ATLANTIC / e-Europe 2002

Practitioners Handbook for TTI Service Implementation in European Cities & Regions

Deliverable D6.4

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Acknowledgements

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- the authors of the 25 national reports on the status of TTI service implementation
- the authors of the 19 Good Practice case studies
- the 45 interview partners
- the 58 participants of the Focus Groups and Validation Workshops
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Peer review

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Disclaimer

ATLANTIC WP5 & WP6: Deliverables overview and relation

Focused documentation of results

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 ga, analysed and documented, the following overview should facilitate orientation and reference for the reader (Table 0.1).

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	*Practitioner's handbook for TTI service implementation*	*Practitioners of TTI service implementation in European cities and regions (public & private sector)*
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	*Good Practice in TTI service implementation (glossy edition)*	*All stakeholders of TTI service implementation in Europe*
	D6.5	*Joint Country reports (glossy edition)*	*All stakeholders of TTI service implementation in Europe*

Deliverables are self-standing documents

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).

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[1] 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.

Analysis of conditions for a successful implementation of TTI services

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:

Knowledge base, stakeholder involvement and policy recommendations

- 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.

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:

[1] http://www.atlan-tic.net

Worksteps and project methodology

- 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.[2]
- 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.[3]
- 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.[4]
- 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

ATLANTIC recommendations for TTI service deployment

All worksteps have thus contributed to the final formulation of policy recommendations.[5] 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).

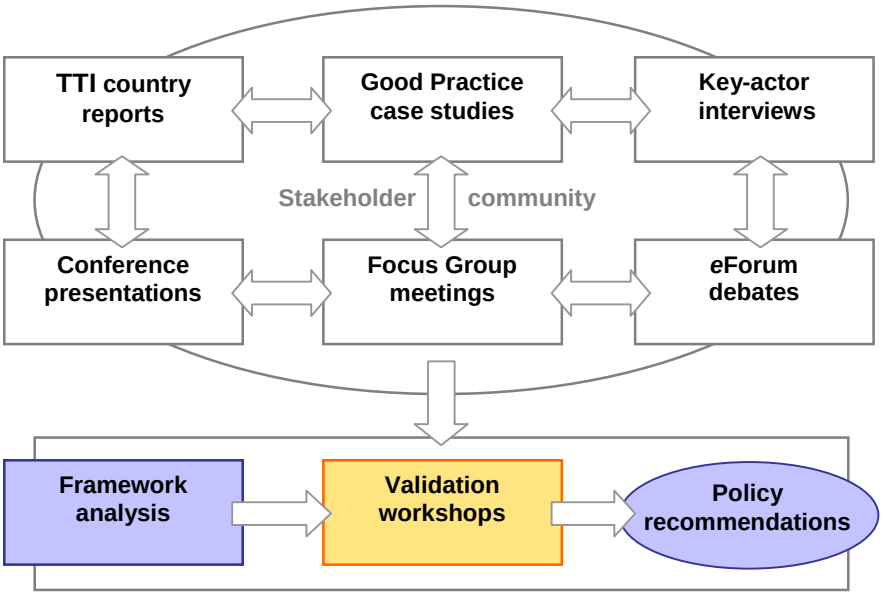
[2] See ATLANTIC D5.0 and D6.5

[3] See ATLANTIC D.5.1 and D6.3

[4] www.polis-online.org

[5] ATLANTIC Tasks 5.5, 6.2 – 6.5

Figure 1.1: Worksteps within ATLANTIC: Creating practical knowledge for stakeholders and policy making.



Close involvement of stakeholders & experts

2 Objectives and vision for TTI service deployment

2.1 Policy objectives

Conditions for urban / regional TTI services

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

2001 transport policy White Paper

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

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

Policy goals for ITS and TTI services

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

[6] 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

TTI services can support intermodal traffic management and route planning …

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.

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

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.

2000 Lisbon Summit targets

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".

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

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.[7] 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[8]
- 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

[7] COM(2001) 140 final; COM(2002) 263 final

[8] COM(2001) 372 final

- Improve mobile communications (3G networks, Galileo)

Stimulating economic effects and location policy

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.

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.[9] 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

Facilitate private sector involvement to achieve policy goals

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.

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.[10]

[9] C(2001) 1102 final

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

Revision of TEN-T guidelines

A revision of the guidelines for the development of the Transeuropean Transport Networks (TEN-T) is currently under way.[11] 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 for the deployment of basic "infostructure".[12]

Proposal directive on road toll systems

The EC is proposing a directive on tolling schemes for road user charging.[13] 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.

e-Safety Forum

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.[14] For 2003, eight thematic subgroups 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-TEN guidelines and programme

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.[15]

Galileo initiative

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).[16]

Revision of the DATEX MoU

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

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

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

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

14 http://europa.eu.int/information_society/programmes/esafety/index_en.htm

15 http://europa.eu.int/information_society/programmes/eten/index_en.htm

16 http://europa.eu.int/comm/dgs/energy_transport/galileo/index_en.htm

will form the basis for a cooperative discussion process involving all stakeholders.[17]

e-Content programme continuity

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.[18] 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.

Further EU policy implications …

Furthermore, also the creation of the European Research Area supported by the 6th 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.

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.

Vision based on stakeholder debate

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.[19] 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.

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:

TTI services in 2010: An overall benchmark to aim at

- 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.

[17] http://www.datex.eu.org

[18] http://www.cordis.lu/econtent/

[19] 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, travellers and tourists

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

3.1 Framework conditions

Wide variety of 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.

Analysis of framework parameters

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:

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?

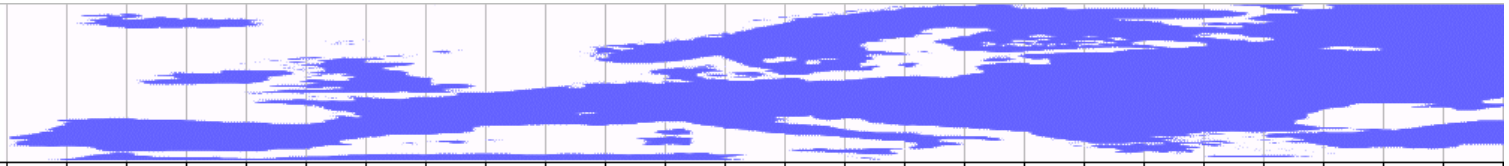
Data availability

- 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
country	**PT**	**ES**	**IE**	**UK**	**FR**	**BE**	**NL**	**LU**	**DE**	**DK**	**IT**	**AT**	**SE**	**FI**	**GR**	**NO**	**CH**	**CZ**	**SI**	**PL**	**HU**	**SK**	**LI**	**RO**	**BU**
ITS = key element of transport policy	yes	yes	no	yes	yes	yes (1)	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes (2)	yes	yes (2)	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 (3)	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 (2)	yes	no	no (5)	no	no	no (6)	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 (4)		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

9 of 25 countries have implemented the Commission Recommendation

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.

Catalysing organisations favour legal frames and ITS strategies

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).

Private VASP's require clear framework conditions

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.

Different approaches to private data collection

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.

R&D activities - but no common evaluation guides

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.

3.2 Implementation status

Broad variety of TTI services available

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.[20]

TTI service deployment below expectation

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.[21]

Euro-regional differences

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.

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

Common implementation features

- 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.

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

[20] 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

[21] 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.

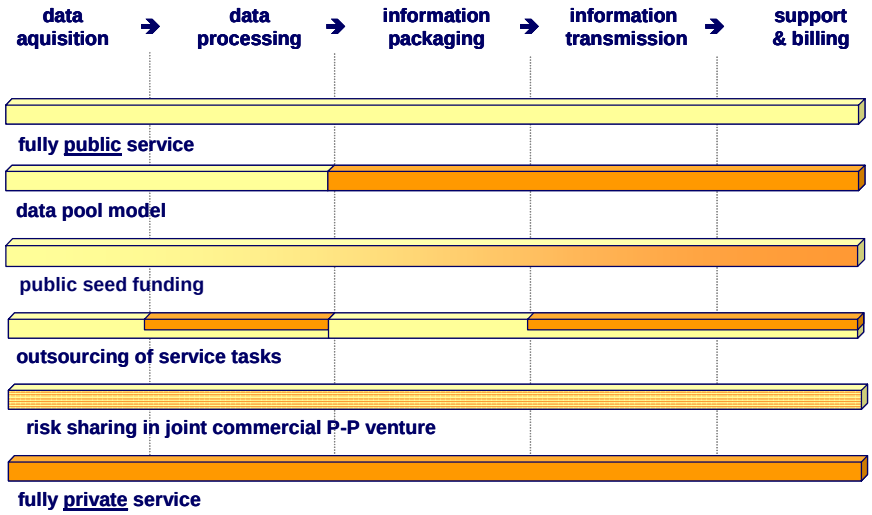
3.3 TTI service delivery models

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:

6 Basic TTI service delivery models

- *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.

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

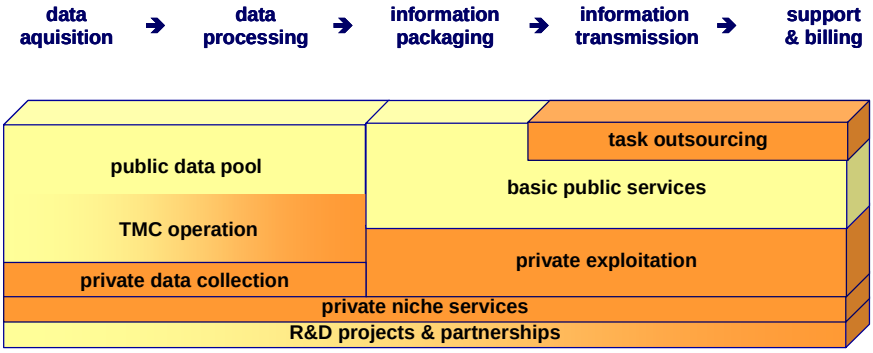


Public / private task divisions

"Clustered" delivery of TTI services

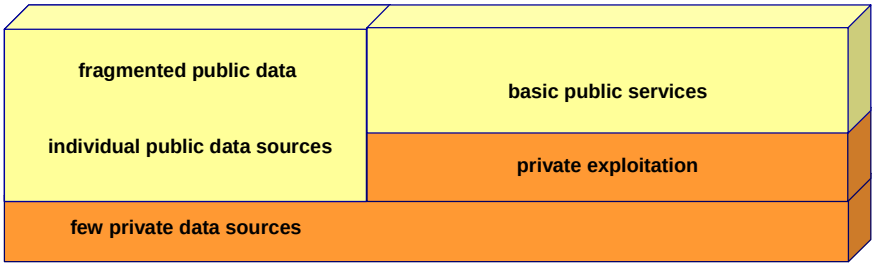
In practice, however, these models hardly ever appear in an isolated form. Within a specific country or region, TTI services are mostly in "clusters" that combine various or even all delivery models (Fig.3.2). The make-up of these clusters reflects the framework conditions in place, in particular the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

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



Example 1: West European urban regions

Clusters reflect framework conditions



Example 2: CEE country

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):

User groups: Cost versus utility

- 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.

Public sector: Cost versus public benefit

- 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: Investment versus profit

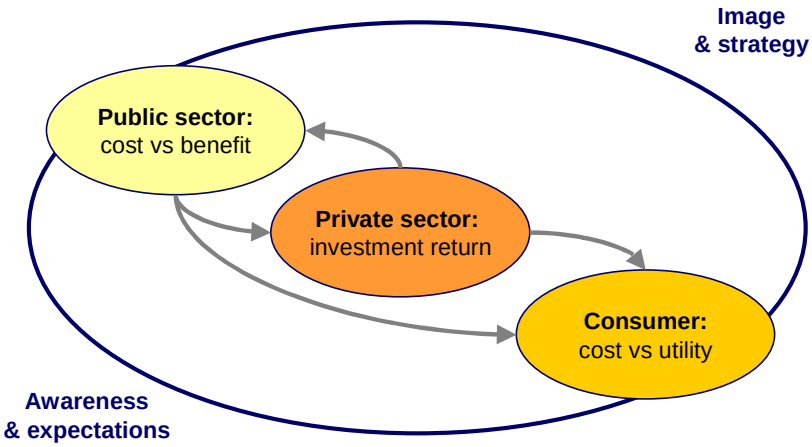
- Private sector players share the objectives of marketing their products/services through TTI, entering a future growth market and/or developing a new profitable business area. In this, private sector actors depend heavily on the framework conditions established by the public sector, which they often 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.

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**
User groups	
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
Public authorities	
European Commission	interoperability, data availability, market development, transport policy
National ministries (IT, economy, transport), lo-cal/regional authorities	traffic management, modal shift, economic development, business location development, image improvement
Private sector	
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



Coincidence of all stakeholder positions required

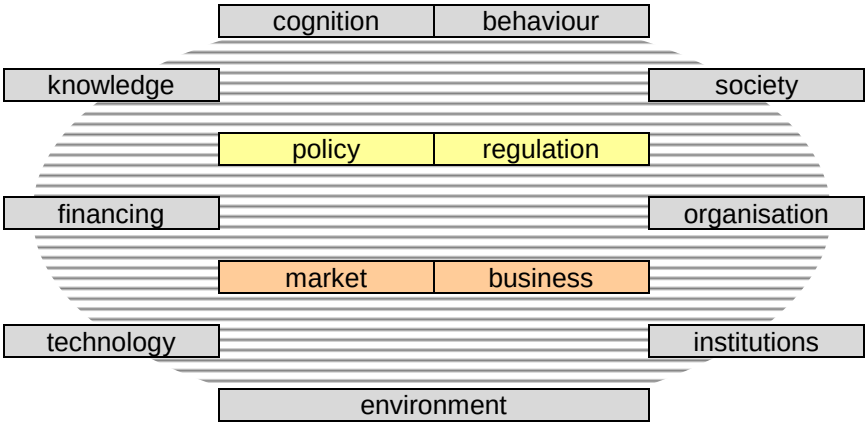
In order for the TTI service to be successful, its image and development strategy must be perceived in a similar light by all the key stakeholder groups, and their awareness of it and expectations for it must be similar or compatible.

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).

Four questions for implementation

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

What level of service?

- 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.[22]

What are the impacts?

- 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 investments?

- 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.

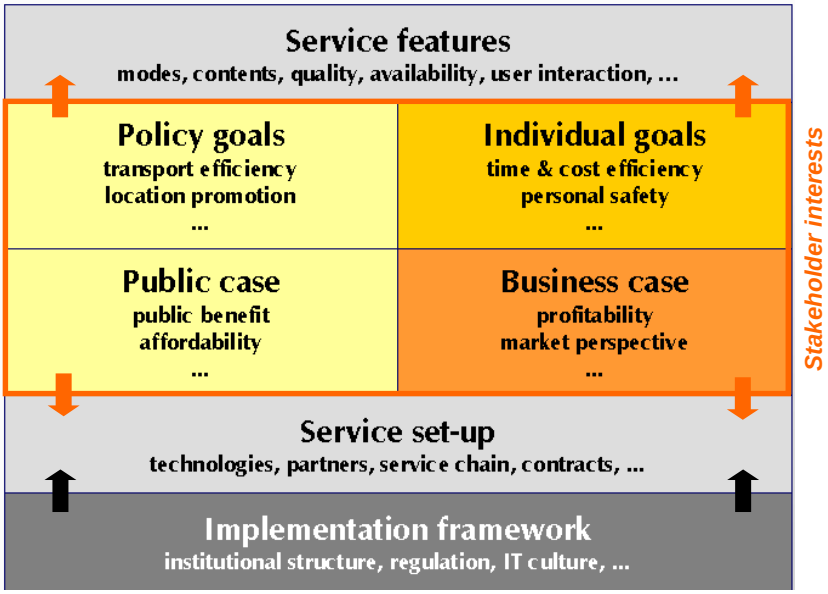
What shapes the implementation?

- 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.)

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.

[22] 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,[23] a comprehensive classification system of TTI services (a taxonomy) has been developed.

Objective measure of service features

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:

Five TTI service vectors

- *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.

[23] 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".

Benchmarking TTI service levels: Basic, intermediate, advanced

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.

Table 4.2: TTI service taxonomy

Information content	**Basic**	**Intermediate**	**Advanced**
Traveller information	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
Driver information	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**
Transport mode	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
Network	Local area only	City wide Region wide	Country wide Europe / world-wide
Real-time operations	Static service	Daytime or Peak periods only	Continuous 7/24
Information depth and quality	**Basic**	**Intermediate**	**Advanced**
Timeliness	Static only: no "live" (real-time) information	Limited "live" data	Modelled "live" data Knowledge-based "live" data Predictive or historic trend data
Location referencing	Localised or service-specific (non-standard) location referencing	National or City/region-wide location referenc-ing scheme	Advanced location referencing Compatibility with navigation databases and satellite navigation (full latitude & longitude)

Accuracy	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
Reliability	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
User interaction	**Basic**	**Intermediate**	**Advanced**
Level of interaction	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 informa-tion on the move – handheld & in-car terminals, WAP-phones
Access to information	Pre-trip information only	Pre-trip and on-trip information	Seamless: Information available at all stages including trip end
Advice and guidance	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
Product development	**Basic**	**Intermediate**	**Advanced**
Market orientation	Public service (100% public financing)	Bundled service (Mixed public and private financing with sponsorship or cross-subsidy)	Value-added service (pay per use)
Exclusivity	One service fits all	Options to select service mode by broad categories of user and/or location	Personalised service for individual clients
Media	Single mode of presentation	Choice of platforms mode of presentation	Multiple platforms and options for personalising the user interface
Booking and payment	Conventional single mode	Integrated multi modal payment systems	SMART multifunctional integrated booking and payment system
Security of personal information	No procedures	Weak procedures - risk of security breaches	Robust security & personal information procedures

5 ATLANTIC recommendations

5.1 Goals and instruments for implementation

Shared goals for TTI service 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:

G_1	Develop clear policy statements and a rationale for TTI service implementation.	**I_1, I_2, I_3, I_8**
G_2	Reach consensus between stakeholders on their respective roles.	**I_3, I_4**
G_3	Raise the profile of TTI in sectoral policies and programmes.	**I_1, I_2**
G_4	Expand the availability of data.	**I_4, I_6, I_7**
G_5	Improve the financial feasibility.	**I_1, I_2, I_7**
G_6	Enhance the coordination process on system architecture, interfaces and delivery practice.	**I_3, I_6**
G_7	Foster the development of intermodal content and services.	**I_1, I_2, I_5, I_6**
G_8	Increase the rate of successful take-ups and transitions from development to “business”.	**I_5, I_7, I_8**
G_9	Develop a more entrepreneurial culture.	**I_1, I_3, I_4**
G_{10}	Aim for flexible and cooperative service developments.	**I_3, I_4, I_5, I_8**

Instrumental areas for implementation

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:

I_1	ITS/TTI policy	**G_1, G_3, G_5, G_7, G_9**
I_2	RTD and mainstream policies	**G_1, G_3, G_5, G_7**
I_3	Consensus support actions	**G_1, G_2, G_6, G_9, G_{10}**
I_4	Awareness raising and training measures	**G_2, G_4, G_9, G_{10}**
I_5	Benchmarking, good practice & delivery model development	**G_7, G_8, G_{10}**
I_6	Laws and (self-)regulation	**G_4, G_6, G_7**
I_7	Financial incentives	**G_4, G_5, G_8**
I_8	Evaluation and assessment	**G_1, G_8, G_{10}**

5.2 Towards TTI service implementation in European cities and regions

Check-list or guideline for practitioners

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.

Ten recommendations for coordinating actions & actors

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.

Roles and tasks of stakeholder groups

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.

Necessary components of the implementation process

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.

Focus on local and regional level

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.

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:

ATLANTIC recommendations overview

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.**

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

1

Rationale

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.

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).[24]

Actions | **Responsibilities**

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

Member States
Local/Regional Gov.

6

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.

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).

[24] ATLANTIC D5.2: *Recommendations on framework conditions for TTI service deployment in Europe* – 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.

2

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.

Good Practice Example
www.trafikinfo.dk

Trafikinfo[25] – **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.

[25] 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

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

3

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

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.

Good Practice Example
www.stadtinfokoeln.de

stadtinfoköln[26]– 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.

[26] 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

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

4

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.

Good Practice Example
www.mattisse.org.uk

Mattisse[27] – **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.

[27] 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

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

5

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.

Good Practice Examples
www.atlan-tic.net

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.

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

6

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 sched-uled (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.

7

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 seperately 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.

8

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).

Good Practice Example
www.itisholdings.com

ITIS[28] – **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.

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

Local/Regional Gov.
Private partners

8

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.

[28] 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

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

8

Rationale

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.

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

6

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.

Good Practice Example
www.ovr.nl

OVR[29] **– 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.

[29] 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

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

6

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.

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.

9

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 “opportunist” 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.

Good Practice Example
www.citefutee.fr

CitéFutée[30] – **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.

[30] Full case study in: ATLANTIC publication 2003. *Good Practice in TTI service implementation* - www.atlan-tic.net

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

10

Rationale

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.

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

4

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.

www.ibec-its.org

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.

Good Practice Example
www.transbasel.com

TransBasel[31] – **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.

[31] 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

5.3 Overview of recommendations and actions

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

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

6 Annex

6.1 Summary of Good Practice case studies

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

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