Most of the services are available free of charge to users, and the web site supports advertising, both for Wanadoo products and other companies. Data supplied by map companies and other partners are shared in return for publicity on the web site. Contracts with partners are arranged for providing different types of information, and revenues are shared.

## **10.5 Evaluation**

Users of the Internet service are spread across Europe and over 4 million different users access the information each month. There was a 50% growth in users in 2001 – 2002. Revenue from Internet access calls and advertising does not cover the costs.

## **10.6 Conclusions**

Access to good quality data and response to users' needs have been key to the success of the service. However Mappy has been unable to expand into an inter-modal information service because it has not been possible to acquire the necessary information from transport operators. As a commercial service, it has proved difficult to rely on data held by public authorities. Support from a large organisation has been essential to run the service until it is profitable.

For the future, there are plans to charge fees for the service as part of a package of value-added services, and Mappy aims to develop new and emerging services, e.g. for mobile devices.

## Mattisse, UK

<i>Type of activity: Public-private partnership providing multi-modal traveller information services</i>
<i>Geographical location: Midlands area of UK</i>
<i>Other Key Features: Extensive range of services, with data collected from a large number of sources ; aimed largely Business sector, but also serves general public; Partnership with Private-sector technology companies to deliver service</i>
<i>Key 'Good Practices': Innovative Business Model incorporating a public-private agreement to operate the whole system, following a competitive procurement process, with overall management by a multi-partite public-private consortium; it benefits from having key personalities who act as champions and driving forces to ensure that the service develops and that key decisions are taken</i>
<i>TTI dissemination media used: Internet, Kiosks, Mobiles, Hand-held devices, large public-access screens, real-time bus stop signs</i>

### 11.1 Abstract

Mattisse is a traffic and travel 'information wholesaler' for the Midlands area of the UK. It collects information on public and private transport from a range of sources and repackages it for dissemination to the public, road hauliers and Value-Added Service Providers. Mattisse is a partnership between local authorities and transport operators, with innovative contracting and procurement processes. It enables up-to-the-minute travel information to be exchanged easily between transport authorities, allowing them to respond more quickly and efficiently to travel problems.

### 11.2 Background

Mattisse provides a range of real-time and other TTI services for the Midlands area of the UK, a heavily populated area crossed by several motorways with a dense road network, expanding rail services and an intensive network of bus services. Mattisse was set up in 1998 under an EC-funded R & D project, and since 2002 has run as an innovative Public-Private Partnership involving nine local authorities, transport operators and two private sector technology service providers.

### 11.3 Objectives

The objectives of Mattisse are to use information services to encourage modal shift away from car use and reduce congestion. Providing better access to good quality information is a key goal, and Mattisse provides high-quality electronic TTI data, partly as a 'wholesaler', and partly as a direct supplier to the public. Mattisse provides a wide range of static and real-time multi-modal information. A large number of different stakeholders have an interest in the Mattisse service. Mattisse plans to focus differently on two distinct markets: businesses and the general public. The business model is based initially on most revenues coming from business users by providing chargeable information that will give businesses a competitive advantage.

### 11.4 Implementation

Information is collected from a wide range of sources: both manual and automatic, public and private, including transport operators and the police. Mattisse consolidates the information and disseminates it using an Internet site <http://www.mattisse.org.uk/>, mobile devices, public information screens, public Internet kiosks, radio broadcasts, and SMS services. Business users can buy customised services.

The innovative Public-Private Partnership has a clear management structure, with a neutral leader. Partners bring particular skills with mutual benefits. Private sector partners are able to

develop added value services. The public sector offloads risk but achieves services to meet policy objectives. Local Authority payments are focussed on achievement of Public Service Criteria. Initially the service relied on mutual co-operation, but more formal arrangements are now needed for sharing data.

### **11.5 Evaluation**

The web site has 4000 hits per day without publicity. The service is being re-branded and will then be publicised. Ways to measure success in achieving policy goals are to be developed.

### **11.6 Conclusions**

The Public-Private Partnership was complex to set up. Key factors for success are non-quantifiable 'human' factors, co-operative working and political will. Strategies for dealing with technological change and leadership from central government in providing overall architectures for TTI services are also critical to success. Data ownership has become a significant issue. The partnership may form a model for similar services elsewhere.

For the future, service quality is being improved and added value services for business travellers are being developed. Future success will also depend on the rate of innovation.

## Mizar Mediaservice, Italy

<i>Type of activity: Private company providing traveller information services and software</i>
<i>Geographical location: Italy</i>
<i>Other Key Features: Produces MSTIC (software tool for Traffic Information Centres) and WALKIE (personalised travel information services)</i>
<i>Key 'Good Practices': Develops customer-focused and multiple-application software for ITS from a strong research background (both technical and market-based)</i>
<i>TTI dissemination media used: TMC, Internet, WAP, Kiosks, SMS</i>

### 12.1 Abstract

MIZAR Mediaservice is an Italian IT company which is developing commercial transport telematics services, based on work in research and development projects. The markets for the company's services include service providers, transport authorities and end users. The traveller information services provided include the Walkie personalised traveller information service which gives users information both on demand and in response to incidents.

### 12.2 Background

MIZAR Mediaservice is a small IT company specialising in software for traffic information and providing traveller information services. The latest development is 'personal navigation' services providing traffic information and driving directions over the Internet, and traffic information via WAP, SMS and PDA.

### 12.3 Objectives

Mizar Mediaservice aims to expand its customer base to the point where its 'infomobility service' accounts for 10% of the market in Italy. It is about to launch a service with a major European Internet Service Provider that will increase the number of users dramatically. The company's enthusiasm for cooperating with other companies enables it to stay small, whilst being active in ITS developments.

### 12.4 Implementation

The company sells software and operations through system integrators or licencees, it provides engineering support to system integrators, and it sells tailor-made services to end users.

Information is provided both on demand and in response to incidents. Information is made available through the Traffic Message Channel, the Internet and WAP based Walkie services, MISTIC, a software tool for interfaces in traffic centres, and mobile phone based applications.

MISTIC, based on DATEX, is popular with traffic operators' for its ease of use and varied options for connection formats. Mizar has also developed MIDAS, a software service platform and basis for MIZAR's personalised information services such as Walkie.

Walkie is available through mobile phones, public kiosks and the internet: [www.Walkie.it](http://www.Walkie.it). New developments such as Virtual navigation, delivering information about points on the journey, are made possible using large bandwidths.

MIZAR develops commercial services on the basis of research and collaborative demonstrations with authorities and operators. For example the findings of previous EU funded projects were analysed to provide information on the likely viability of Walkie as a new service.

### 12.5 Evaluation

Involvement in large scale R & D projects has provided a basis for developing the company's products.

Use of Walkie is growing rapidly, at around 20% per month, and there are between 1500 and 2000 different people using each day.

## **12.6 Conclusions**

MIZAR believes concise rules need to be laid down by the EU, to enable authorities, businesses and consumers to obtain high quality data. The development of the Walkie service demonstrates that partnerships are needed for marketing, while good cooperation with content providers is important, and information chains need to be simple.

An advertising campaign is raising the profile of Walkie and the new paid for service, with the aim of increasing trust in the service and hence users' willingness to pay for it. An English language version of the Walkie service for Italy is also being developed.

## OVR (Openbaar Vervoer Reisinformatie), Netherlands

<i>Type of activity: Private company providing national public transport information service</i>
<i>Geographical location: The Netherlands</i>
<i>Other Key Features: fully funded by public transport operators (previously largely by the state)</i>
<i>Key 'Good Practices': Full door-to-door Journey Planning, agreed basis of financing; strong emphasis on user needs and market research</i>
<i>TTI dissemination media used: Web, Call-centre</i>

### 13.1 Abstract

OVR is a private sector company providing a national public transport information service for the Netherlands. All public transport operators are obliged to supply OVR with details of their services. Initially OVR received government funding, but is now funded by public transport operators. OVR focuses on providing high quality accurate information for the whole journey, which is disseminated through a telephone enquiry service and a well-used Internet service.

### 13.2 Background

OVR provide travel information incorporating bus, tram, metro and train services throughout the Netherlands. The database includes all streets, addresses and points of interest. The two main services offered are a telephone enquiry service (set up in 1992) and an Internet journey planner (set up in 2000).

### 13.3 Objectives

OVR focuses on quality and providing end-to-end information for planning journeys, to maximise use of the service and of public transport. It provides a one-stop shop for planning fully linked details of any journey involving public transport in the Netherlands. Transport operators benefit from having the information service run by a specialist company.

### 13.4 Implementation

Public transport operators have a legal obligation to provide service details to one private company, and OVR has an arrangement with the government to receive the information.

For the first few years, government funding for OVR provided a strong base for setting up the service, as the joint information service for the public transport operators. Government support has been reduced gradually, and since 2000, OVR has been funded entirely by public transport operators, in proportion to the amount of use made of the information on their services.

To encourage more customers to use and trust the service, information is updated regularly to ensure that it is as accurate as possible.

Users can obtain the information via a free Internet service: [www.ovr.nl](http://www.ovr.nl). The telephone enquiry service is well used and is based on the same journey planning software as the internet service. An automated voice response service has been developed to assist operators when demand is high.

### 13.5 Evaluation

The OVR Internet Journey Planner attracts 50000 users per day. A telephone call centre serves 25000 callers per day, at a low call charge.

### 13.6 Conclusions

OVR recognise to have the most effective web site they must use the most suitable search engine available. Displaying the information in an appropriate way is just as important as collation of the data itself.



OVR carried out fundamental research on customer needs and developed a service that is well used and accurate, OVR recognise that work on customer needs must be constantly updated to ensure that customer needs continue to be met.

New ways of disseminating information are being investigated. Future developments may include integrating road traffic information into the journey planner, and developing services for third generation mobile devices.

## P4 (Dynamic TTI Messages), Norway

<i>Type of activity: Public-private partnership providing national traffic information service</i>
<i>Geographical location: Norway</i>
<i>Other Key Features: Developed from an R&amp;D project; emphasis on high-quality information, based on data from a range of sources</i>
<i>Key 'Good Practices': Innovative public-private partnership involving a considerable degree of joint working, which has provided a good basis for further partnership ; strong emphasis on data quality and format to meet users' needs</i>
<i>TTI dissemination media used: Radio, Internet, SMS, WAP, PDA</i>

### 14.1 Abstract

The Norwegian Dynamic TTI messages service is provided by a Public Private Partnership which includes the public road authority, telecommunications and broadcasting companies and a research and development organisation. The service is designed to provide high quality information based on data from a range of sources. Revenues are shared on the basis of a contractual arrangement between the partners.

### 14.2 Background

The Dynamic TTI Messages service was launched in 2001 and was developed through a Public Private Partnership to provide high quality road traffic information from a variety of sources to drivers in Norway through a variety of media. The development of the service was funded partly by partners and partly by the national research budget. Radio listeners form the main audience for the service but the Internet service is also popular. The SMS service has few users.

### 14.3 Objectives

The service was developed through a project designed to create a platform for providing services that could help to make more efficient use of the road network. Other objectives for the project focused on the safety of drivers using in-vehicle devices to receive information. The public sector goals are policy-driven. The private sector communications provider and solutions provider have benefited from the opportunity to develop and test new technologies and services.

### 14.4 Implementation

The service covers the whole of Norway but most of the messages are related to the Oslo area, since this is where most of the congestion occurs. Messages cover road traffic conditions, but the radio broadcasts include some public transport information. The service uses information from a specially recruited team of drivers who report on traffic conditions as they encounter them, a traffic surveillance helicopter, the national road administration's data, and the police. Information from different sources is analysed, checked and integrated in a database, before it is formatted for use on the Internet site [www.p4.no/trafikk](http://www.p4.no/trafikk), in traffic broadcasts and in the WAP and SMS services. High quality messages are ensured through careful technical analysis of the data, and a training programme for staff.

Users can specify the area or sections of the network for which they will receive messages. The Internet service is free of charge, while SMS users pay for each message. The main source of funding is from advertising. The revenues are shared between the partners, on the basis of a contractual arrangement. The benefits of the service to the radio station are seen in promoting its position as the leading source of traffic information.

Further development is needed for some of the technologies. User interfaces have been tested, using touch and voice instead of a visual display.

### **14.5 Evaluation**

The WAP and SMS services have made the service available on new platforms but the number of users is currently low. Message quality has been improved dramatically. Partners have needed to spend significant time and effort in accommodating different ways of working so that they could co-operate to develop and implement the service.

### **14.6 Conclusions**

The partnership has been successful and forms the basis for developing further services in the future. Plans are being considered for integrating the service with related information services such as route planning and tourist information. Potential future developments include tailoring the service more closely to users' needs, enhancing it with travel time prediction and advice on route planning, and integrating it with other related services.

## **“stadtinfoköln”, Germany**

<i>Type of activity: R &amp; D project to develop Traffic Information Centre and deliver multimodal TTI</i>
<i>Geographical location: Cologne / Germany (map)</i>
<i>Other Key Features: Provides new high-quality information services for collective and individual users, with basic service delivered free-of-charge, and on-trip and real-time services charged for and delivered to mobile devices; many types of data from a wide range of sources; large number of partners in consortium (16); limited life of present contract (4 years)</i>
<i>Key ‘Good Practices’: Built clearly on work of earlier programmes; closely integrated with local long-term policy goals and framework for ITS implementation; developed using step-by-step approach; has involved public-private partnership from the start; uses ‘open’ system architecture to enable easy data integration</i>
<i>TTI dissemination media used: Internet, PDA, VMS, TV, radio, in-car systems, kiosks</i>

### **15.1 Abstract**

“stadtinfoköln” is a research and demonstration project focusing on urban traffic management, traffic information and mobility services in an integrated way. It represents a crucial building block within a long-term local policy framework for ITS implementation. Particular achievements have been the development of new high-quality information services for collective and individual users, and the definition of an operating model for the traffic management and information centre through a public-private partnership.

### **15.2 Background**

Since 1991 the city of Cologne has been implementing a municipal action plan for ITS applications, financed by local, regional and national funds. This has made it possible to successively extend the urban traffic management centre (TMC), the parking information system and high-quality TTI services.

In 1999 the city set up a public-private partnership consisting of the city, system and content providers, vehicle manufacturers, a car-sharing service and research institutions, to establish an urban traffic information centre (TIC), co-funded by a federal government R&D programme.

### **15.3 Objectives**

At the strategic level “stadtinfoköln” aims to improve the city’s traffic management capacity and cost efficiency, the quality of the urban environment, and to promote the Cologne region as an attractive and innovative business location. In practical terms the city is seeking to achieve this by providing high-quality real-time information to travellers in public transport and private cars via collective and individual delivery channels.

### **15.4 Implementation**

Through a pragmatic step-by-step approach to implementation, previous components of the traffic management and information system have become integrated through the “stadtinfoköln” project: area-wide road data collection (induction loops, cameras), urban TMC, parking information and reservation system, public transport control centre and information system.

The project consortium has established a TIC with an open system architecture that makes it possible to integrate all of the traffic data collected, and to deliver multimodal information to travellers in real-time via VMS, radio, videotext, TV, printed media, internet, PDA, info-kiosks and in-car systems. All information on traffic flows and incidents affecting traffic and public transport, as well as on parking, weather and events is also offered to private service providers

on a commercial basis. The partnership is defining a final operating model for the running the TIC from May 2003.

### **15.5 Evaluation**

Positive effects of the long-term ITS policy have been demonstrated on urban road traffic volumes, modal split and perception of transport problems. For instance, while motorway traffic volumes increased by 18%, inner-city road-traffic has fallen by 10% (1991 - 1998). "stadtfoköln" contributes strategically to this policy, integrating ITS services, but more time is needed before valid results evaluating its particular contributions can be obtained.

### **15.6 Conclusions**

Due to the early stage of the project, the capacity for lasting value-added TTI service delivery still needs to be proved. It is clear, however that long-term political commitment and gradual implementation have been important is the success of "stadtfoköln". The project has confirmed the potential of R&D projects to foster public-private cooperation, define new modes of partnership and explore the business-sensitive field of public data exploitation for high-quality TTI service delivery.

## Trafikanten, Oslo

<i>Type of activity: Publicly-owned company providing public transport information</i>
<i>Geographical location: Oslo, Norway (map)</i>
<i>Other Key Features: Journey planning service. Owned by major publicly-owned operators, but does not include services of all operators (who participate voluntarily)</i>
<i>Key 'Good Practices': Agreements have developed to use the same journey planning software in other services and other countries</i>
<i>TTI dissemination media used: Call centre, Web, WAP, SMS</i>

### 16.1 Abstract

Trafikanten is a private company (but publicly-owned) providing public transport information for the Oslo area of Norway. Set up by the public transport operators, Trafikanten currently collates data from all the major transport companies, to avoid fragmentation. The future of this comprehensive coverage is uncertain, as deregulation of the public transport industry is introducing competition into the market.

### 16.2 Background

Trafikanten is entirely owned by the three transport authorities in the Oslo region: Sporveien, Stor-Oslo Lokaltrafikk and NSB BA. Trafikanten offers information and ticketing services for all public transport modes. This information can be sold free of charge to commercial public transport operators.

Information and journey planning services are available through a range of media: a service centre based at the airport, a telephone enquiry centre (operating since 1986), a visitor centre, an Internet service providing a Travel Planner (since 1997), and WAP (since 1999) and SMS based travel planners.

### 16.3 Objectives

The aim is to provide a "competition neutral" service, finding people the best route without encouraging use of services run by any particular operator. To achieve a really high quality information service, Trafikanten see a need to set up a forum for standardisation, to ensure minimum standards of quality for the data provided by operators.

### 16.4 Implementation

The three most popular ways of obtaining information from Trafikanten are the telephone enquiry service, WAP and the Internet: [www.trafikanten.no/](http://www.trafikanten.no/) To access Trafikanten's telephone service, users dial a common telephone number '177' which can be used anywhere in Norway. New services are being planned, including real-time information.

State grants contributed to the set up costs. Sales of the software to other counties are used to fund improvements. With the privatisation of more public services, Trafikanten have to struggle against becoming fragmented.

### 16.5 Evaluation

The travel planner has increased public transport use. The Internet service has seen rapid growth with over 2.6 million customers during 2002. Originally the number of customers using the WAP service was low, but the number of users doubled in 2001, to 190000 in 2002. Use of the call centre has been decreasing, the number of calls was 950000 in 2002.

The neutral nature of the service has made some operators reluctant to provide data, and deregulation of the transport market may increase this problem unless regulations are introduced to ensure that operators provide information to a public transport information service.

## **16.6 Conclusions**

Trafikanten has found that it is important to consider the ease of use and completeness of a service, while the needs of the public must be considered to discover any potential markets.

Trafikanten often subsidises smaller commercial operators so that comprehensive coverage of services can be maintained. In future, national working groups of the relevant stakeholders may be needed to ensure standardisation of information and services in a deregulated industry

New projects that are being planned include SMS, speech recognition and real-time information systems.

## Trafikinfo, Copenhagen

<i>Type of activity: Collaborative forum providing traffic and travel information and traffic management services</i>
<i>Geographical location: Copenhagen, Denmark</i>
<i>Other Key Features: Voluntary collaborative organisation, with membership renewed annually; both national and local organisations are involved, but all are public-sector Has developed a comprehensive traffic information and journey planning website</i>
<i>Key 'Good Practices': Has developed organically over a long period (from 1986) according to the needs and objectives of partners; has a mix of small effective activities and more ambitious projects; has developed a flexible platform for supporting a range of traveller information and traffic management services; has developed a common vision</i>
<i>TTI dissemination media used: Internet, radio, WAP, SMS, E-mail</i>

### 17.1 Abstract

The traffic and transport authorities in Copenhagen have joined together in a voluntary forum with a common vision for providing integrated traffic and travel information services. Subscriptions to the forum are used to fund joint initiatives, which are implemented in stages by securing small achievable improvements in the context of longer term plans for common systems and flexible architectures.

### 17.2 Background

The TRAFIKINFO forum members are the main public authorities and organisations concerned with traffic and travel in the city of Copenhagen. From an informal start in 1986, the group has continuously formalised its commitments and in 2001 agreed a common vision, and created an action plan for 2001 – 2006. The largest of the projects is the TRAFIKINFO project, named after the forum, which involves demonstrating the effects of a range of ITS systems and services on the east-west corridor which connects the city centre, the suburbs, and the Trans-European road network route to Sweden.

### 17.3 Objectives

The TRAFIKINFO forum aims to encourage more informed travel decisions and better use of infrastructure through integrated TTI services. The objectives are to improve the joint use and co-ordination of traffic information and services, and to be the forum for discussing and implementing joint activities and projects. The group has agreed a long-term vision.

The TRAFIKINFO project plan for 2002 – 2006 involves developing small effective improvements and larger joint projects, all on one corridor.

### 17.4 Implementation

The forum's activities cover a range of information services and the facilities and architectures to support them. The Internet site [www.trafikinfo.dk](http://www.trafikinfo.dk) provides dynamic traffic information and journey planning. The quality of traffic and travel information services and broadcasting have been improved through standardisation and co-ordination. Information on events and roadworks is co-ordinated on the web site. Users can obtain maps and a free subscription e-mail service tailored to individual routes. Traffic management services are also developing.

Transport decision makers set up the forum, seeking the benefits of collaboration. The forum is funded from members' subscriptions. Private service providers will pay for any information they use. The forum is more successful now than it was initially, when the focus tended to be on individual interest at the expense of collaboration.



Individual forum members retain ownership of data and infrastructure. Services are free to the public. The role of the private sector is still limited, but Public-Private Partnerships are being investigated for infrastructure finance or added-value services.

### **17.5 Evaluation**

TRAFIKINFO has stimulated service quality improvements and the development of new services based on a flexible data platform. The scope and scale of the work of the forum have increased dramatically since it was formed.

### **17.6 Conclusions**

The motivation and commitment of individual decision-makers in the various transport authorities in the city have been key to setting up the forum and achieving improvements. Success has been attained by working in small stages which were easy for organisations to work with. Voluntary collaboration, securing support at all levels in the member organisations, and a common vision have all been key success factors.

## Trans Basel, the Basel region

<i>Type of activity: R &amp; D project involving public and private sector partners in three countries set up inter-modal travel information service on the Internet</i>
<i>Geographical location: Basel region, Switzerland, France and Germany (Map)</i>
<i>Other Key Features: Trial project; provides information on all modes, including cycling and walking; involves multi-national collaboration</i>
<i>Key 'Good Practices': Multi-modal route calculation tool integrates public and private transport modes, with Park and Ride an integral part of the mode-service offering, as is real-time car park occupancy data; uses concept of 'data layers' to enable incorporation of partial information in a useful way; has close working relationship between partners</i>
<i>TTI dissemination media used: Internet</i>

### 18.1 Abstract

TransBasel is an Internet-based travel information service for the Basel area. The service co-ordinates public and private transport information from authorities and transport operators in three countries, and provides inter-modal trip planning, journey times and real-time information. The service was set up in a Research and Development project, and is not a commercial service.

### 18.2 Background

Trans-Basel is a multi-modal Internet-based information service which was developed in an R&D project between 2000 and 2002. The service relies on co-operation between operators of all transport services and authorities in Switzerland, France and Germany.

### 18.3 Objectives

TransBasel aims to improve transport efficiency, inform mode choices, promote public transport and encourage multi-modal journeys. Travellers in Basel needed co-ordinated information covering cross-border journeys and linking journeys using services run by different transport operators.

### 18.4 Implementation

TransBasel provides pre-trip planning information and details of real-time traffic conditions on the Internet site: [www.transbasel.com](http://www.transbasel.com). The innovative pre-trip route planning tool provides travel time calculations to enable users to compare journeys by different modes and combinations of modes. The service includes real-time information on parking availability and traffic conditions on the motorways. Web camera views and maps show traffic conditions. The network coverage is complete for basic information, but other information is available only on parts of the network. Routes are calculated using the best information available.

The information is free of charge, funded by the project and the consortium. Agreements ensure that the information is used only for TransBasel. The project consortium ran the information service and developed plans for a future organisation. The service is in a transitional stage, maintained using external funding to ensure continuity of service.

### 18.5 Evaluation

The web site has 100 – 150 users each day. The site is well received by users but experience shows that they are not likely to pay for the service, so public sector financial support may need to be found if it is to continue. Surveys of users found that the information is most useful for planning non-routine journeys, but relevant real-time information can be useful for commuting; 17% of users had changed their plans at least once after seeing information on the web site. Advertising and media coverage have increased use of the service.

## **18.6 Conclusions**

Close working relations between partners have been a key to the success of the service. There were a number of lessons for the technical development of web-based multi-modal information services. Standard formats were successful for obtaining real time road traffic data from road operators, while public transport timetable information was difficult to use. Lack of geographic data for the transport network meant that it was too expensive to display maps.

Options for extending the service to provide in-trip services using Variable Message Signs, mobile devices and information kiosks are being considered. The business case for a future service is based on a publicly funded service with a value-added service for businesses. Transfer of the service to other areas is technically feasible; the amount of effort involved depends on availability of geographic and transport data.

## YTV, Helsinki Metropolitan Area, Finland

<i>Type of activity: Publicly-owned organisation managing public transport and providing information.</i>
<i>Geographical location: Helsinki Metropolitan area, Finland.</i>
<i>Other Key Features: Public Transport journey planning</i>
<i>Key 'Good Practices': Strong emphasis on data quality</i>
<i>TTI dissemination media used: Web, Call centre, mobile phone services, at-stop displays</i>

### 19.1 Abstract

Helsinki Metropolitan Area Council (YTV) is owned by the municipal authorities in the Helsinki region, and is responsible for managing public transport in the region including regional public transport across municipal boundaries. YTV provides traveller information services as a tool for promoting public transport and reducing car use. YTV sees the development of minimum data quality standards as being important to the future success of traveller information services.

### 19.2 Background

YTV organises public transport in the Helsinki region, running the competitive tendering process for public transport services. In order to ensure co-ordinated information, YTV collates transport data and disseminates information through other organisations and their own services.

### 19.3 Objectives

YTV's public policy goals include promoting public transport and reducing car use. These, rather than commercial goals, have driven the development of its public transport information services. Improving real time information services is another objective for YTV.

The timetable database information is generally available free of charge to users and contracted services providers.

### 19.4 Implementation

Most of the information for the integrated timetable database comes from services managed by YTV, and information from all local and regional public transport operators in the area is collected. YTV also collects real time operational data from bus operators.

Timetable and fare information is shared with organisations providing services to the public by agreement with YTV, and with commercial content providers.

YTV operates a web site which includes a public transport journey planner <http://pathfinder3.meridian.fi> which is available free of charge, in addition to printed information, call centres and displays at stops.

### 19.5 Evaluation

YTV have found that traveller information services can be used to improve the quality of public transport services. In Finland there is a large amount of development in mobile technology, but the demand for traveller information services is not so strong, even though there is high use of mobile technology.

An investigation of customer 'willingness' to pay for mobile services has been carried out, with a large survey among users of the information service. Customer opinion of the TTI service has been assessed using a national survey, but the results are not yet available.

## **19.6 Conclusions**

A need has been identified for minimum standards for data quality, to enable use of information services to be promoted.

Business models have yet to be developed in Finland for real time information services on public transport.

Development of traveller information services in Finland is being hindered by lack of standards for data, limited resources and insufficient profit.

A new real time information database is planned for the future, but it may be delayed due to lack of funding.

## **6.2 Excerpt from Commission Recommendation C(2001) 1102 final**

### **Comission Recommendation on the development of a legal and business framework for the participation of the private sector in deploying TTI services - C(2001) 1102 final**

Full version in all official EC languages at:

[http://europa.eu.int/eur-lex/pri/en/oj/dat/2001/l\\_199/l\\_19920010724en00200022.pdf](http://europa.eu.int/eur-lex/pri/en/oj/dat/2001/l_199/l_19920010724en00200022.pdf)

#### **1. Purpose and objective**

Member States are invited to develop an appropriate legal and business framework for participation of the private sector in deploying telematics-based traffic and Travel information (TTI) services in Europe.

The objective of that framework is to encourage the commercial deployment of added value services offered to travellers, along with the improvement of existing and planned public travel information sources such as broadcast and internet travel news and telephone enquiry lines.

#### **2. Facilitation of European TTI services**

Member States are invited to work together for establishing European TTI services by participating in the work of the high level working party chaired by the Commission. The Member States should inform the Commission of any national initiatives, actions or intended measures in the area of TTI services and products.

#### **3. Regulatory framework for TTI services**

Member States should take steps to harmonise the requirements for TTI services at national, regional and local levels. To this end, Member States are invited to take the following actions:

- (a) to publish and make available the requirements and applicable laws and regulations relating to public safety, traffic safety, transport and traffic management, privacy and personal data with which TTI service providers need to comply in providing their services, at national, regional and local level;
- (b) to encourage the adoption of standard contracts and service level agreements by public authorities and public agencies for the supply of traffic and travel data of all modes of transport to commercial sector operators and users;
- (c) to encourage the public authorities and public agencies who operate on-line traffic detection and monitoring equipment to make the data available in real time to all TTI service providers on equal terms;
- (d) to promote public private partnerships in the provision of TTI services.

#### **4. Proprietary traffic and travel data**

In the interests of promoting the rapid development of European TTI services and products, and to encourage market competition and quality improvement in TTI services, Member States are invited to carry out the following actions:

- (a) wherever possible, to encourage public authorities and public agencies to allow private operators of TTI services to install and maintain their own traffic monitoring equipment on public roads, operated on a proprietary basis;
- (b) to develop, publish and make available, for the benefit of all TTI service operators, guidelines for safe installation, operation and maintenance of traffic monitoring equipment on public roads;
- (c) to specify, publish and make available the requirements to be placed on TTI service providers to promptly notify the authorities of any data or information about emergencies and major traffic incidents they receive, in the interests of public safety;

(d) to adopt measures to ensure that public authorities and public agencies safeguard the commercial value of all proprietary traffic data and travel information supplied to them by private TTI service providers.

### **5. Observance of road infrastructure hierarchies and traffic management strategies**

In the interests of ensuring that TTI products and services observe the recommended routes for through-traffic and discourage the use of unsuitable roads, Member States are invited to publish, with a view of informing TTI service providers and also the developers and publishers of navigation databases, the details of road hierarchies for through traffic for different classes of traffic as well as the existing local traffic management requirements and guidelines. Changes to the road hierarchies should be published promptly.

### **6. Facilitating TTI services**

Member States are invited to ensure that TTI service providers have the freedom to develop and offer their services and products on a commercial basis. The only constraints to be imposed on them by public authorities and public agencies should be those relating to public safety, traffic safety, transport and traffic management and the protection of privacy and personal data as provided for by this Recommendation.

### **7. Reporting progress**

Member States are invited to report progress in establishing the appropriate national framework for TTI services to the Commission within two years of the date of publication of this Recommendation in the Official Journal of the European Communities.

This Recommendation is addressed to the Member States.

### 6.3 Abbreviations

TTI	Traffic and Traveller Information
ITS	Intelligent Transport Systems
TIC	Traffic Information Center
RDS-TMC	Radio Data System -Traffic Message Channel
MS	Member States
VASP	Value Added Service Provider
B2A	Business-to-Administration
B2B	Business-to-Business
B2C	Business-to-Consumer
VMS	Variable Message Sign
HMI	Human Machine Interface
CEE	Central and Eastern Europe
VMS	Variable Message Sign
3G	3rd Generation Mobile Communications
TEN-T	Trans-European Transport Networks
e-TEN	Transeuropean Telecommunications Networks
MoU	Memorandum of Understanding
SMS	Short Messaging Service
GPS	Global Positioning System
WAP	Wireless Application Protocol
FVD	Floating Vehicle Data
USP	Unique Selling Point
OEM	Original Equipment Manufacturer
OMC	Open Method of Coordination