ATLANTIC / eEurope 2002

TTI service delivery in Europe - Good practice case studies and key actor interviews

Deliverable D5.1

20.5.2003 / Final

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1 Objectives and approach (Tasks 5.2 – 5.4)

1.1 General objectives

With regard to eEurope Transport 2002 ATLANTIC aims to disseminate current knowledge and best practice from leading examples of telematics based Traffic and Travel Information (TTI) services within the EU, Central and Eastern Europe (CEE). By so doing ATLANTIC thus seeks to support consensus building between relevant stakeholders in cities and regions, as well as with industry.

The identification and analysis of "Good Practice" in TTI service implementation, as well as the exploration of insider information through personal interviews with stakeholders thus aim at two essential achievements: The improved understanding of the key issues in TTI service deployment (frameworks, service models, impacts) and the initiation of a European benchmarking process for TTI services through developing an adequate approach and the broad dissemination of results.

1.2 Operational approach

The tasks have therefore been described as follows:

Combined use of interviews and case studies

- Interviews with key actors and decision-makers involved in the development of telematics-based traffic and travel information services in Europe to determine the pre-conditions for successful TTI deployment, incorporating the results of e-Forum discussions in WP1 and WP3 relating to TTI deployment (Task 5.2)
- Documentation of approximately 10-15 "Good Practice" examples of TTI deployment based on the outcomes of the implementation status analysis[1], including relevant back-ground information e.g. phases of development, technical components of the application, success factors and obstacles, etc., results of evaluation where available and "lessons learned" (Task 5.2)
- Analysis of the case studies to provide an overview and assessment of the impact on strategic issues, incorporating the results of e-Forum discussions in WP3 relating to TTI deployment (efficiency of the transport network; journey times and their predictability; payback times; user acceptance and comfort; modal shift) (Task 5.4)

Both methods, the in depth case studies and the personal interviews have been partly combined in order to improve the

[1] See: D5.0 - TTI service implementation status analysis

quality of the results. A two-level selection process has been carried out for case studies and interviewees, first identifying examples of “Good Practice”. One group of key actors has then been chosen for personal interviews on the basis of their involvement in the set-up and operation of these TTI services. A second group of interviewees has been selected with a view to the complementarity of their practical experience and knowledge in TTI service deployment.

1.3 Good Practice case studies

Based on ATLANTIC information collection

The starting point for the selection of Good Practice formed the TTI service implementation status analysis carried out in Task 5.0. Through this approach the amount of 187 descriptions of advanced examples of TTI service implementation in 25 countries across Europe has been obtained. This represents the totality of TTI services considered for selection as “Good Practice”.[2]

High relevance for stakeholders

The choice of the Good Practice cases (GPC) has been based on a set of criteria, defined in respect of their relevance for the interests of public policy, private sector and individual users. For validation purpose the pre-selection of examples has additionally been submitted to the authors of the national reports on TTI service implementation status. The final case selection has been confirmed through their respective expert assessment.[3]

1.3.1 Selection criteria

Necessary, sufficient and balancing criteria for selection

The selection criteria have been categorized in “necessary conditions” (fulfillment obligatory), “sufficient conditions” (degree of fulfillment describes quality of the example) and additional criteria for a balanced choice. These criteria have been applied to each TTI service description without further enquiry into the service features, thus relying on the information available from the implementation status analysis (Table 1.1).

[2] See: ATLANTIC D5.0

[3] See list of authors in D5.0, Annex

Table 1.1: Set of selection criteria for "Good Practice" in TTI service implementation

Necessary conditions	
availability	service is currently available to users, at least with its essential features
high user response (successful operation)	number of users corresponds to the service coverage, increasing demand
economic sustainability (expected)	service is (expected to be) sustained economically by the revenues generated
policy relevance	service addresse key policy issues e.g. sustainable mobility, social inclusion
transferability	service set-up could be implemented in a different context
Sufficient conditions	
customer focused	takes user needs well into account: contents, distribution media, interface design
high-quality mono-modal information	for a single mode, but featuring real-time information, personalisation, mobile access, location based information
wide range of multi-modal information	for several modes in parallel with the possibility to compare e.g. travel-times, travel-costs, real-time status
inter-modal information	for several modes with the possibility to obtain integrated information on travel-times, travel-costs, real-time status, for mode combinations
wide information coverage	providing useful details e.g. location based information
wide range of access media	information access through multiple distribution media e.g. internet, WAP, SMS, PDA, RDS-TMC, DAB, etc.
innovative service features	new combinations of service features e.g. real-time with trip-planning, personalisation, parking reservation (above average in EU/CEE comparison)
innovative technology use	new technology applications e.g. FCD sources, traffic prognosis, interface design, mobile access, ticket print-out (above average in EU/CEE comparison)
cross-border cooperation	implementation in co-operation between agencies from several countries
multilingual	information available in several languages (local language & English & others)
Additional balancing criteria	
policy contexts	regional and national frameworks
service models	USP's, target groups and information chain structure
spatial scope	geographical area and/ or transport network(s) covered

1.3.2 Case study selection

Identified "key themes" for each case study

On the basis of the necessary and sufficient conditions a pre-selection of cases has been made and submitted to the respective authors of the national TTI service implementation status analyses. Following their assessment and refining the description of the pre-selected TTI services, for each case study a particular "key theme" has been identified as the particular reason for final selection and main focus of analysis. These key themes represent a combination of the basic issues in TTI service implementation: institutional set-up, funding, technological features, business case, and TTI service levels & quality.

The balancing criteria have then been used to achieve a complementary selection of Good Practice cases in terms of regional and national policy contexts, "service models" i.e. packages of services with a particular institutional framework and set-up, and service scopes ranging from local to European transport networks.

19 Good Practice case studies: More than planned

It should be noted that the final selection has not been intended to represent a "comprehensive spectrum" of TTI services in Europe. With a view to the available results of previous and parallel EU research projects focusing TTI services (WELL-TIMED, ROSETTA), as well as in respect of the objectives of the eEurope 2002 transpot initiative (TTI service implementation in cities), an emphasis has been put on *new* approaches and the understanding of different TTI service *set-ups* as promising contributions to a European benchmarking process and the development of recommendations on framework conditions for the deployment of TTI services. This has finally led to increase the number of case studies from the initially envisaged 10-15 to the present 19.

1.3.3 Reporting format

Reporting format focuses framework conditions

For the presentation of the analysis of the 19 Good Practice cases a common format has been developed that defines the topics to be addressed and provides an orientation for the required information detail. The aim has been to obtain brief profiles for each case, easy to read but providing detailed understanding of each "key theme" of analysis. Particular emphasisi has been put on the need to understand the specific framework conditions that have enabled the respective TTI service implementation.

A two-column layout has been chosen to enable a (visual) accentuation of the key issues ("highlights") including images and graphs, and thus to facilitate the overview and access to essential information in the text. Therefore, this format particularly takes into account the requirements for a wider dissemination of results, e.g. through the ELTIS web-site and ATLANTIC

publications in WP6. The main topics of the Good Practice reports are:[4]

- Background - How did the TTI service evolve factually? Actors, partnerships, funding, phasing, present status, service use.
- Goals - What are the objectives of the TTI service? Policy aims, business models and plans, service contents, coverage, user and stakeholder requirements, target groups.
- Technical description - How does the information chain work technically? Data sources, processing, repackaging, dissemination, billing, user interfaces.
- Service set-up - What has been important for the service set-up and operation? Conditions in terms of institutional contexts, cooperations, contracts, motivations, role of individuals, market situation and perspectives, unique selling point.
- Assessment and lessons learned - What conclusions can be drawn from this service and its development? Policy objectives, framework conditions, business model, partnership and cooperation, information chain structure, innovation content, evaluation results, problems and obstacles, transferability.
- Future prospects - What developments are planned for the service? What are the potentials and risks in the future?

Table synopsis for quick overview

In addition, a table-synopsis of the key features of the TTI service analysed is provided, based on the short description format used for the TTI service implementation status analysis. In order to clearly explain the institutional set-up and the technical features of the service in a comparable way, this synopsis is structured by two overall categories:

- Main information chain players and contractual arrangements - Relevant authorities, infrastructure owners and data collection technologies, public sector data owners and providers, private sector data owners and providers, service operator, information editors / service database managers, communications providers, service provider to end users, market segments & end user groups targeted, nature of public-private partnership, strategic marketing partnership
- Main characteristics of service delivery - Modal coverage and mode integration, data quality, information contents, distribution stage and transmission media, user interaction, pricing policy and revenue streams, dDevelopment of service use

[4] See GPC report outline in the Annex

The preparation of the reports has been undertaken mainly by project partners. Where appropriate, also external experts with a detail knowledge of the cases analysed have been subcontracted to improve the results obtained.[5]

Short summary versions for dissemination purpose

In addition to the detailed case studies provided in this report, ATLANTIC has decided to prepare short summary versions of all Good Practice cases analysed. These summaries are based on the general report format, but limited to two pages of text and graphs. They have been prepared in this very accessible format for dissemination purpose in order to make highly relevant information available to the largest number of stakeholders possible. The GPC summaries are contained in ATLANTIC D6.3.

Table 1.2: Overview – key features of selected 19 Good Practice cases

Service / organisation	country	transport modes	spatial scope	sector	funding	business model
ABA	CZ	road	national	private	private	B2B marketing tool
CHAPS	CZ	intermodal (PT)	national	private	private	B2B
CitéFutée	FR	intermodal	urban	public	public	marketing tool
DGT	ES	road	national	public	public & private	B2C marketing tool
Eurotel	CZ	intermodal	CZ	private	private	B2C marketing tool
ITIS	UK	road	EU	private	private	B2C B2B
Kizoom	UK	intermodal (PT)	national	private	private	B2C B2B
Korkonet	PL	roads	urban	private	private	B2C
Logica CMG	NL	road PT	EU national	private	private	B2B
Mappy	FR	road	EU	private	private	B2C marketing tool
Mattisse	UK	intermodal (PT)	regional	public	public & private	B2B
Mizar / Walkie	IT	intermodal	regional	private	private	B2C
OVR	NL	intermodal (PT)	national	private	private	B2C
P4	NO	road	national	private	public & private	B2C marketing tool
Stadtinfoköln	DE	intermodal	urban	public	public & private R&D	B2B marketing tool
Trafikanten	NO	intermodal	urban	public	public	
Trafikinfo	DK	intermodal	urban	public	public	not developed
Trans Basel	CH	intermodal	urban	private	public R&D	not developed
YTV	FI	intermodal	urban	public	public	not developed

[5] See list of authors in the Annex

Table 1.3: Overview – key themes of selected 19 Good Practice cases

Service / organisation	Key themes
ABA	Set-up of (inofficial) national TIC for road network by motorist club; principal data source for private service providers; question of cooperation/competition with second motorist club and establishment as official national TIC
CHAPS	Set-up of national intermodal TIC for public transport by IT company; only national data source for public transport TTI service providers; business conditions due to exclusive position granted by national government (quasi-monopole)
Cité Futée	Intermodal TTI service for urban public & private transport set up by metropolitan PT service provider; contractual framework for PT service provision including TTI; integration with leisure and city information; contractual arrangements with telecom operator
DGT	Public national TMC/TIC providing TTI services for road transport; delivery of data for free to private service providers (telecom operators, broadcasters) with the obligation not to charge for TTI
Eurotel	Intermodal TTI service for mobile phones covering PT and walking; set up by telecom operator; image as high-quality service; TTI as secondary implication of other information services (e.g. retail, leisure)
ITIS	TTI services with different business cases based on road data collection through FVD; development by IT company; coverage of national network; contractual arrangements with transport operators;
Kizoom	Personalised user interfaces (WAP, SMS) for TTI service providers and TTI pay-services covering rail and PT; development by IT company
Korkonet	Set-up of private TTI service provider for urban road transport; advertising as important financing source; business risk through parallel development of free public service; contractual arrangements with telecom operators
Logica CMG	Private system and service provider offering traffic management centres, mobile traffic services, mobile ticket services and mobile broadcasting as products; level of service integration
Mappy	EU-wide service covering TTI for road transport, route planning, tourism and map information; set up by subsidiary of telecom operator
Mattisse	Set-up of partnership between authorities and transport operators; covering public & private transport; contractual arrangements and business plan
Mizar / Walkie	Intermodal TTI pay-service covering public & private transport; development by IT company
OVR	Set-up of national TTI service provider for PT; business conditions due to exclusive position granted by national government (quasi-monopole); quality of intermodal service covering the whole country; contractual arrangements with telecom operator
P4	Set-up of national TTI service for road transport by radio broadcaster in partnership with authorities and telecom operator; use of multiple data sources; contractual arrangements

StadtinfoKöln	Set-up of intermodal TCC/TIC covering urban public & private transport as public-private partnership with perspective to private operation; step-by-step implementation and TTI package selling; parking fee payment
Trafikanten	Set-up of metropolitan TTI service provider by authorities and transport operators; covering public & private transport; contractual arrangements with telecom operator; business risks due to deregulation of transport market
Trafikinfo	Set-up of strategic cooperation between public authorities and transport operators for the introduction of TTI services and traffic management tools; orientation at step-by-step implementation and flexible architecture for public and private TTI service provision
Trans Basel	Set-up of cross-border institutional cooperation and data exchange between authorities and transport operators; quality of intermodal service: journey planner for public & private transport
YTV	Policy-driven set-up of TTI services by metropolitan authority as an instrument for traffic management and PT promotion; contractual arrangements with telecom operator; goal of a TTI “minimum standard”

1.4 Key actor interviews

1.4.1 Selection criteria

14 stakeholder categories for selection

Interviewees have been selected from a large panel of key stakeholders in TTI service deployment, identified through the implementation status analysis. To obtain both a broad variety of perspectives as well as a detailed understanding of practical TTI service implementation (GPC), particular attention has been paid to a well-targeted selection of interviewees. For this purpose, 14 ball park categories covering the principal stakeholder groups have been defined (Table 1.4).[6]

Since one specific interest of the interviews was to get detailed insights into the selected Good Practice cases, the representation of factual TTI service providers (including PT operators and system providers) has necessarily resulted to be high. For the selection of the other interviewees, however, the representation of the different stakeholder groups has been decisive. Furthermore, also a geographical balance and representation of governance systems have been important objectives of the selection approach. However, despite all efforts it should be recognized that the final selection of interviewees has been subject to practical restrictions resulting from schedule problems of the individuals contacted (Table 1.5).

Confidentiality of information

In order to obtain high-quality information, all interviewees have been assured confidentiality of the information provided in the interview. For this reason, the detailed documentation of the 30 key actor interviews conducted is not provided in this report.

[6] cf. D6.2 - selection of Focus Group participants

This approach has made the interviews a crucial source for developing the appraisal schemes and recommendations in ATLANTIC.[7]

Table 1.4: Key actor interviews according to stakeholder categories and regions

Public sector					Private sector								
national authority	regional authority	local authority	railway operator	PT operator	road operator	System architecture	Telecom operator	Broadcaster	Device provider	Car manufacturer	TTI service provider	Researcher	Associations
											NL		
											PL		
											UK		
											UK		
				UK							DE		
				SK		CZ					FR		
CZ				SK		CZ					NO		
FI	FR			PL		CH					NL		RO
ES	DE	DE		UK	FR	DE		NO	DE		UK	RO	CZ

* Telecom operators have been targeted in WP1 (WG 1.3) through dedicated interviews on 3G deployment.

[7] See: ATLANTIC D5.2 and 6.4

Table 1.5: Overview - Key actor interviews and interviewer

Name	country	Institution / Position	date	Interview by	sector	GPC related
Bailey, Giles	UK	Corporate Systems Project Manager, Transport for London	10.09.02	JA	private	
Bartosiński, Tadeusz	PL	Urban Transport Authority (ZTM);	27.06.02	*WS, SP*	public	
Bown, Damian	UK	Chief Technical Officer, Kizoom	18.06.02	KN	private	X
Danielsen, Hans Petter	NO	P4 Radio	28.08.02	*BB*	private	X
de Wijs, Cees	NL	CMG	24.07.02	KN	private	
Decalf, Francoise	FR	SAPRR (Société des Autoroutes Paris-Rhin-Rhône)	15.10.02	AW	private	
Eliassen, Jarl	NO	Trafikanten TTI services for public transport in Oslo/Akershus	06.06.02	KN	private	
Fernández, Federico	ES	Dirección General de Tráfico / Director Adjunto de Circulación	16.08.02	MW	public	X
Gagnez, Nicolas	FR	Wanadoo Maps/ Mappy, CEO and Chairman	13.10.02	SM	private	X
Günther, Christian	DE	Mobilist / Daimler-Chrysler	01.10.02	MW	private	
Hasberg, Peter Körber, Jan	DE	Stadt Köln / Abteilungsleiter Verkehrsmanagement	26.04.02	SR/MW	public	X
Jordi, Phillip	CH	RAPP Engineers & Planners	01.10.02	*AA*	private	X
Jurik, Tomas	CZ	Cross Zlin - Director, private systems developer	01.07.02	PR	private	
Karhumaki, Timo	FI	Finish Road Administration	27.06.02	RI	public	X
Kreul, Lars	DE	Wingcast Europe / President	02.07.02	MW	private	
Machovec, Jiří Bold, Petr Mandik. Igor	CZ	Autoklub Bohemia Assistance – Motorists Club, manager	06.08.02	PR	private	X
Majda, Viliam	SLK	Public Transport Company Bratislava	03.10.02	*TS*	public	
Nekula, Roman	CZ	Roads Directorate (ŘSD)	04.07.02	PR	public	
Popluhar, Juraj	SLK	Public Transport Company Zilina	04.10.02	*TS*	public	
Pribyl, Pavel	CZ	ELTODO - Director, private systems developer	02.07.02	PR	private	
Romanovschi, Stefan	RO	Centre for road technical studies and information systems –CESTRIN	15.08.02	*DD*	public	
Seedhouse, Andrew	UK	First	19.08.02	JA	private	
Simmons, Nick	UK	Integrated Traffic Information Systems Ltd. / Business Development Director	24.05.02	KN	private	X
Sitruk, Guy	FR	RATP/ Cité Futée	23.08.02	AW	public	X
Sodeikat, Heinz	DE	AHS Management Consulting	16.04.02	SR/MW	private	
Steiner, Bernhard	DE	Motorola	15.07.02	MW	private	
Szalwa, Krzysztof	PL	E_Monitoring (Korkonet), director	09.07.02	*WS, SP*	private	
Tyson, Bill	UK	Chairman of TMG, GMPTE	23.08.02	JA	public	
van Veen, Hans	NL	OV Reisinformatie B.V.	19.07.02	KN	private	X
Zabulica, Valeriu	RO	TRANSINFO SA, Technical Director	06.09.02	*DD*	private	

Alex Avgoustis	AA
Andrew Winder	AW
Børge Bang	BB
David Kamnitzer	DK
Dorin Dumitrescu	DD
John Austin	JA
John Miles	JM
Kate Nastys	KN
Marc Wolfram	MW
Paul Riley	PR
Rana Ilgaz	RI
Richard Harris	RH
Siegfried Rupprecht	SR
Szymon Puczyński	SP
Tibor Schlosser	TS
Wojciech Suchorzewski	WS

1.4.2 Interview guidelines

Specific guidelines for stakeholder groups

For the realisation of the interviews by project partners and subcontractors, a common interview guideline has been developed. According to the roles in the information chain two different questionnaires have been designed for “data suppliers” and “service providers”. Furthermore, since some stakeholders actually play both roles, interviewers were required to combine both questionnaires in order to adapt to the specific organisational background of the interviewee.

Compatibility with US DoT study

Furthermore, for cross-atlantic comparision purpose, compatibility with the questionnaires applied in the US study “Battele/ US DoT. 2002. *Sharing data for public information*. Washington” has been ensured as far as possible.[8] However, a basic division of the questions along the categories of public/ private (as in the mentioned US study) has not been considered adequate for the European context, where organisations from both sectors may have any role in the information chain.

Quantitative and qualitative data

To make optimum use of the interview time the questionnaires have been divided into two parts. Part A contains the questions to be dealt with in the personal interview, covering aspects of assessment and opinion. Part B contains questions for factual information regarding the institutional and technical set-up of the service.[9]

Re-assure confidentiality

All interviewees have been provided in advance with an information brochure on the ATLANTIC thematic network & eEurope 2002,[10] and an excerpt of the Commission Recommendation (C(2001) 1102 final). The guidelines also require the interviewer to underline the confidentiality of the information provided.

8 http://www.ops.fhwa.dot.gov/Travel/DatShare.htm

9 See interview guidelines in the Annex

10 See D6.2

Good Practice Case Study 1

ABA – Autoklub Bohemia Assistance (CZ)

Authors: Paul Riley, Wojciech Suchorzewski

3.11.2002 / final

1 Case Study: ABA national road traffic information centre in the Czech Republic

In a private sector initiative, the ABA motorists' club set up an unofficial traffic information centre serving the whole of the Czech Republic, in partnership with the national radio station. The centre is the main source of traffic information for third party information service providers. At the time it was set up there were no plans for a government-funded information service, but the government has subsequently funded a project to develop an official traffic information centre based on the current service. Various options for future development are available, one of which involves the partners co-operating with the other main motorists' club.

1.1 Background

The ABA motoring club and Czech Radio set up a privately run national traffic centre for drivers in Czech Republic.

The 'unofficial' national traffic information centre was set up in 2000, to provide a comprehensive national driver information service for whole of the Czech Republic.

The organisations involved are in the private sector:

- ABA, which is one of the two main motorist clubs in the Czech Republic, and has been operating since 1995, and
- the "green wave" arm of Czech National Radio, which had previously been providing driver information broadcasts.

There was at this time no state supported national traveller information centre, and there seemed to be no immediate prospect of any government-supported initiative of this sort. State funding in traveller information had at this time been confined to a national database of public transport timetables which is available on the Internet >> insert hyperlink to CIS<<. The main focus of public sector ITS investment is in infrastructure (for example all new motorways are being built with traffic detector loops at 6 km intervals), but there is no clear policy commitment to developing ITS services such as real time information systems.

The centre soon became the primary source of information for third party travel information providers (radio, television, press, mobile operators etc.). ABA set up its own call centre and Internet site (www.aba.cz), which provides up to date traffic information. The Czech radio news service broadcasts information obtained from the centre.

A government-funded project including ABA is working to define the model for an official national TTI centre.

In 2001, the Ministry of Transport awarded the DIZAS research project to a consortium which included ABA, to develop a concept for an official and independent national Traffic and Travel Information Centre based on the ABA centre.

1.2 Goals

The goal of ABA is that the centre will develop into an independent national travel and traffic information centre.

ABA set up the centre to provide co-ordinated and reliable traffic information for drivers.

The current business model for ABA is mainly to promote its services and its image through advertising the ABA name in every traffic news report.

The aims are to have an information centre service that meets the needs of all road users, road managers and third party information providers, and to provide information that is up-to-date, verified and reliable.

It aims to develop the service into an independent national traffic and travel information centre for drivers, road managers and other service providers.

The service aims to collate all the information that is available. This aim has been achieved, although much of the information available is not from ITS systems, but from organisations such as the police (including the police road information system), drivers on the road, road managers and customs officers, who collectively provide details of restrictions, levels of traffic, incidents and border waiting times.

1.3 User and stakeholder requirements

One of the reasons behind the service was that there was a clear need for a traffic information centre providing a comprehensive service. Many different information providers were searching for information from the same sources, which had a detrimental effect on the quality and coverage of the information provided to the travelling public.

The motivation for ABA providing the service is as a marketing tool, developing its image as a company that cares about drivers in a comprehensive way. The centre is funded largely from the ABA marketing budget. Income from direct sale of information covers at most 10 % of actual costs.

The centre is a marketing tool for ABA services, funded largely from the marketing budget. Third party service providers pay for information, covering 10% of costs.

Information is sold to third party service providers on the basis of the size of their audience and the number and scope of individual news items included in their services. Third party information providers disseminate information through a range of media, including national and local radio stations, newspapers including internet editions, mobile phone operators who offer SMS and WAP service, teletext, motorists clubs in other countries and car manufacturers.

1.4 Technical description

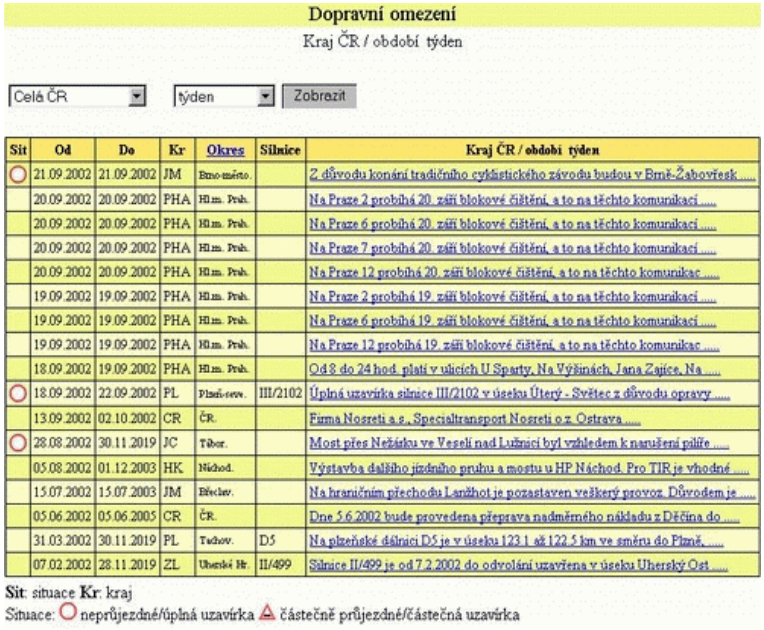
The main elements of the dynamic information cover almost all of the information available in the field:

- "Traffic situation" provides general information about queues forming and accidents across the country. A level of urgency is specified for clarity of reading.

National traffic information includes incidents and delays, weather conditions, road works and waiting times at borders.

- “Road conditions” gives details of dangerous or impassable sections caused by weather conditions especially for winter driving.
- “Road works” gives details of short and long-term planned full or partial road closures.
- “Restrictions” gives details of special events, closures or large / dangerous loads passing through the country.
- “Prague traffic’ gives levels of traffic (on a scale of 1-5 - 1 being free following and 5 being crawling or stand-still) on monitored sections of the Prague road network.
- “Borders” gives real-time waiting times for cars and freight vehicles entering or leaving the country.

Details of traffic conditions on main roads in Prague are available.



Dopravní omezení

Kraj ČR / období týden

Celá ČR | týden | Zobrazit

Sit	Od	Do	Kr	Okres	Silnice	Kraj ČR / období týden
○	21.09.2002	21.09.2002	JM	Brno-město		Z důvodu konání tradičního cyklistického závodu budou v Brně-Žabovřesk .....
	20.09.2002	20.09.2002	PHA	Hl.m. Prah.		Na Praze 2 probíhá 20. září blokové čištění, a to na těchto komunikací .....
	20.09.2002	20.09.2002	PHA	Hl.m. Prah.		Na Praze 6 probíhá 20. září blokové čištění, a to na těchto komunikací .....
	20.09.2002	20.09.2002	PHA	Hl.m. Prah.		Na Praze 7 probíhá 20. září blokové čištění, a to na těchto komunikací .....
	20.09.2002	20.09.2002	PHA	Hl.m. Prah.		Na Praze 12 probíhá 20. září blokové čištění, a to na těchto komunikac .....
	19.09.2002	19.09.2002	PHA	Hl.m. Prah.		Na Praze 2 probíhá 19. září blokové čištění, a to na těchto komunikací .....
	19.09.2002	19.09.2002	PHA	Hl.m. Prah.		Na Praze 6 probíhá 19. září blokové čištění, a to na těchto komunikací .....
	19.09.2002	19.09.2002	PHA	Hl.m. Prah.		Na Praze 12 probíhá 19. září blokové čištění, a to na těchto komunikac .....
	18.09.2002	19.09.2002	PHA	Hl.m. Prah.		Od 8 do 24 hod. platí v ulicích U Sparty, Na Výšinách, Jana Zajíce, Na .....
○	18.09.2002	22.09.2002	PL	Plzeň-sev.	III/2102	Úplná uzavírka silnice III/2102 v úseku Úterý - Světec z důvodu opravy .....
	13.09.2002	02.10.2002	CR	ČR.		Firma Nosreti a.s., Specialtransport Nosreti o.z. Ostrava .....
○	28.08.2002	30.11.2019	JC	Tábor.		Most přes Nežárku ve Veselí nad Lužnicí byl vzhledem k narušení pilíře .....
	05.08.2002	01.12.2003	HK	Náchod.		Výstavba dalšího jízdního pruhu a mostu u HP Náchod. Pro TIR je vhodné .....
	15.07.2002	15.07.2003	JM	Břeclav.		Na hraničním přechodu Lanžhot je pozastaven veškerý provoz. Důvodem je .....
	05.06.2002	05.06.2005	CR	ČR.		Dne 5.6.2002 bude provedena přeprava nadměrného nákladu z Děčína do .....
	31.03.2002	30.11.2019	PL	Tachov.	D5	Na plzeňské dálnici D5 je v úseku 123.1 až 122.5 km ve směru do Plzně, ...
	07.02.2002	28.11.2019	ZL	Uherské Hr.	II/499	Silnice II/499 je od 7.2.2002 do odvolání uzavřena v úseku Uherský Ost .....

Sit: situace Kr: kraj

Situace: ○ neprůjezdné/úplná uzavírka △ částečně průjezdné/částečná uzavírka

Figure 1.1 Traffic restrictions

The centre operators receive faxes, e-mails or direct data in a standard format from co-operating authorities (the police, local authorities, roads directorate, regional centres, and border authorities) and from direct sources on the road network (recovery vehicles known as ‘yellow angels’, a network of volunteer drivers known as ‘green angels’ and two ABA surveillance aircraft). Telematics sources provide a very small proportion of the information gathered.

Information comes from recovery vehicles, volunteer drivers, police, local authorities border controls and surveillance aircraft. Automatic monitoring provides a small proportion of the information.

News items are typed or data is fed directly into the system database. Unconfirmed reports from road side sources are included but a disclaimer about reliability is added until confirmation comes in from a second source.

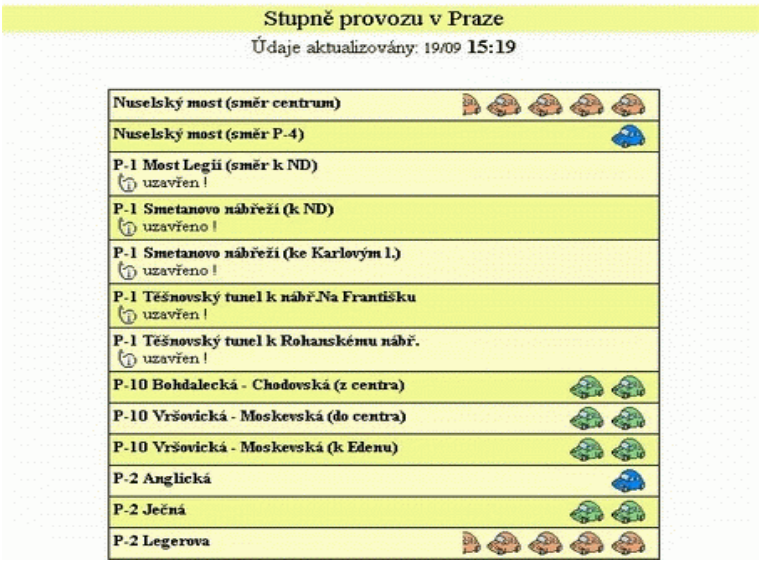


Figure 1.2 Prague traffic

All entries are time-posted and give an estimate of event duration where appropriate. Descriptions of events etc. use a free text format.

ABA disseminates the information through a call centre, ABA regional information centres, free access to the web-page (www.aba.cz) and the on-site Czech radio green wave RDS news service. In addition there is an ad hoc fax, SMS and telephone service for individual and corporate customers.

Third party service providers include radio stations, newspapers, mobile phone operators, teletext, television stations, foreign motorist clubs, and car manufacturers.

Reports are made available to third parties and direct end users in a standard format which can readily be accessed by widely available software.

Reports are also coded automatically into a format suitable for RDS–TMC, and are broadcast by the Czech telecommunications network to individual receivers.

Information is in a form which enables it to be provided automatically by road, area or information type. Road users can request information for particular roads or areas, whether using mobile phones or the Internet.

Archive information is also available for analysis of historical trends with regard to congestion and road quality for example.

Information is available through, RDS, radio, television, and teletext broadcasts and a free Internet site:

www.aba.cz.

Motoring organisations elsewhere, mobile phone operators and car manufacturers use the information.

Individuals can obtain information by SMS, fax and telephone, including information for specific routes or areas.

1.5 Service set-up

Essentially, the service set-up was enabled by:

- the partnership with the Czech Radio Green Wave service, which gives the centre a semi-official status

- the strategic vision of a motorist club in investing in the building and operation of the information centre. The service implements the company policy of informing customers and providing a service for drivers.
- the clear need for an information centre (mentioned earlier), and the lack of state plans for funding such a centre in the short to medium term.

The initiative came from the motoring club, to provide co-ordinated information as part of its package of services to drivers.

The market for direct sale of information sale is not in itself strong enough to sustain the service, even though ABA has ownership rights on the data it adds value to. Thus the marketing role is a key factor, although this alone may not provide sufficient grounds for funding the centre in the future.

The partnership with the national radio station gave the service a semi-official status.

1.6 Assessment and lessons learned

Drivers welcome the information and many use the information to change their journeys.

The importance of the service is demonstrated by the results of research to evaluate drivers' reactions. This indicates that 82% of drivers make behavioural changes on the basis of the centre's travel news. Generally, drivers report that they welcome the information and use the information about incidents and advice on alternative routes to divert from their planned route.

The Internet service is popular among people under 45; over 45s use television, teletext and radio.

Evaluation results show that the information media used depend on age. For people under 45, the internet is a key medium, while for those over 45 it has little significance. Most older drivers get their information from television, teletext and radio broadcasts, although the popularity of SMS and WAP services is increasing.

The SMS and WAP services are less popular but use is growing.

The business model appears to be relatively successful: the number of news items sold so far has increased to over 2000 per week in the first two years of the service. However it is perhaps fragile for a number of reasons:

- there is no guarantee that a motorist club can finance such a centre indefinitely, particularly if it finds that other marketing opportunities are more effective.
- the "commercial" nature of the enterprise means that data collection is difficult. Data provision is not compulsory so ABA has to spend a lot of resources persuading public data holders to invest in data collection and transfer. There is also some reluctance to provide data to a private enterprise because there is the suspicion that ABA is making a profit from it, even though the financial realities are rather different. Thus the service is not as comprehensive as it might be.

There are several lessons for implementing ITS services in Central and Eastern Europe. It is important to ensure that the basic organisational and information elements are established correctly. For example it is crucial to set up a central collecting point for all basic information about public transport services,

which can be used to form the basis of an information service. It is also evident that support from the public sector is needed for providing data. Even when telematics solutions give richer and more precise information, they still need a back-up source of validation and interpretation, which can be provided effectively through one centre.

The case also highlights the different development routes through which systems can grow. In this case, a private sector company has successfully taken the first step towards offering a public service (along with another semi-public institution), although obviously not without self-interest. Such an approach might be considered back-to-front in the European Union, but it represents a practical evolution path for the Czech Republic, where public sector involvement in such developments can suffer from considerable inertia.

Use of data from other sources is difficult for a commercial organisation.

Support from the public sector is needed to ensure that data is comprehensive.

Existing privately financed public interest ideas which are seen as being successful have a greater chance of gaining state support than new ideas which are unproven in local conditions and do not have the know-how or genuine basis of commitment in the public sector to gain critical mass for implementation.

Given the lack of direct income to cover costs, the extent to which this approach can be transferred to other countries in Central and Eastern Europe depends on the willingness of local companies to take risks, and on them having the financial strength to invest in what is basically a marketing activity.

In Central and Eastern Europe, a private sector initiative can be effective for starting a 'public interest' service. The state can become involved later, once new ideas have been proven.

1.7 Future prospects

Additional means of accessing the information will become available in the near future. The motor manufacturer Skoda is developing a car information portal that will use the ABA information. The device will be an optional extra from January 2003, providing in-car navigation, costing around 2000 Euros. Other vehicle manufacturers are also developing in-vehicle devices.

Other ways of accessing the information are being developed including a car information portal.

The commercially led approach has implications for public tenders and competition if a government funded Traveller Information Centre is to be set up in the future. A number of scenarios are possible. A partially state sponsored independent information centre may arise; this could either support the current information centre, or operate with a wider partnership with other active companies. These might include UAMK the other main Czech motorist club, which is involved in the definition of RDS-TMC, and also has an information service and is the Czech operator of the ERIC 2000 European travel and traffic information database. Other organisations which are not operating in competition with ABA might also be involved, such as academic partners. Alternatively there could be an open competition to select a single operator.

The research project DIZAS has an important role in developing an official Traffic Information Centre. The concept is for a state-backed service operating in the public interest, with adequate financing and legislative and technical support for data acquisition:

- to reduce data acquisition costs and improve quality
- to make the service sustainable and accelerate service development to include all public sources (compulsorily) and expand the direct road side information sources.

In fact the solution of institutionalising and automating data collection is a key to reducing the costs of running the centre and increasing the quality of the information. A central standardised information system for compulsory data entry by public sector employees would reduce data collection and manipulation costs very significantly, and make the task of validating the data and identifying locations much easier.

Although future development hinges to a degree on the results of the DIZAS project and further political debate, if the partnership of ABA and Czech Radio continues, organic growth should take place in any case, as more information sources are secured and as telematics information becomes available to be integrated with the existing information sources.

The service could continue expanding under the current business model.

Other options include extending the partnership, for example to include the other main motoring club.

The research project is developing the concept of a state-backed service, with support to ensure comprehensive good quality data.

1.8 References

ABA marketing material – InfoCentrum ABA

Interview 6.8.2002 with Petr Bold, Jiri Machovec, Igor Mandik, of ABA motorist club

Interview 30.9 with Jiri Wolf, Jitka Vaneckova, David Vorlicek of UAMK motorist club.

Table 1– Synopsis Case Study: ABA private national TTI centre in the Czech Republic

Title	ABA TTI centre for road users
Country, Region, City	Czech Republic
Duration / Status	Since March 2002
Geographical area covered	Czech Republic including borders
URL	www.aba.cz
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Police, Roads Directorate, Cities, Regions, Customs
Infrastructure owners and data collection technologies	ABA owns TTI centre and central database, data collection by relevant authorities
Public sector data owners and providers	Police, Roads Directorate, Cities, Regions, Customs
Private sector data owners and providers	Hauliers' association, Petrol card company, Foreign motorist clubs
Service operator	ABA Motorist Club
Information editors / service database managers	ABA staff manage database, some editing also done by Czech Radio Green Wave staff.
Communications providers	Standard routes, telephone, fax, e-mail
Service provider to end users	Various external Radio, Press (including web versions), Television (including teletext), Mobile operators. ABA has its own call centre and web-page
Market segments & end user groups targeted	All motorists (members and potential members), third party information providers and road managers
Nature of public-private partnership	Free provision by public sector for safety reasons
Strategic marketing partnership	ABA with Czech Radio Green Wave
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Single mode: road
Data quality	Real-time reports (as news is received) and off-line reports on long-term changes. Multi source validation, continuous monitoring and updating
Information contents	Events, accidents, road conditions, road closures and road-works, Prague travel quality on monitored sections, waiting time to cross international borders

Distribution stage and transmission media	Radio, Press (including web versions), Television (including teletext), Mobile operators. ABA has its own call centre and web-page
Pricing policy and revenue streams	Third party providers pay ABA according to number of end-users and number of reports received. Income covers about 10% of actual costs
Development of service use	Currently organic, increasing number of data sources, receipt of data through direct connection to other electronic data sources (e.g. police information centre and telematics sources as they become available). National project DIZAS to develop concept for state sponsored national TTI centre.

Good Practice Case Study 2

CHAPS National Schedule Database (CZ)

Authors: Paul Riley, Wojciech Suchorzewski

3.11.2002 / final

1 Case Study: CHAPS National Schedule Database (CIS)

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

1.1 Background

CHAPS spol. sr.o. provides the only national source of inter-modal public transport information in the Czech republic, in partnership with Czech Railways. The information is available on the Internet:

www.chaps.cz

In the early 1990s, public transport timetables were available only in printed form. Most of the main public transport operators in the Czech republic are owned and funded by the local authorities. With the exception of a few cities, these operators do not generally have the resources to invest in ITS-based information systems. A private company, CHAPS spol. sr.o., started a private initiative in 1993 to collect and provide bus timetables electronically, taking advantage of technological developments in this area. In 1995 the service was extended to include railways through co-operation with Czech Railways DATIS unit (centre for information technologies), with inter-modal transport schedules available on the Internet. CHAPS developed a basic Internet searcher for public transport timetables www.idos.cz which is managed by Czech Railways (DATIS).

The government provides support through legislation requiring public transport operators to provide timetable information in a standard form, and through contractual arrangements for the service, but does not contribute financially.

The government provided regulatory (but not financial) support for a national electronic database of bus timetables in 1998, by establishing provision for an electronic National (bus) Schedule Database (CIS) under the 1998 Transport Act. This legislation provides a regulatory basis for collecting quality timetable information centrally, and represents the national government's main policy initiative in TTI services to date. The service remains the only national source of public transport information.

The contract to manage CIS was awarded on the basis of a competitive tender to Prague Florenc Central Bus Station, which already managed a similar system. Local transport offices provided transport schedules to the CIS database in standard electronic form, which ensured a basic level of information quality.

In 2001 the Prague Bus Station transferred operation of CIS to CHAPS with agreement of the Ministry of Transport, and thus the official system became inter-modal, covering rail and bus services. CHAPS, unlike the Prague Bus Station, had devel-

oped a workable business model for selling the timetable data to third-party service providers, enabling the CIS to be managed without financial support.

1.2 Goals

The government objective is to enable high quality public transport timetables to be freely available.

The Ministry of Transport's main goal is to provide the travelling public with a freely available high quality and up-to date electronic timetable service containing all regional and national public transport services.

CHAPS has a commercial objective providing high quality data to value-added service providers.

The main commercial goal of CHAPS is to provide high quality inter-modal schedule data for other value-added service providers in this area (mobile phone services, off-line databases etc).

1.3 User and stakeholder requirements

DATIS objectives involve commercial sale of information and promotion of its transport services.

This is the only national source of information on public transport services, so the government has an interest in ensuring that the information is available, and of good quality, to support its policy objective of supporting traveller information and inter-modal public transport information. The government's involvement in the service has been to provide the regulatory framework requiring public transport operators to submit information on their services and timetables in a standard format to the database operator. This ensures a minimum level of quality in the data, and makes it difficult for other information providers to compete effectively with the database.

As a business, CHAPS has a commercial motive to collect data, develop software and to provide an Internet-based public transport information service. These functions comprise the initial stages in the process of preparing information for sale to other third party information providers.

The general public benefit from a national inter-modal Internet-based public transport route finder service which is available free of charge.

DATIS, the data management group of Czech railways, owns and manages the hardware for the system. They have their own business model and customers for the information, while integration of rail information with other public transport timetables helps to promote rail use.

The basic free service offered by CHAPS to the general public consists of an inter-modal Internet route finder for public transport, based on published timetables. Timetable data covers: rail timetables (state full national and international services), international, national and regional buses, 31 urban public transport networks and international, national and regional buses in Slovak Republic. The system is constantly being updated and expanded.

1.4 Technical description

For regional, national and international bus timetables, the law on public transport schedules dictates the content of the

schedule. The law also regulates process, the minimum content of the schedule (validity, safe transport operation) and regulates the standard format of additional information markers and requires the operator to provide the data in a standard electronic form defined by the Ministry of Transport.

Legislation defines the minimum contents and the format of the data provided by operators, ensuring a minimum level of service. New timetables are made available at least 15 days in advance.

The operator sends the proposed timetable to the regional or municipal transport office, or to the Ministry in the case of international bus links. The authorities receiving the timetables are required by law approve them and deliver them to the administrator of the CIS in electronic form, at least 15 days before the timetable comes into operation.

Timetables for other transport modes are published on the basis of contracts between CHAPS and the transport operators.

CHAPS spol. sr.o. also collects transport schedules from:

- Public transport services operating from Slovakia
- Public transport (national/international) in Czech Rep.
- Urban public transport
- Regular air transport
- Regular boat transport

Inter-modal information is available for national and regional services and on urban public transport in the three largest cities.

Elsewhere, information on single public transport modes can be obtained.

DATIS (the data management arm of Czech Railways) maintains the hardware for the basic internet searcher – www.idos.cz. The system operates on hardware owned by DATIS and uses software developed by CHAPS. It is intended that data can be transferred between international providers of transport information.

The free internet searcher offers inter-modal timetable information for journeys combining train (Czech, International), bus (regional, national: Czech and Slovak) and Urban Public transport in the three largest cities: Prague, Ostrava and Brno.

For other areas it is possible to choose any of the above or other schedules individually (28 other cities and flight schedules) which then form the basis of the search. For some connections between transfer points, especially in Prague, Ostrava and Brno, walking time is provided. Otherwise transfers between modes are not described in any detail, either in terms of timing, routes or accessibility.

The user can choose the maximum number of changes, the maximum deviation from the shortest available route, maximum transfer time, types of train and bus. Information on accessibility of stops and connections is made available.

Real time information is available for train services.

Real-time train position can also be found out for a number of train connections. Real time information on bus position is currently being tested.

Figure 1.1 Idos searcher – main screen

Figure 1.2 Search result

WAP services are available for the bus and train schedule information (wap.idos.cz) and real-time train positions (wap.idos.cz/wap/poloha.asp).

The Internet information is also available as WAP services.

Mobile phone operators provide bus and train schedule and other information using SMS GSM service. Most operators use the information in the form in which it is provided to them by CHAPS.

CHAPS also sells data to Eurotel, a mobile phone company providing more innovative traveller information services. >>insert link to Eurotel chapter>> Eurotel provides WAP users with a full door to door navigation service using its own software in the form of a digital map. The user types in details of a geographic point, and the software provides step-by-step navigation instructions from the start to the end of a journey, including the walk links. Information can be obtained as a map or as SMS directions along the route.

Third party information providers include mobile phone companies. One of these uses the data for a door-to-door navigation service.

Information is also provided to the Florence Bus Station, for the telephone information line service.

1.5 Service set-up

The service helps the government to achieve its policy objectives, while the commercial position for CHAPS is strengthened.

CHAPS was commissioned by the Ministry of Transport to manage the CIS in 2001. The Ministry makes no financial contribution, but does provide rights to the CIS manager (for resale of data collected and as the only organisation to which operators are obliged to provide the data) and requires public transport operators to provide them with timetable data, under threat of sanctions.

This arrangement works for both sides. The Ministry achieves its policy aim of supporting TTI and inter-modal public transport information without a financial burden. The legislation strengthens the commercial position for CHAPS to sell information to third parties, by ensuring that CHAPS is the sole source of all the information and ensuring the quality of the data.

The income from selling information and advertising on the Internet ensures that the service is financially viable.

System operations and development are financed commercially from income received from selling information. The software for operating the information server www.idos.cz and CIS was developed by CHAPS, was financed and is managed by Czech Railways DATIS information arm.

CHAPS create income by selling information through:

- Mobile phone operators
- Telephone enquiry service (provided by Florenc bus station)
- Advertising on Internet (around 17 000 users/ per day)
- CD-Rom, floppy discs (around 1000 clients, own direct sale)
- Self-service terminals with touch screen displays located at key public transport terminals and in company offices

The main source of income is from selling information to mobile phone operators.

At present most income is made from providing information to Mobile phone operators. CHAPS receives a percentage share of the income of mobile phone operator's income.

The cost of SMS messages requested by users of the mobile phone service varies between the operators:

T – Mobile	1.00 – 1.50CZK per SMS (0.03 – 0.05 Euros)
Eurotel	0.74 – 1.60 CZK per SMS (0.02 – 0.06 Euros)
OSKAR	1.00 – 1.50 CZK per SMS (0.03 – 0.05 Euros).

CHAPS spol. sr.o. and DATIS have a contract which determines how they divide income from information provided to end users.

1.6 Assessment and lessons learned

Experience of the CIS database is very positive, the information is well used and reaches many providers of information.

The level of use reflects its status as the only national source of public transport information. Total use of CIS including mobile phone and Internet access is shown in the following graph,

which demonstrates the ubiquity of the service and willingness to pay through an established micro-payment medium.

Experience of the CIS is very positive.

The information is inter-modal, covers all regional trans-port and many towns, is of high quality and is well used through several relatively ubiquitous media and reaches most information providers.

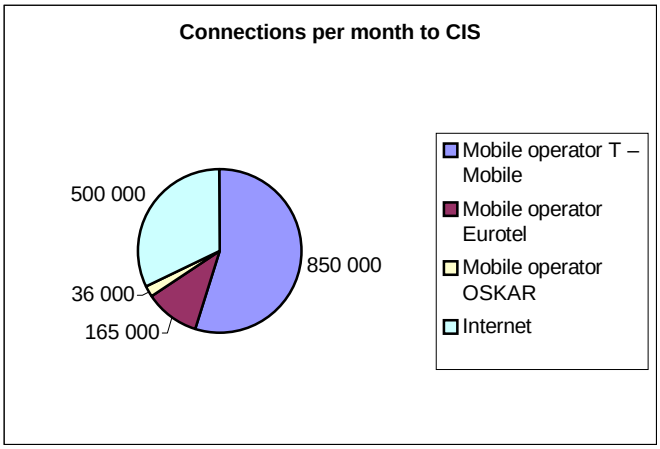


Figure 1.3 Number of connections to CIS

In July 2002, over 1 million requests were made by customers of the three Czech mobile phone operators for schedule information from the CIS through the channels Assistant (telephone), SMS and WAP (for OSKAR only SMS and WAP). To put this figure in context, the population of the country is 14 million.

In one month in 2002, over a million requests for information were made to mobile phone operators: one for every 14 in the population.

Customers request information about transport schedules in the following proportions:

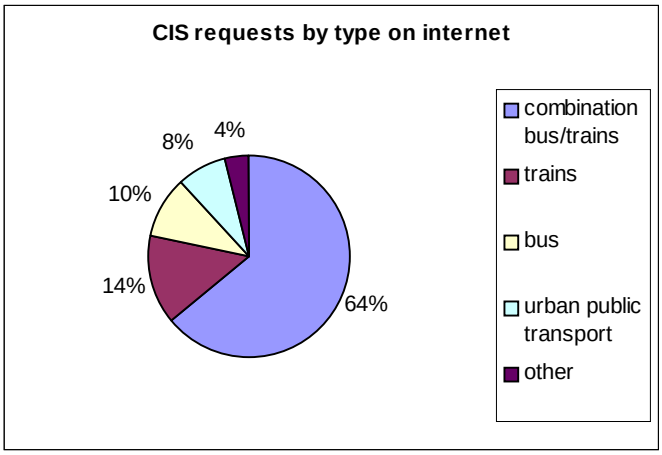


Figure 1.4 Types of information requested

This graph implies that the inter-modal search options are accepted and useful, although it is important to bear in mind that inter-modal search is the default setting of the searcher, which may explain this high percentage share.

The co-operative arrangements between the private sector service developer, the public transport operators and the Ministry of Transport have proved to be important in forming the basis for a successful traveller information service. The state

authority can help private developers and providers of transport information by developing legislation requiring that information is provided to an appointed database administrator in a defined format within certain time-limits.

The service benefits from well balanced co-operation between the state (providing service regulation and institutional support) and the private sector (managing, marketing and developing the service).

The set-up allows innovation to an extent, based on the business model of the private operator, and does not prevent third parties from developing complementary services. Indeed such services are stimulated by the database administrator's commercial requirements.

Development of new features, however, is financed only from sales of information to users, either directly or indirectly. There is no financial contribution from the Ministry of Transport. Although this is financially ideal from the point of view of the Ministry, it does mean that development of the system depends on organic growth from year to year, because the market is not strong enough to support really dynamic development of free services. This could raise the public policy issue of whether it would be beneficial to provide state funding for further system development, as a catalyst for enhancing the service.

The arrangement allows for some innovation, but limited by the need to be financed from current sales.

To provide more inter-modal and accurate information to end users, it would be helpful to extend the legal requirement for information provision to all modes of public transport (including urban public transport) and to provide further information including details of transfer points and fares. This would help to develop the inter-modal aspects of the service and also help users to compare the cost of different journey options.

1.7 Future prospects

The potential exists to make a number of improvements to the service. For example further development of the inter-modal aspect of the service could include car transport interfaces such as park and ride services, and a door-to-door navigator including the walk links to public transport stops and stations. The system might also include more real-time information as it becomes available.

Detailed information about interchanges will soon be included.

There are already plans to add information about transfer points, times of change from bus to train station, distance of the stations, mapping of transfer points between bus, train and urban public transport stations to existing system. This information is being collected and will be in operation on the web site in the near future.

Development work on real-time information is also taking place. CHAPS has been testing real-time regional bus position information based on locating the position GSM mobile phones carried by bus drivers, with an accuracy of up to 40 m depending on signal availability. This service, which is a joint venture between CHAPS and a mobile phone operator, will soon be in operation. This information might be provided on selected

Real time information is being tested for bus services, in partnership with a mobile phone operator.

media outlets (e.g. mobile phone) and sold to public transport operators themselves.

Feedback on the Internet system is extensive. In response to requests from users, a service providing timetables on hand-held computers is now being developed.

1.8 References

- web page of information server www.idos.cz
- web page of CHAPS spol. sr.o. www.chaps.cz
- web page of DATIS www.datis.cz
- web page of UAN CSAD Prague Forenc www.uan.cz
- web page of The Ministry of Transport and Communication of the Czech Republic www.mdcr.cz

Interview on the MTC 7.8.2002 with Bc. Janou Hakrovou from the MTC and with Peter Chlebničan from CHAPS spol. sr.o.

Table 1 - Synopsis Case Study: CHAPS National Schedule Database (CIS)

Table 2 – Synopsis Case Study: National Schedule Database, CIS

Title	National Schedule Database (CIS)
Country, Region, City	Czech Republic
Duration / Status	active
Geographical area covered	Czech Republic, international connections
URL	www.idos.cz, wap.idos.cz, wap.idos.cz/wap/poloha, www.datis.cz, www.chaps.cz, www.uan.cz, www.mdcr.cz
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Ministry of Transport, Regional Transport Offices,
Infrastructure owners and data collection technologies	Standard electronic forms to collect schedules, JDF format
Public sector data owners and providers	Regional Transport Offices, Czech Railways , Airports authority
Private sector data owners and providers	INPROP Zilina, CHAPS, UAN Florenc, DATIS
Service operator	CHAPS (private company – data gathering, management), DATIS (owned by Czech Railways – internet integration)
Information editors / service database managers	CHAPS / DATIS
Communications providers	NA, off-line electronic mail / postal delivery of discs
Service provider to end users	CHAPS / DATIS/ Mobile operators
Market segments & end user groups targeted	All public transport users with access to computers and/or internet (perhaps 10% of users)
Nature of public-private partnership	Business contracts of collection and providing of information and private income for CHAPS on resale of database
Strategic marketing partnership	DATIS – CHAPS., Eurotel T-Mobile, Oskar, UAN Florenc
	Main Characteristics of Service Delivery
Modal coverage and mode integration	inter-modal for public transport (bus, local and regional rail)
Data quality	Active – updated reliably after any change. Real-time train position

Information contents	Schedules and information on stops / links and vehicles for all train services, national and regional buses, 31 cities, flight information, real-time train position
Distribution stage and transmission media	Pre-trip via internet or own CD, intranet version, also available on-trip on WAP service or SMS service, self-service terminals, call centres
Pricing policy and revenue streams	WAP, SMS and call service at set-rates, charges for CD ROM, Intranet version
Development of service use	

Good Practice Case Study 3

CITÉ FUTÉE - inter-modal traveller information service for the Paris area via an Internet site (F)

Author: Andrew Winder

12 February 2003 / version 4

1 Case Study: CitéFutée

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

1.1 Background

Traffic and travel information website for Paris

CitéFutée ("sharp/crafty/smart/clever city") is the traffic and travel information(TTI) website for Paris and its suburbs. It provides public transport, road and practical/leisure information and is operated by RATP (Régie Autonome des Transports Parisiens), the public transport operator for Paris.

Multimodal service provided by RATP, the main public transport operator

The RATP is Paris's long established public transport provider. It is a publicly owned entity but operates as a commercial company. RATP's bus, tram and metro services in Paris and surrounding areas accounting for 80-85% of public transport trips in the region – the remainder is accounted for by SNCF rail services and privately operated (mostly suburban) bus services. In terms of passenger-km, however, RATP's share is lower (its mainly urban services cater for more short-distance trips compared to rail and suburban buses/coaches).

Private operators under contract to RATP operate many public bus services (especially outside the city of Paris). Aspects such as marketing and off-bus ticketing are handled by RATP in the Paris area.

RATP is a transport and service provider.

RATP also has a variety of subsidiary companies involved in tourist buses, airport transit services, the public transport network in the city of Mulhouse (Alsace), international public transport development projects (RATP International), consultancy (Systra), commercial development on RATP stations (Métro-Commerces) and housing for its staff (Logis-Transports).

RATP is contracted to the public transport authority and paid according to performance.

RATP works in close collaboration with the STIF (Syndicat des Transports d'Île-de-France), the public transport authority for the Paris region, set up in 1959 as the Syndicat des Transports Parisiens. The STIF brings together representatives of the national government, of the Île-de-France region, the eight departments in Île-de-France and the Prefecture for Paris. Its role is to co-ordinate public transport in the Île-de-France region and to decide the main policy directions regarding the development of the network, fares, etc. STIF also has a co-ordinating role for travel information.

Public transport information has been provided by RATP on the Minitel (France Télécom's audiotext server) since 1985. Some information was also put on RATP's website (www.ratp.fr) and in 1999, all the Minitel information was transferred to the

website, as at that time the Internet was overtaking Minitel in popularity in France.

Road traffic information was included in October 1998 after RATP bought the itinerary calculation engine from the road authority. The current CitéFutée site, combining road and public transport information, along with other local information, has been operational since 2001.

The current service has been operating since 2001.

Since the launch of CitéFutée, the RATP's website has become an institutional site (information on the organisation, etc) with prominent links to CitéFutée for traveller information. The Citéfutée site now contains four times more information than www.ratp.fr.

Of the 21 main links on the English version of the www.ratp.fr homepage, 10 go to CitéFutée and three more go to three of RATP's other sites: Imagine "R", Paris Visite and Emif (see Section 1.3 for further details).

The main services on the RATP's institutional site itself concern information on the RATP Group (organisation, activities, projects, etc), RATP's services and products, the RATP Foundation (community and charitable activities) and recruitment.

Although 70% of CitéFutée web site visitors come through a link from www.ratp.fr (as of summer 2002), this proportion is diminishing rapidly, as CitéFutée becomes known and people bookmark the site.

1.2 Goals

The key goal is to provide information to users and potential users as part of the RATP's service to the public, and to encourage public transport use. Revenue raising is not the chief objective and, while the site advertises public transport services and also gives some publicity to events and attractions in the city (mainly through links and access information), the aim is not to advertise to people as this would detract from the public service and perceived utility of the site.

RATP aims to provide an information service and encourage public transport use.

The site brings image benefits to RATP, in that it is not only user friendly and contains accurate, up-to-date information, but is also "lifestyle" oriented, providing a positive and modern image for public transport by linking it to leisure activities, Internet resources, local maps and information, etc. It is therefore a useful resource even for people not intending to use RATP's transport services.

Other organisations have different goals, e.g. road authorities aim to manage traffic effectively on their networks and also provide information. However, RATP has decided to provide multimodal information as it sees benefits in being a one-stop service provider (partly "image" benefits, e.g. not just seen as a

Multi-modal information helps to promote RATP's image as a service provider.

transport operator but also as an ITS-based information provider).

Another key benefit however is that by providing itinerary comparisons between road and public transport, the CitéFutée site will become the natural point of contact for road information as well as public transport information. Motorists who would not normally use a public transport oriented site will become accustomed to using CitéFutée and will be encouraged to look at public transport alternatives, shown on the same site. As well as potentially increasing RATP's ridership, it also meets public policy goals (including the road authorities, as they are public) of promoting sustainable mobility.

1.3 User and stakeholder requirements

RATP aims to serve public transport users and car users.

In the 1960s, RATP made the decision to become a transport and service provider rather than simply a public transport operator. It has seen the need to develop a wide range of services in order to compete with the car. Its three main types of service are:

- Transport
- Reception (through information centres, customer service assistants, etc)
- Information.

The CitéFutée site falls into the third category and aims to serve the requirements not only of users of RATP's transport services, but also non-users (many of whom are potential users). For this reason, the site covers multi-modal transport themes (including road traffic information) and also lifestyle oriented information (maps, entertainment guides, etc).

Users can obtain leisure information and plan their outings in a one-stop.

RATP recognises that public transport users travel for a reason and often require information about their destination as well as the journey. CitéFutée aims to meet these needs by providing a "one-stop shop" site where users can plan a leisure trip and obtain information on travel, access, what's on, etc from the same source.

Drivers can compare their trips with public transport alternatives.

By providing road traffic information as well as information about their own products, RATP is not only providing a public service, but is also aiming to make CitéFutée the preferred choice for traffic information. This can provide car users with the opportunity to compare their trip with a public transport alternative and possibly promote a modal shift to public transport for some trips. Clearly, as in any major city, a great many people are both car drivers and public transport users so to provide a single point of information is a user-oriented approach.

In separating CitéFutée from the RATP's institutional website, RATP is recognising that different users have different requirements. The average transport user in the Paris region (whether

public transport or otherwise) is not interested in RATP as an organisation, but in practical travel details and local information. People who are interested in the organisation itself are directed to the RATP's institutional website, which provides more clear and easy to find information now that the majority of its content (the public transport information) has been transferred to CitéFutée.

In addition to CitéFutée, RATP has three other user-oriented websites aimed at different market segments. These are:

- Imagine "R" (www.imagine-r.com), aimed at students and young people
- Paris Visite (www.parisvisite.com), aimed at tourists; and
- Emif (www.emif.fr) aimed at mobility solutions for businesses.

In addition to the travelling public, the website aims to serve other stakeholders, principally the STIF (Syndicat des Transports d'Île-de-France), which has a service quality contract with RATP. This contract gives RATP three main objectives:

- to aim to meet the needs and expectations of travellers;
- to deliver the advertised service (in terms of quality as well as quantity); and
- to deliver optimal quality (in terms of passenger information, passenger security, disabled access, etc).

The traditional subsidies paid to RATP by STIF have been replaced by payments according to performance against criteria relating to these objectives. CitéFutée is thus one of RATP's tools to meet the third of these objectives.

Other stakeholders are organisations with which RATP has data sharing agreements, such as AOL (search engine), Allô Ciné (cinema listings), La Poste (e-mail service from the French Post Office), City of Paris (city information), etc. Since relatively little data is bought and sold, the main benefits for both sides are mutual publicity.

1.4 Technical description

The site is reached by:

www.citefutee.fr

www.citefutee.com

The site has two URLs, both addresses leading to the same site. It includes road and public transport itinerary calculation engines, which take into account real-time data. This is held on a common database, created and maintained by RATP. The user options on the website are shown in Figure 1.1.

***"S'informer - pratique"* (Information – practical):**

- ✓ "Guide de Savoir voyager" (guide to travellers) - ticketing, accessibility, use of the network, penalties, reductions, traveller assistance.
- ✓ "Près de chez vous" (close to your home) - links to local directories and information on the districts of Paris.
- ✓ Various other types of information including first and last departures for metro lines, tickets and passes, guides, brochures, etc RATP news in the Ile-de-France region, tourist buses, coach hire, 1930s heritage metro service.

***"Se déplacer – s'orienter"* (Travel – orientation):**

- ✓ "Itinéraires" – real-time trip calculation for public transport in Paris: either quickest or with least number of changes. Accepts precise addresses, rail or metro stations, or names of key landmarks/buildings (see Figure 1.2).
- ✓ "Trafic" – state of public transport and roads, including registration for "ParisTrafic" SMS/e-mail alert service (charged-for service).
- ✓ "Infos route en IDF" (road information in Île-de-France) – state of the roads: same services as "trafic" above but with road information coming before public transport - see Figure 1.3.
- ✓ "Plans de proximité" – local street plans around a given address or station.
- ✓ "Voyager hors réseau RATP" (travel outside the RATP network) – links to SNCF, Eurostar, etc.
- ✓ "Arriver/partir de Paris" – public transport to/from the city's airports.
- ✓ "Plans des lignes et des réseaux" – plans of bus, metro, night buses, tourist buses, airport access, etc can be downloaded, including onto a PDA.

***"Sortir – découvrir"* (Go out – discover)**

- ✓ "Cinéma" – latest releases, reviews, where to see films, nearest public transport (cinema information from partner AllôCiné)
- ✓ Other information including information about local districts, concerts, shows, talks, sport, .leisure information for senior citizens and children, trips by tourist bus, metro, etc.

"*Communiquer – Dialoguer*" (Communicate – dialogue)

- ✓ Communications services including personal e-mail account with La Poste, Internet search, e-mail newsletter and RATP contacts;

"Optimisez vos déplacements en Ile-de-France"

- ✓ comparative road/ public transport trip calculation.

Figure 1.1 CitéFutée: user options on the web site

Real-time information from outside agencies is generally received either verbally (telephone) or by fax. These agencies are SNCF (rail transport), private bus operators (Connex, Keolis, etc), SIER / DRE Île-de-France (regional public road operator/authority), the City of Paris (public authority/city road authority), and private leisure service providers (A Nous Paris and Allô Ciné).

The service includes real-time information.

A common database with other operators (notably SNCF – French Railways) has been developed although this is not yet used to its full potential.

There is a common database, shared with other operators.

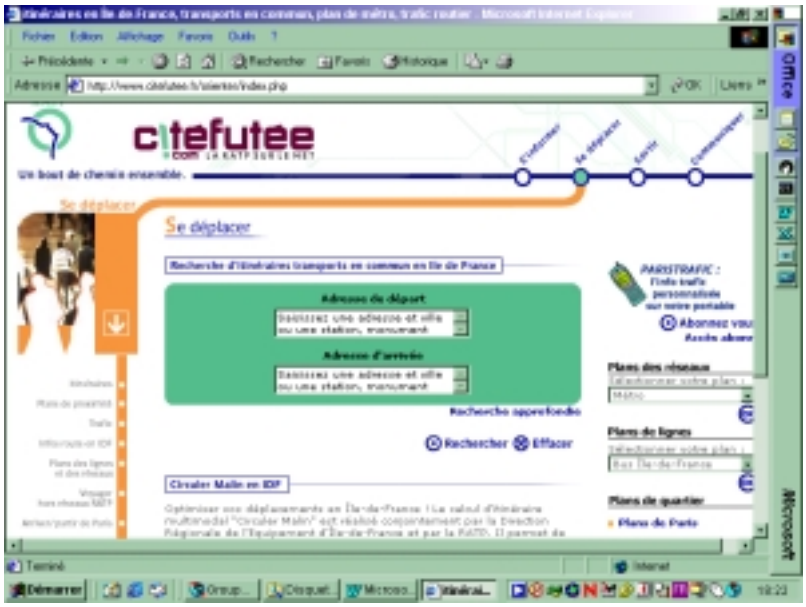


Figure 1.2 CitéFutée trip calculation for public transport

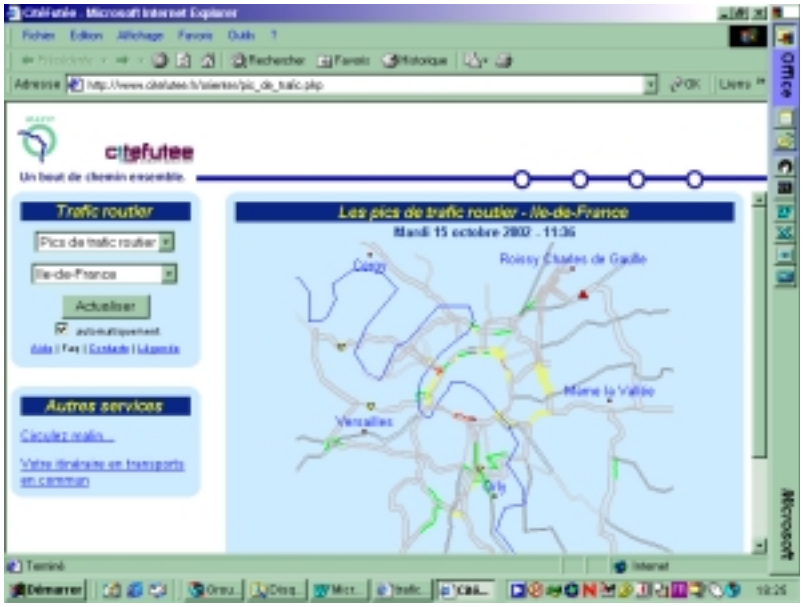


Figure 1.3 CitéFutée: traffic status

1.5 Service set-up

Public transport is part of a comprehensive package of information.

In general, the aim is to combine public transport information with a package of other services including road traffic information and lifestyle information/features. A similar approach has been adopted by RATP in its other sites (Paris Visite and Imagine "R"). CitéFutée is generally aimed at Paris/Île-de-France residents whereas Paris Visite and Imagine "R" are aimed at visitors and young people respectively. They provide the same basic public transport information through links to CitéFutée.

The motivation for setting up the service was the increasing popularity of the Internet as an information tool in France and the development of services by other transport organisations. The STIF started out by funding the service but all investment is now funded by RATP, which sees the CitéFutée site as a core part of its service and not as an optional add-on.

Co-operation with other agencies involves sharing data, generally at no cost.

The institutional context of RATP as a public entity and a well-known transport service provider has been a key factor in the success of the service. Co-operation with other agencies has also been a factor. These include:

- AOL - Internet search engine
- Allô Ciné - cinema listings
- La Poste - e-mail service from the French Post Office
- City of Paris - city information.

All of these organisations are covered by agreements on data sharing and relatively little data is bought or sold.

RATP's position as the major public transport provider in Île-de-France has enabled the CitéFutée site to become a success. However there is no real competing website for public transport information in Paris and RATP sees no benefit in sharing its public transport data with other service providers who aim to create "duplicate" services.

The co-operation with the road authorities was initiated by RATP, which bought the road trip calculation engine from the SIER road authority. RATP's motive was to expand its information services as a marketing tool, to improve its image as an advanced TTI service provider, as well as to promote multimodality and integrate TTI service provision in the Paris region.

1.6 Assessment and lessons learned

Use of the service has grown to over 40 000 hits each day.

The service is considered to be a success due to its large and rapidly growing number of users (requests for public transport itineraries alone account for over 40 000 hits per day). It is user friendly and use is growing rapidly.

According to RATP, it would have been even better if the service had been set up earlier, but until the mid 1990s relatively few people had Internet access, so major investment in what was then a minority media would have been difficult to justify.

The only real setback was RATP's experience with pay-to-use information services – it set up an SMS information service for mobile phone users. However, this cost 1 million French francs (over 150 000 euros) to set up and the service only has 400 registered users. In addition, the RATP has to pay for each text message sent. It has been shown that people are in general not willing to pay for such services.

The paid-for SMS service has been less successful, with only 400 users.

The success of CitéFutée is partly due to high awareness of RATP and its mission and services. In comparison value-added service providers do not have an end product – information is their only mission – and as such often lose money as advertising alone does not usually cover costs and users are often unwilling to pay for information. RATP is a big player and is well known to all Parisians, so it is a respected source of transport information, increasingly not just public transport but road traffic too (the user can see that the data comes from the road authorities: City of Paris and SIER). An independent service provider or IT start-up would not have such success. As the main public transport operator in the Paris region, users will naturally turn to RATP for information.

Awareness and respect for RATP as a public entity and source of transport information have contributed to the success of the service.

The benefits for RATP are seen both as direct financial benefits (these have not been measured, but are assumed to exist) and also as image benefits. RATP is not seen just as a transport operator or, on the other hand, just as a value-added service provider with no tangible end product. Rather, RATO is seen as a multi-faceted service provider, a "one stop shop" providing everything from multi-modal transport information, city and event information by Internet, to ticketing and face-to-face information provision, to transport provision itself.

Ease of use is considered by the RATP as the key success criterion. The service must be useful, easy to use and reliable. Some 40% of the pages on the CitéFutée site include a map, which is useful in an urban area like Paris.

Maps are a key to making the service easy to use.

Linking public transport with cinemas, schools, activities, etc (e.g. address to address itinerary calculation rather than bus stop to bus stop) is important because transport users travel for a purpose: to get to an *address* rather than a *station*. Links between directories/mapping services and public transport is therefore important.

Door-to-door information is important.

The CitéFutée service is a free public service: the aim is to persuade people to use public transport rather than other modes and to reach the widest possible audience, therefore a pay-to-use service is not appropriate in this case.

The intermodal aspect of the CitéFutée site is important, particularly in a large city such as Paris. The ability to compare itineraries and journey times by car and by public transport is valued. It is also good for public transport, because when the total journey times, including time to find a parking space, are compared, public transport is usually faster than car travel in Paris.

In Paris, journey time comparisons are favourable to public transport.

1.7 Future prospects

In general, RATP is continuing to invest and update the CitéFutée Website in order to maintain and improve the service.

RATP is investing in updating and improving the web site and its future success seems assured.

A proposed solution to the low usage of the SMS information service for mobile phone users is to offer it free to annual season ticket holders only (about 800 000 people) as a reward for loyalty and to encourage higher take-up of annual tickets (the aim is to create a feeling of being a privileged customer, part of a "club"). The future of such value-added services is widely seen (including by RATP) in terms of offering them as part of a package rather than charging for them individually.

The SMS service may be offered as a free service to season-ticket holders to promote season ticket use.

Because RATP is a big player and is well known to all Parisians, it is a respected source of transport information, so future success of its Web-based information services seems to be assured.

1.8 References

- Winder, A (2002). TTI Services – France. ATLANTIC Project, August 2002.
- CitéFutée website (www.citefutee.com / www.citefutee.fr)
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Table 1 – Synopsis Case Study - CitéFutée

Title	CitéFutée
Country, Region, City	Paris/Ile de France region (France)
Duration / Status	Current site in operation since 2001. Public transport information was previously on the RATP site (since the mid-1980s). Status: Full web service in operation (public and free).
Geographical area covered	City of Paris and suburbs
URL	www.citefutee.com or www.citefutee.fr (identical)
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	RATP (Régie Autonome des Transports Parisiens), the public transport operator for Paris, is the main actor (80-85% of public transport traffic in terms of numbers of passengers). Other actors provide information (e.g. SNCF, mapping companies, AOL (search engine), leisure information providers, etc)
Infrastructure owners and data collection technologies	Owners: RATP Data collection: internal (timetables, fares), real time information by fax or telephone.
Public sector data owners and providers	RATP is the main data owner (it is a commercial company but in majority public sector ownership). Some data from SNCF (also a public company/commercial business). Road data from SIER / DRE Ile de France / City of Paris (public authorities)
Private sector data owners and providers	Data from private bus operators (e.g. Connex), tourist/leisure attractions, etc.
Service operator	RATP
Information editors / service database managers	RATP
Communications providers	RATP
Service provider to end users	RATP
Market segments & end user groups targeted	Citizens of Paris/Ile de France and visitors. Commuters, leisure users, etc; regular, occasional and prospective public transport users.
Nature of public-private partnership	Public service: no PPP
Strategic marketing partnership	Operated solely by RATP: no formal partnership.

Main Characteristics of Service Delivery

Modal coverage and mode integration	Intermodal: Public transport (bus, metro, tram and regional rail, including walking links), road. Allows car/public transport comparison of trips.
Data quality	Static and real-time. 4 levels of speed for traffic flows on the main roads (interactive map). Public transport schedules are updated in real time (itineraries take into account any closures, disruption, etc).
Information contents	Personalised journey planning (by car or public transport) in Ile de France, traffic status, and public transport timetable and fare information. Also integration of mapping services, points of interest, events, etc, provided by value-added service providers and other authorities (e.g. the City of Paris).
Distribution stage and transmission media	Individual pre-trip information via internet and telephone, individual on-trip via SMS (very limited) and at-stop/at-station information displays (collective information).
User interaction	Passive information (events, traffic speeds, timetables, etc) and instructive (itinerary search by public transport or by car). Information is generally “pull” (i.e. user needs to interrogate the system each time for information). The only “push” information is the e-newsletter (sent regularly by e-mail to people who register: free service) and the ParisTrafic service (traffic information for a fixed journey sent regularly via mobile phone SMS and e-mail).
Pricing policy and revenue streams	Free. No direct revenue. A revenue raising approach is not considered appropriate: it is a public service.
Development of service use	Use has doubled each year. Over 40 000 itinerary requests per day on the website. Because CitéFutée is relatively new (and less well known than RATP), about 70% of visitors to the CitéFutée site come to it via the www.ratp.fr site (as of summer 2002). However, this percentage is constantly falling as CitéFutée becomes known.

Good Practice Case Study 4

DGT - Dirección General de Tráfico (E)

Author: Marc Wolfram

28.3.2003 / final

1 Case Study: Dirección General de Tráfico (DGT), Spain

The Spanish national road authority DGT (Ministry of Interior) is the agency responsible for traffic data processing in Spain, except in cities streets and Catalonia and Basc Country regions. It operates a network of traffic management centers across the country and distributes high-quality road information services via multiple media, apparently meeting a rapidly growing demand. Furthermore, traffic data is also delivered to private operators that are free to create commercial information services, while complying basic operating conditions defined by the DGT. More than 8.500 traffic policemen and 4.500 civil servers working in DGT.

1.1 Background

The Dirección General de Tráfico (DGT) is the national road authority for Spain. Its responsibilities include the collection and processing of road traffic data, and the dissemination of the resulting information to travellers. For cities and regions in Catalonia and the Basc Country these activities are implemented by local and regional authorities under supervision and coordination by DGT.

Gradual extension of public TTI service delivery via multiple channels based on formal data sharing policy

Basic traffic information services on the Spanish national road network have been delivered by the DGT since 1986[MW1]. In 1990[MW2] the DGT has adopted a formal policy about data sharing as TTI services have been increasingly recognized as an important tool for traffic management requiring close cooperation with the private sector. Based on this policy the services have been extended successively and made available via new channels:

- PPPPhone in 1986 (national coverage)
- Radio in 1986 (national coverage)
- TV in 1990 (regional coverage depending on CCTV road implementation)
- RDS/TMC in 1995 Madrid area (experimental), national coverage in 2000
- SMS in 1997
- WAP in 1997
- Internet in 1997
- DAB in 1999 experimental

- By 2005 the main national road network is planned to be fully covered by detection equipment and information services (VMS).[1]

1.2 Goals

TTI as a road traffic management tool: Public obligation to deliver free high-quality services

The DGT aims at using TTI services as an instrument for road traffic management and control, and thereby for the improvement of traffic safety. In order to enable drivers to take the best decisions possible the authority seeks to provide a maximum of information both pre-trip and on-trip, by using a broad range of collective and individual delivery channels.

At the same time the DGT sees the need to guarantee free access of everybody to relevant (and instructive) traffic information and derives its obligation for gratis public service delivery from this viewpoint. This is equally understood as a duty in respect of the citizens' right to all information that has already been paid for by tax.

1.3 User and stakeholder requirements

DGT services are primarily policy- and supply-driven.

Yet they also respond to a growing demand resulting from expanding traffic patterns and changing user profiles.

Investment in TTI is considered to give added value to public services at comparatively low cost (long-term). Nevertheless, part of the investments required for service delivery are expected to be made by private agencies that use TTI for the marketing and promotion of their respective products.

DGT information services are targeted at all road travellers using the Spanish arterial network (motorways). The service design has increasingly responded to the demand for information on cross-border traffic flows (coverage, language), as well as for on-trip real-time information and (in the near future) the integration of urban level traffic data. The steady growth of road traffic volumes and the rapidly rising penetration and usage of IC technologies in Spain (mobile phones, internet) have been strong drivers for this development.

[1] Equipment in the Basque Country and Catalonia is owned and operated by the regional authorities under coordination by DGT

1.4 Technical description

DGT services are based on wide network coverage and ownership of detection equipment & traffic data .

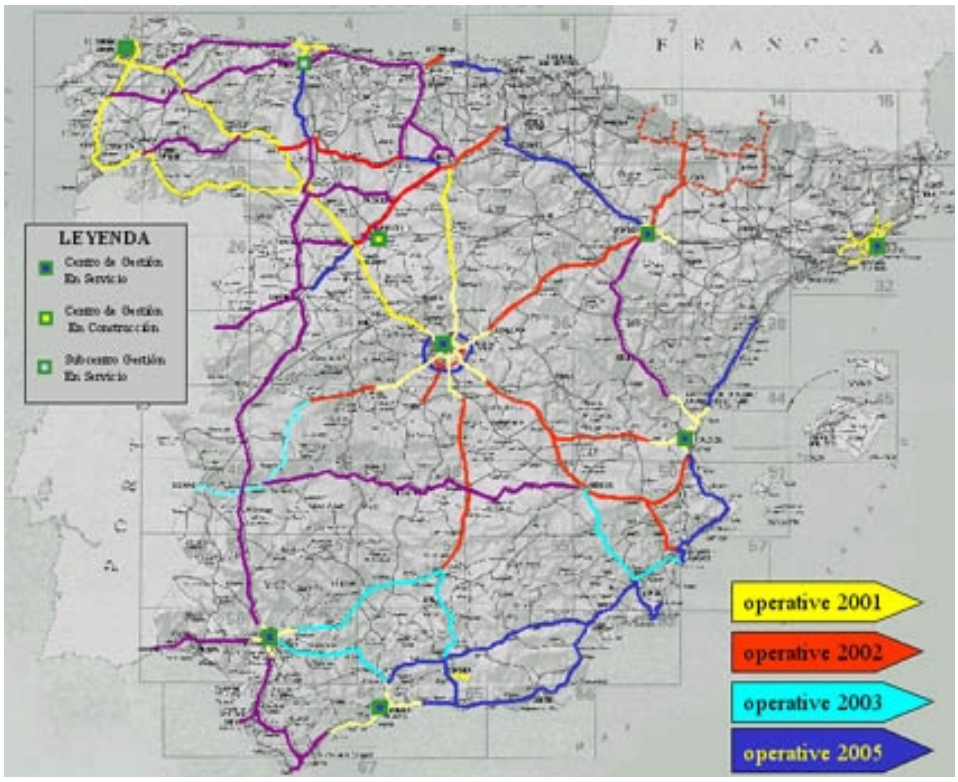
Data processing is carried out by nine TMC's located in the major cities

The main data source of the DGT is its own detection equipment (ca. 2.500 data stations, 900 CCTV cameras, 150 meterological stations), complemented through data provided by the police, other administrations (urban level) and traveller's calls (5.000 roadside SOS phones). Furthermore, also geo-data for referencing and meterological data are integrated.

The participation in EU-funded R&D projects (SERTI, ARTS) has facilitated the exchange of real-time traffic information with France based on the DATEX standard. In 2002 this exchange has also come to include Portugal, which now enables the DGT to provide full cross-border traffic information for Spain.

The DGT owns all road traffic data collected and carries out the data processing for management purposes. There are nine traffic management centers (TMC) of the DGT in Spain, each of them interconnected with the respective local traffic control centers of the large cities where they are located.[2] This configuration thus allows free access to video images and management systems at the urban level. In practice direct intervention is limited however (Fig.1).

Figure 1: Planned coverage of the national road network



[2] Madrid, Seville, Malaga, Valencia, , Zaragoza, A Coruña, Oviedo, Valladolid and Barcelona (operated by traffic regional authority of Catalonia)

On the basis of this data collection and processing network the DGT realizes information-based management interventions in real-time (lane restrictions, change of direction). It equally provides dynamic information both pre- and on-trip about traffic densities, incidents, and forecasts to travellers and enables individual trip calculation. Furthermore, also static information about legislation and network conditions is supplied.

Dynamic TTI is employed for instant traffic management.

For information dissemination the DGT employs many different channels. The authority is financing the installation of roadside VMS (ca. 900 at present) along the network and the broadcasting via the national public radio (RDS/TMC and DAB) and TV stations (Teletext, Videotext) (Fig.2). It also maintains a call center with currently 32 lines and 90 lines in demand peaks (holidays) where individual information can be requested for free. Furthermore, traffic data is delivered to private agencies such as radio/TV stations, GSM operators and internet services via DATEX, internet (ASCII), fax or leased communication lines.

Information services via public channels are complemented by various private service providers (GSM, internet, radio, TV).

Figure 2: Real-time traffic information and management via VMS

1.5 Service set-up

Due to the approach chosen by the DGT, private sector agencies are only involved in information dissemination. On the basis of its data sharing policy, public-private cooperations exist with different operators such as Terra, Tele 5, Vía Digital, DAB/TV Digital, Amena and Telefónica Movistar. This has allowed to provide TTI services over more than 30 internet portals as well as via SMS and WAP.

Private sector involvement in TTI dissemination has allowed to diversify and at the same time personalize the services offered.

To clarify the use of the traffic data and ensure the quality of services the DGT issues data-exchange contracts for private partners. Conditions concern technical specifications, privacy issues, source acknowledgement, the level of quality/updating, but also the use of an own press cabinet for public relations. All data are supplied by DGT free of charge to the private sector.

In general all services are required to be free of charge (except communication cost) and no liability claims can be placed on the DGT. Currently the interest of the private parties mainly consists in using traffic information for the promotion of their respective products, while value-added services are still an exception (e.g. Amena).

The DGT requires all private TTI services to be free of charge and to fulfill basic conditions (esp. technical, privacy- and quality-related).

In line with this development, a call for tender has been launched in 2002 to outsource the operation of the call center. The aim is to establish a two-level multi-language[3] response, where the first level corresponds to a private company and the second to DGT officials for those requests with a reference to personal data.

All risks are assumed by the private agencies.

This is expected to multiply the service capacity (256 lines) so that ca. 5mio. calls can be attended in the second year of contract. At the same time the communication costs currently covered by public funds will be charged from the user (equivalent to a regional call). The service will include on-line navigation and information for handicapped and will be accessible through a 3-digit code.

Due to the strong demand growth, the call-center operation will be outsourced. For the first time, users will be charged the costs of the call.

1.6 Assessment and lessons learned

National road TTI service delivery in Spain is of course strongly conditioned by the specific urban geography of the country. A comparatively low average urban density, traffic concentrations along the main interurban axes and the enormous importance of tourism areas are some of the key characteristics. Fixed data collection equipment along major axes will therefore remain the key source since for using floating vehicle data (FVD) collection technology the fleet would need to be very large.

In respect of the service development, the different delivery channels reflect the crucial importance of understanding the needs of user groups and the market dynamics relevant for TTI.

The varying success of the different channels reflects the needs of the users and penetration of technologies:

The introduction of the free phone service has been a much greater success than initially expected. With the improvement of the information quality and coverage the number of users has grown from some 150.000 in 1988 to 3.6mio. in 2001, thus leading to a capacity bottleneck. At the same time, the general user expectation has been that the service should stay free of charge. However, while the operating costs will still be carried by the public authority the communication costs will now be shifted to the user - although in a less visible way.

While phone, SMS and internet services boom, demand for WAP, DAB and RDS/TMC stagnates.

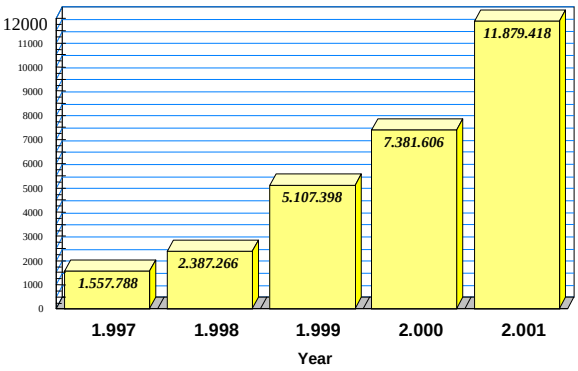
As regards the RDS/TMC and DAB services, these are facing the problem that very few users are actually equipped with the corresponding receivers (e.g. only 800 DAB receivers by 2001) so that the service impact is very low compared to 60.000

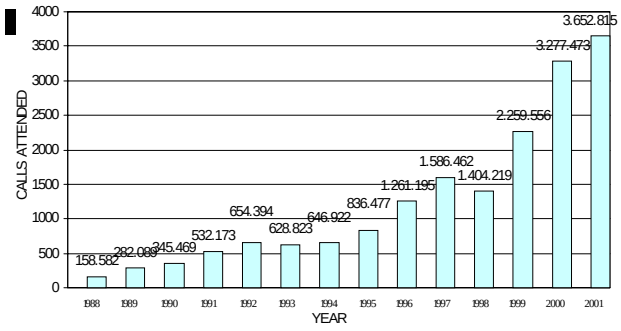
[3] English, French, Portuguese

connections to commercial radio. The same difficulty affects also the WAP service with only 15.000 annual connections.[4]

On the opposite the mobile phone market in Spain has been developing very dynamically. Since there are more mobile phone lines than fixed ones, SMS services are highly requested. SMS service use has increased within one year after its introduction in 2000 from 1.7mio. to 2.2mio i.e. by 30%. The service reaches particularly young generations due to its low price and high penetration of mobile phones. The internet service has experienced a similar explosive growth from 7.3mio to 12mio. web page accesses in 2001, i.e. by 64% (Fig.3).

Figure 3: Development of web access (left) and attended phone calls (right)





1.7 Future prospects

Starting from the data provision by the DGT there seems to be a potential for private service providers offering individual contents and locations based services by building on the broad availability of mobile devices in Spain. Perspectives for further private exploitation of DGT data in combination with navigation, security (theft) and safety (emergency) services are considered to be very good.

Private TTI service development can build on DGT data and the growing market for mobile devices in Spain.

As regards Floating Vehicle Data use, despite of the difficulties at the national level this technology is regarded an important opportunity for the urban level to achieve low-cost but high-quality data and enhance the overall TTI service quality at the intersections between national and urban/regional networks.

The integration of FVD at the urban level could be a key driver for service improvements.

[4] figures in 2001

1.8 References

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Fernández Alonso, F. 2002. Co-director at Dirección General de Tráfico. Interview by author 16.8.2002

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Table 1: Synopsis Dirección General de Tráfico (DGT)

Title	DGT
Country, Region, City	Spain
Duration / Status	continuous expansion since 1986
Geographical area covered	whole country (for some services except Basque country)
URL	http://www.dgt.es
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Ministry of the Interior / DGT, ~~police~~, local authorities
Infrastructure owners and data collection technologies	DGT – CCTV cameras, data stations (sensors), phone calls, meterological stations
Public sector data owners and providers	DGT, ~~police~~, local authorities
Private sector data owners and providers	geo-data, other databases (addresses), travellers
Service operator	DGT / private agencies
Information editors / service database managers	DGT / private agencies
Communications providers	DGT, public and private radio/TV stations, GSM operators, internet operators, press
Service provider to end users	DGT, public and private radio/TV stations, GSM operators, internet operator
Market segments & end user groups targeted	all road travellers in Spain (motorways)
Nature of public-private partnership	contracts for data delivery to private agencies; tendering of services

Strategic marketing partnership	n.a.
	Main Characteristics of Service Delivery
Modal coverage and mode integration	mono-modal for road
Data quality	static and real-time (sensors and cameras), additional updates by police and traveller calls
Information contents	DGT: legislation, network conditions, individual trip calculation, traffic status, incidents, forecasts; other providers: location based services
Distribution stage and transmission media	pre- and on-trip *collective*: press, VMS, radio, RDS/TMC, DAB, TV, teletext, videotext *individual*: internet, GSM phone, SMS, WAP
User interaction	passive and instructive information (deviation, restriction, etc.); push & pull services
Pricing policy and revenue streams	free information services (except communication costs)
Development of service use	rapid growth of internet, phone and SMS service use; very slow take-up of RDS/TMC, DAB and WAP services

Good Practice Case Study 5
Eurotel – Mobile guide (CZ)

Authors: Paul Riley, Wojciech Suchorzewski

07.12.2002 / edited final version

1. Case Study: Eurotel – 'Mobile guide'

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

1.1 Background

Eurotel is the largest and oldest provider of mobile telecommunication services in the Czech Republic. The company has been developing complementary WAP, GPRS and SMS services for a number of years. Eurotel profiles itself as the innovative, high quality operator and thus new innovative services are its flagship products, which give it competitive advantage.

The leading mobile phone company in the Czech Republic operates a local information service.

Eurotel identified the mobile phone as a tool which gives added value when users are looking for a particular service or destination nearby, particularly when they are out and about. In 2000, Eurotel set up the first location based service, providing information about the nearest cash machine, pharmacy, post office etc.

The mobile guide application extends this concept and the location of the phone to help the user find where to go to obtain a service, how to get there from the present position, and suggest things that might be useful on the way there, such as petrol stations and cash machines. Thus transport information is offered in the context of a requirement for other services, although it can be acquired directly as well.

The service expands the range of uses for mobile phones, and maintains market position.

1.2 Goals

Eurotel has two types of commercial goal in providing supplementary services to its mobile phone users. Such services diversify the product range and thus increase revenue and profit. By providing innovative new services, sometimes stretching the limits of current technology, Eurotel supports its image as an innovator, leading the market in the future.

Users obtain location details for local facilities and instructions for reaching them, including walking and public trans-

1.3 User and stakeholder requirements

The main service goal is to provide information to customers about the location of important services and places needed in everyday situations and to provide a full description of how to get there from current position on foot, by public transport or by car. The whole route from door to door can be described, including navigation instructions when the user is walking.

The information service package is offered to all Eurotel customers, and information provided covers the whole Czech Republic. The service is not explicitly targeted at specific user groups but the basic price of the WAP service (0.1 Euro/ minute) means that in practice it is used by people with top-of-the-range mobile phones and enthusiasts, who typically are not the core of the public transport market. There is no price discrimination between the different services.

'Mobile guide' is most attractive to people with high specification WAP phones, but an SMS service is also available.

1.4 Technical description

Eurotel obtains data for the service from several sources, and co-operation with owners and providers of data is on a sound commercial basis. Eurotel owns some types of data but most data is purchased from external providers on a contractual basis. With some strategically important data sources, Eurotel has exclusive rights to data use. Eurotel is still enlarging the network of providers and partners. One of the databases used is the CHAPS national public transport timetable database described earlier.>>insert hyperlink to CHAPS>>

The maps are of high quality and are provided by an external developer. The navigation system has been developed by Eurotel itself.

Eurotel buys data from several sources.

High quality maps are bought for the service.

Eurotel developed the navigation software.

Users need to have a mobile phone with WAP support, and they need to register for it before they can use the service. To obtain the maximum value from the service, users need a phone with fast data transfer and a colour screen to process and display the map information, which means using one of the latest models of mobile phones on the market.

'Mobile Guide' provides the following main traffic and traveller information:

- Where is?
- Nearest
- Find the way
- Leisure, Sports
- Tourist info
- Car service
- Mobile compass
- Customisation.

The 'Find the Way' service (see Figure 1.1) finds the best way between two points and is most interesting from a transport perspective. However most of the services are linked up in logical ways.

Find the way search details:

1 Enter point of origin and destination:

- ✓ Type start point and destination

2 Choose a type of transport

- ✓ Train, bus, urban public transport,
- ✓ Car
- ✓ On foot (within one town only)

3 For train, bus or urban public transport

- ✓ Enter the departure date and time

4 If choose to go by car, the options are:

- ✓ Find the shortest way
- ✓ Find the fastest way
- ✓ Pass by town, castle, cinema…

The search results provide the following information:

Brief route description	- possible to receive as an SMS
Detailed route description	- possible to receive as an SMS
Map	- available zoom and scroll – WAP
List of petrol stations	- including exact location and directions
Places of interest	- including location and brief description
List of cash machines	- if you go on foot

Figure 1.1 Menu for 'Find the Way'

The Mobile Guide uses a series of search criteria to find local facilities.

The optimal route by public transport or on foot is calculated, and directions or a map are provided.

Once the location is selected, mobile guide searches its database for the best match. If only one location is found, it becomes the current location and mobile guide goes to work looking for the places requested.

Door to door navigation is available for any simple walk from A to B and the combination of walk and public transport. The searcher finds the optimal public transport route and can give the user instructions for walking to the stop. This works either through the map system or through written text instructions on-line on WAP or through a set of SMS instructions (go x m straight on and turn into road y etc.).

The written instructions are weak in that initial orientation is a problem and the instruction algorithm and database cannot cope with unnamed streets and road crossing points etc.

However in well structured areas such as historic centres, the product is effective and initial orientation can be improved with the mobile compass.

The map displays the location of specified elements. It is possible to zoom in, zoom out and scroll the map left or right, up or down as required. The start and destination locations are marked on the map.

The map displays can be seen at several different scales, and the user can move around the display or zoom in and out.

'Mobile guide' currently accesses several maps: Atlas CR, which contains cities and municipalities, streets and prominent railway lines and stations (when in full zoom); the service also contains maps of Prague, Brno, the regional and national road system, local names, street names, town squares and significant buildings. The Prague map even displays building numbers when in full zoom.

All maps are available in five levels of detail. The most detailed national view displays 3 km sections and the broadest view displays 38 km. Most of the city maps display from about 180m (130m for Prague) and to roughly 1.8km (1.3 km for Prague). These scales are valid for phones with resolution between 90 – 100 dpi. For lower resolution displays, the map feature remains limited. In the new generation of mobile phones with colour displays and high resolution, the map feature is easier to use.

'Mobile compass' is a unique feature developed and patented by Eurotel. Once a location has been entered and a destination selected, this feature displays an arrow that points the user in right direction. The user points the phone at the sun and tips it down so that it is parallel to the ground. The arrow then points the way. It also works on cloudy days once the user has estimated the sun's position. However this service does not function if the sun is more than 5 degrees below the horizon. The mobile compass is not directly linked to the route finder function for initial orientation on travel directions.

The phone can be used as an electronic compass, which is unique to Eurotel.

While receiving information, the phone must stay connected to the service, which becomes very expensive to use with a slow mobile phone. In this case, it is cheaper to request SMS route directions; there is an option to specify the number SMS in this service.

1.5 Service set-up

The service set up was commercially motivated, and transport and direction information are provided as part of the package for locating facilities and services. Development work is fully funded by Eurotel, and new features are developed on the basis of customer feedback and market factors.

The transport information is seen as a complementary part of the wider information package.

The viability of individual services is not judged entirely in isolation. Eurotel sells a package of information services which are presented in complementary ways and which as a package

should be commercially viable. Thus the transport information does not in itself need to be commercially viable if it plays an essential strategic support role for other information services, which it almost certainly does.

There are a number of innovative and unique selling points of the service including map navigation, the mobile compass and the door-to-door navigation feature.

The marketing strategy is to sell the location and navigation service as a single package aimed mainly at business users, younger persons with higher disposable income, and people with an interest in technology; there is a particular focus on people looking for the location of entertainment services. The service is sold on the basis of the cost of calls, which varies between WAP and other ways of obtaining the data.

Marketing is aimed at business users, people with a high disposable income, and young people.

Charges for services:
WAP 2,70 Kc/min (approx. 0.10 €/min)
GPRS – charges only for data, not for time 0.50 CZK/Kb (approx. 0.016€/Kb) + tax
GO - 0.60 CZK/Kb(approx. 0.017€/Kb) + 0.60CZK/hour

Recently Eurotel has started to provide a multi-media messaging service (MMS), and is the first mobile phone operator in the Czech Republic to do so. This service should motivate people to buy new mobile phones with a high quality colour display so that they can obtain better quality information. Owners of these new models of phone will expand the market and increase the use of the local information and navigation features of the 'Mobile Guide'. However such growth in the market will only take place over the longer term as higher quality mobile phones and faster data transmission become affordable to a larger proportion of the population.

The market for the service is expanding as people buy new models of mobile phone, but this is a long term process.

1.6 Assessment and lessons learned

The service concept is innovative, and the Mobile compass and the Door-to-Door navigation systems are unique in the Czech Republic, offering customers a useful service in unfamiliar locations.

The service is innovative and it is vital that it is simple to use.

The use of the service has shown that simplicity is crucial, and requires good logical links between features (hand-holding) and very good use of the limited screen space to display instructions. When the map function is available (screen size, data speed and colour are all helpful here) this makes the navigation process much easier than with SMS directions.

Text descriptions of walking directions are not ideal in all areas; it is difficult to navigate in this way in areas where road names are not visible, and large open spaces make it difficult to provide instructions in sufficient detail. On other hand, the quality of the maps is very high and they cover the entire road network in the Czech republic, and a number of cities.

The commercial approach means that the current service does not reach a mass market.

The business model is successful for Eurotel, but is not suitable for a mass application for customers looking primarily for transport information, especially public transport. The service is an example of the classic conflict between commercial and public policy interests, which often occurs in the case of services which are operated entirely in the private sector. There are some plans to provide information through the Internet, but users will be charged for the service, and in any case the main value of the service is for on-the-spot navigation, which requires a hand-held device. The fact that Eurotel does not wish to sell its information system to other information providers (some of whom may be operating in competition with the Eurotel service), is unfortunate from a policy point of view, but is clearly in the company's best interests commercially.

1.7 Future prospects

Future plans include an Internet service and real time traffic information.

There are plans to provide the information through an Internet service, for which users will have to pay. This may not expand the market share significantly,

Eurotel plans to add real-time traffic information to the service, which is the feature most requested by customers. There is clearly a role for such as service because the Czech Republic does not have national traffic information centres, and the only road traffic information available is from motoring organisations providing Internet services and radio broadcasts (as described earlier in the ABA study << insert hyperlink to ABA section>>).

Eurotel is developing a localisation program for its mobile phones to be used in the real-time traffic information service. This will make it possible to target the information sent to users and specify the location of events.

In the future it can be expected that with the advent of new generations of mobile phones, Eurotel will add real-time navigation to the 'Mobile Guide' service.

There is also a large interest in information about petrol prices at individual petrol stations, but the main problem lies in obtaining this information from petrol producers.

1.8 References

- www.eurotel.cz - Web page of the company Eurotel
- www.mobiljuice.cz - Web page of mobile portal Juice operated by Eurotel
- http://wap.mobiljuice.cz - WAP page for connection to the service
- Interview with Petr Baron 16.09.2002 from Eurotel.

Table 1 – Synopsis: Eurotel Mobile Guide

Title	Eurotel - Mobile guide
Country, Region, City	Czech Republic
Duration / Status	active
Geographical area covered	99% of the Czech Republic
URL	www.eurotel.cz, www.mobiljuice.cz, http://wap.mobiljuice.cz,
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Ministry of Transport and Communication,
Infrastructure owners and data collection technologies	Eurotel
Public sector data owners and providers	e.g. Czech Airport Authority
Private sector data owners and providers	e.g. Eurotel, UAMK, CHAPS, DATIS
Service operator	Eurotel
Information editors / service database managers	Various outsourced companies + EUROTEL for navigation system
Communications providers	Eurotel
Service provider to end users	Eurotel
Market segments & end user groups targeted	Mostly business users and young users with disposable income, especially those looking for entertainment and users with interest in new technologies
Nature of public-private partnership	Private initiative

Strategic marketing partnership	With some producers of databases, EUROTEL has exclusive rights
	Main Characteristics of Service Delivery
Modal coverage and mode integration	multi-modal/inter-modal
Data quality	static
Information contents	services and places locating and navigation system including self-location/orienting, multi-modal car / walk, public transport and inter-modal walk- public transport
Distribution stage and transmission media	mobile phone, single operator
Pricing policy and revenue streams	WAP 2,70 CZK/min (approx. 0.10 €/min), Eurotel + 5% Tax, GPRS, Eurotel – 0.50 CZK/Kb (approx. 0.016€/Kb) + tax Go - 0.60 CZK/Kb(approx. 0.017€/Kb) + 0.60CZK/hour (approx. 0.017€/Kb)
Development of service use	No information

Good Practice Case Study 6

ITIS - system for collecting and analysing traffic information (UK)

Authors: Richard Harris / Kate Nastys

13 May 2003 / Final version

1 Case Study: ITIS Holdings plc, UK

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

1.1 Background

ITIS is a private transport telematics company in the UK.

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

ITIS collects data from floating vehicles and traffic journalists, analyses it in its own traffic information centre, and provides a range of real-time information services.

The company's unique system of collecting and analysing traffic information, makes it possible for ITIS to provide real time information on traffic conditions and journey time predictions. This information is collected using both journalistic and Floating Vehicle Data (FVD) techniques.

The company has three main areas of expertise:

- Traffic Analysis and Forecasting using its own FVD network;
- Telematics applications and services, including the delivery of real-time traffic information directly to vehicles using RDS-TMC (radio data service – traffic message channel); and
- Vehicle tracking services marketed as Navtrak.

ITIS first started producing FVD in February 2000 with 640 probe vehicles, which provided limited data but enabled proof of the concept to be established. By summer 2001 the system was generating useful information with a much higher number of probes.

In May 1999, ITIS launched its NavTrak business. NavTrak is now the UK's largest consumer telematics brand, having developed a wide range of location based driver services delivered via GPS/GSM technology.

Information services are provided using RDS-TMC, mobile phones and in-vehicle devices.

ITIS traffic information is delivered via RDS-TMC, Digital Radio, in-vehicle receivers, and mobile phones.

There have been a number of significant developments within the company over the past two years. The beginning of January 2000 saw an agreement between ITIS and Freeserve

to provide traffic and travel information over the Internet. Soon after the agreement Carphone Warehouse signed for its multi-access portal Mviva to provide traffic and multi-mode travel content.

Agreements with mobile communications and internet service providers have expanded the range of services.

ITIS Holdings floated on London's AIM (Alternative Investment Market) in October 2000 to enable further developments in its traffic content and to expand its telematics service provision capability.

Developments in 2001 included gaining the UK license to broadcast traffic information data using RDS-TMC, as well as signing a 3 year contract with Toyota plc for the provision of traffic information services.

1.2 Goals

ITIS aims to integrate information services into road vehicles, helping users to avoid congestion and experience smoother journeys.

ITIS Holdings mission statement is to "provide intelligent transport solutions to make life easier for people on the move". This aim is largely targeted towards organisations such vehicle manufacturers, fleet companies and mobile telephone operators, where the availability of traffic and traveller information will help in the development of the company.

1.3 User and stakeholder requirements

A large number of probe vehicles is crucial to the accuracy of the data.

Users will require accurate journey time predictions and effective re-routing plans, for traffic avoidance, to gain a level of trust in the service. This can only be accomplished if the number of probe vehicles is large enough to enable the Control Centre to draw up an accurate picture of traffic flow. ITIS have already equipped lorries operated by Eddie Stobart, a major haulier, with data collection units to increase the number of probe vehicles.

Toyota use RDS-TMC as a selling point for their new vehicles: 'Electronic Traffic Avoidance'.

Toyota requires RDS-TMC to become a well-known product for customers to take an interest in the service. Toyota have already placed a presentation of Electronic Traffic Avoidance (ETA) on their web site so that people can familiarise themselves with the new technology. Toyota wish to utilise ETA as a selling point for their vehicles, giving them an edge on other car manufacturers, that do not provide the service.

1.4 Technical description

1.4.1 Traffic data collection

ITIS are able to provide high quality traffic information data by combining journalistic information and FVD.

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

FVD is collected with the use of probe vehicles. Speed and location data from the probe vehicles is used to predict journey times. Each probe vehicle is fitted with a Data Collection Unit (DCU) and through GPS/GSM technology, is able to supply real time and historic traffic information on the vehicle's speed and position at any given point in time. Communications costs are

minimised by using historical data to poll vehicles that are statistically most likely to be on a particular route at a certain required time. ITIS collate all the data from the probe vehicles to determine the average speed on a particular road. Requests for traffic information can then be dealt with by ITIS, giving the exact day, time and specific road area. FVD can also be used to determine in real time any road delays as a result of traffic incidents as they occur.

ITIS focuses on data collection on the busiest roads at the busiest times by using vehicles with high mileage that spend a great amount of time on the network of interest, resulting in high data quality where and when customers need it most. Lesser roads are covered with lesser accuracy, as 24-hour real time coverage for these roads is neither required nor commercially justifiable. Using historic and journalistic data minimises the possibility of data being unavailable in any FVD 'black holes'.

To maximise quality of data on congested roads, the data collection focuses on the busiest roads at busiest times.

In April 2001 the first phase of a new commercial alliance was made with Trafficlink. This alliance made Trafficlink the primary journalistic traffic content provider for this service. Carefully structured FVD will be used to supplement the journalistic information. An incident monitoring team analyse this information, continuously examining and collecting data on traffic incidents, roadworks, events and weather information. Both planned and unplanned traffic events are recorded on ITIS traffic database systems where the impact on journey times can be calculated and predicted. Planned events include roadworks, concerts or school holidays, while unplanned events could include accidents and adverse weather conditions.

Information on planned and unplanned events and the impact of these is included in the ITIS traffic forecasting models.

Police control centres, urban traffic control centres and the Highways Agency also act as important third party information sources.

Traffic broadcast journalists, the police and road operators provide information.

Information users are billed through the GSM network.

1.4.2 Information dissemination

ITIS disseminates information through the recognised RDS-TMC standard. This has been established through agreements with Toyota and Siemens.

ITIS has the UK licence for broadcasting traffic information via RDS-TMC.

ITIS will supply traffic information content to a selected number of Toyota models through RDS-TMC, being the first real commercial service to be established in the UK. The market for in-car navigation systems is increasing rapidly, and with the integration of real-time traffic information the service can be better used for dynamic routing. It adds significant "user appeal" and benefits to the driver, who will now be aided in making informed choices about avoiding and re-routing around traffic congestion.

ITIS has an agreement with Toyota to provide in-car information via RDS-TMC.

Figure 1.1 RDS-TMC receiver and display unit

Transmission of the data is via national FM radio in the UK. ITIS were able to secure the exclusive license in January 2001 to broadcast traffic information on the sub-carrier of Classic FM, the UK's only national independent FM station. Once the information is received it is “decoded” and integrated into the navigation receiver. The result is a safe traffic information service as well as a dynamic route guidance tool. The fact that the data is sent to the in-car system, rather than voice messages to a mobile telephone means there are fewer safety issues and the service is cheaper to use, as there is no line rental to pay.

ITIS provides Siemens in-car navigation units with real time traffic information.

Dissemination of real time traffic information is also possible through Siemens VDO's range of in-car navigation units. Customers who buy the in-car navigation systems are provided with a CD ROM, which contains all the mapping information. Under the agreement with ITIS, customers are able to buy an enhanced CD ROM, which is coded in such a way that enables the RDS-TMC service to be received. Siemens VDO has 50,000 existing customers who are also able to purchase the CD.

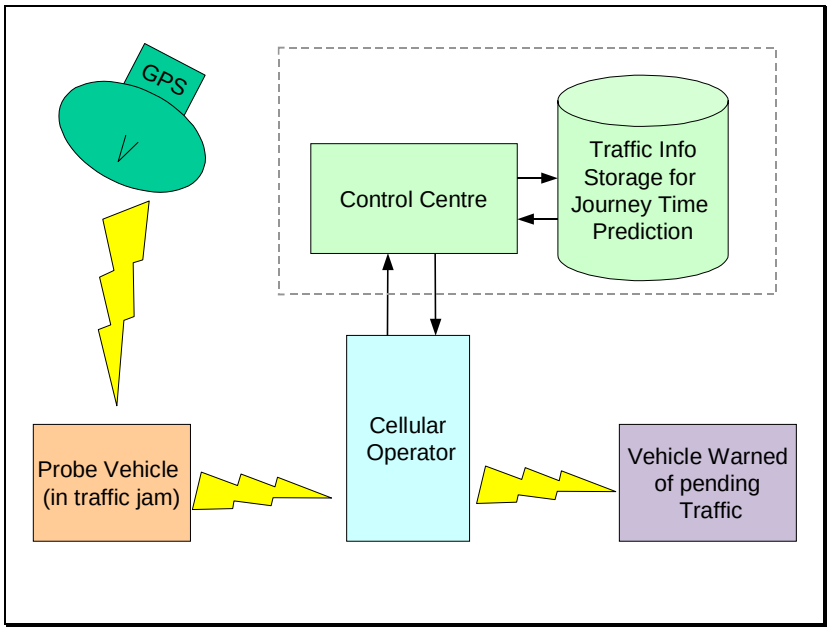


Figure 1.2 The ITIS information chain

ITIS also operate and own a digital traffic and travel radio station named 'Travel Now'. This station covers London and the South East, providing up to date traffic information for roads and public transport. Travel Now is updated hourly with reports compiled by Trafficlink broadcasters. The 10-minute reports are replayed using a unique audio system meaning that listeners are never more than a few minutes away from a complete travel news update.

ITIS owns a digital traffic and travel radio station 'Travel Now'.

Major Internet Service Providers use ITIS as a source of traffic information. Web sites often feature personalised routing and real time updates sent by either mobile telephone or e-mail.

1.5 Service set-up

ITIS has been able to set up the FVD service by arranging agreements with major transport and coach companies for vehicles in their fleets to act as probe vehicles. The installation of data collection units in these fleets that travel millions of miles on key roads has meant that the rate of data collection can be 30 times higher than from the average car.

Agreements with fleet operators provide high mileage probe vehicles. One haulage operator added an extra 180 million miles of FVD per year.

Contracts with a major haulier, Eddie Stobart Ltd, and a long distance coach operator, National Express, have resulted in an additional 180 million FVD miles each year in the ITIS network.

ITIS has an exclusive three-year agreement with National Express to use 530 coaches to collect FVD, and to provide National Express with information and tools to enable the estimation of journey times.

ITIS have signed a five-year contract with Eddie Stobart to supply the NavTrak stolen vehicle tracking system, following the

previous agreement to use the 750-vehicle haulage fleet to collect FVD. Eddie Stobart has also agreed to take Minorplanet's fleet management system, VMI. ITIS have a 20-year licensing agreement with Minorplanet, which gives ITIS global rights to sell VDI on fleets of over 100 vehicles already fitted with ITIS DCUs.

A recent 5-year agreement with a major motoring organisation, the Automobile Association (AA), will also serve to expand the business network. Under the terms of the agreement, ITIS will be responsible for exclusively operating existing commercial information services under the AA Roadwatch brand and exploiting new opportunities for selling and marketing traffic information. ITIS gains exclusive access to AA Roadwatch information for use in telematics, telephone services and corporate data customers. ITIS will be responsible for supplying floating vehicle data to AA Roadwatch, increasing the information provided to their customers. In return the AA will continue to research and collate comprehensive information on traffic and travel across the UK. The AA has also agreed to evaluate the opportunities to market NavTrak, ITIS's stolen vehicle tracking system, potentially opening up a considerable marketing and distribution network providing new sources of FVD.

An agreement with the AA provides information and marketing opportunities, and ITIS operates the AA Roadwatch commercial information service.

1.6 Assessment and lessons learned

ITIS Holdings serve many thousands of users per day, and numbers of users have continued to increase since the introduction of the service.

ITIS serves thousands of users each day, and numbers are growing.

ITIS Holdings have identified the importance of agreements between specific companies. Agreements between parties, such as with the AA and customers of FVD and RDS-TMC have enabled the company to build upon its reputation and expand its service.

ITIS have learnt that there are a series of key factors that result in a service being successful. These include:

Success has been due to good quality data, effective delivery, low fixed costs, use of existing standards and systems, and a niche market.

- Good data quality to encourage willingness to pay for services;
- Effective delivery channels such as RDS-TMC and AA Roadwatch;
- Identification of a niche market. ITIS has the sole UK licence to broadcast traffic information over conventional FM radio, and Travel Now is London's first radio station solely dedicated to travel news;
- Low fixed costs by expanding on existing systems (AA Roadwatch and Siemens VDO) and limiting communications costs;

- Limitations on dissemination to control ownership of data;
- Reliability to gain customer trust;
- Common standards i.e. RDS-TMC; and
- Using existing billing procedures (GSM).

ITIS have learnt that one single business model is less beneficial for the company as a whole. This has resulted in several being created. The company recognises that there should be emphasis on the way a service is packaged to customers, and feel this is more important. Deviations from the business model have occurred due to the lack of available raw data, specifically on public transport.

ITIS has adopted multiple business models and have attributed any deviations from them to lack of raw data.

At present the business is in the 'emerging market' stage. Public perception of TTI quality is low, which does not support the high value models that are being created. Willingness to pay for TTI is an area that needs improving which is why ITIS are continually improving the quality of their data.

ITIS have worked with their own distinctive data as it has been found this is the most efficient way of running the service. Creation of the company's unique data is an aspect that ITIS feel they could have started earlier.

1.7 Future prospects

ITIS's main aim for the future is to expand their network of traffic information dissemination. ITIS believe that within the next two to four years all the major vehicle manufacturers will have introduced some kind of telematics functionality within their vehicles, either as options or standard equipment. ITIS have therefore focused on developing their services primarily for the motor and telecommunications industries and will continue with this as one of their main strategies. Obtaining the UK licence to broadcast traffic information using RDS-TMC has enabled ITIS to progress well in this area. ITIS also plan to increase the number of floating vehicle data probes.

The main focus for the future will continue to be on services for the motor and telecommunications industries.

1.8 References

- www.itisholdings.com
- www.navtrak.com
- www.rds-tmc.co.uk
- ITIS Holdings plc. Annual Report 2002.
- Interview with Nick Simmons from ITIS Holding plc.

Table 1 Synopsis Case Study: ITIS Holdings plc, UK

Title	ITIS Holdings plc
Country, Region, City	UK
Duration / Status	Since 1997
Geographical area covered	UK
URL	www.itisholdings.com
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Private company. Highways Agency (the trunk road operator) a source for journalistic information.
Infrastructure owners and data collection technologies	Data from Floating Vehicle probes and GPS/GSM - private fleet companies act as probe vehicles.
Public sector data owners and providers	Police control centres, urban traffic control centres act as 3rd party traffic information sources.
Private sector data owners and providers	Eddie Stobart (haulier) and National Express (coach operator) are data providers. The AA (motoring organisation) is main provider of journalistic information.
Service operator	ITIS Holdings
Information editors / service database managers	ITIS Holdings
Communications providers	GPS/GSM, Floating Vehicle Data
Service provider to end users	Radio, NavTrak vehicle detection unit, RDS-TMC, Internet, DAB, WAP.
Market segments & end user groups targeted	Motorists, Businesses, 3rd party information providers
Nature of public-private partnership	
Strategic marketing partnership	
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Mono-modal for road. Multi-modal for road and rail.
Data quality	Real-time, active and historic
Information contents	Predictive journey time, Network performance, Road timetable, Points of Interest, Locations.

Distribution stage and transmission media	Pre-trip via internet, on-trip via RDS-TMC, radio, WAP
Pricing policy and revenue streams	Pricing via GSM. Revenue streams via Car manufactures, aftermarket products, telephonic services, Navtrak, ISP's
Development of service use	Continual development of service.

Good Practice Case Study 7

Kizoom – Providing Personalised Public Transport Travel Information over the Mobile Internet (UK)

Authors: John Austin, Lesley Atkinson

04.04.2003 / Final version

1 Case Study: Kizoom Personalised Public Transport Information over the Mobile Internet

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

1.1 Background

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

The services are based on an increased expectation of improving public transport information, supported by government funding.

While public transport operations in the UK are the responsibility of private sector companies, local authorities retain responsibility for providing public transport information. In pursuit of an integrated transport policy, the UK government has introduced a number of initiatives to disseminate better travel information for public transport services, and has encouraged operators and local authorities to develop others. The government's ultimate goal is a planned service called *Transport Direct*, intended to disseminate real-time and scheduled travel information to users over the Internet and to mobile devices. In this climate a number of government-funded initiatives are in place to deliver accurate and maintained source data on public transport operations, increasingly at the level of individual public transport stops. Government funding for TTI developments in the public transport area has become a very important driver for public transport travel information initiatives; for example in 2002, £20 million (32 m euros) was awarded for real-time bus information projects.

At the same time, mobile telecoms networks, mobile telecoms devices, and the software and communications technologies on which they operate have all developed. This has now progressed to the extent that high-speed delivery of a wide range of information services relating to travel is now possible.

In response to these developments, Kizoom has built a portfolio of travel information products, including timetables, departure and arrival boards and incident alert services, and provides a range of mobile services to deliver these, such as services for mobile phone users (WAP, SMS) and services for those with PDA devices.

1.2 Goals

Kizoom sees travel information as a service which is highly suitable for the medium of mobile devices, and consequently as a market with great commercial potential. Therefore the aim of Kizoom's service is to deliver personalised public transport travel information in the most appropriate way to a range of mobile devices. This enables users to have relevant and timely travel information appropriate to their needs and delivered to them directly at any location. Kizoom's goal is to provide (profitably) a service for which mobile devices are very well suited (personalised travel information), and by doing so to help establish a mass market for this service.

The aim is to develop a mass market for mobile, personalised travel information services.

1.3 User and stakeholder requirements

Users require a fast service that is easy for them to operate and provides quality information. The user must not be overloaded with information: e.g. lists must be kept to a maximum of 20 options.

Stakeholders have quite different goals.

The government's objectives are wider dissemination of travel information, particularly real-time information. The government is currently working with Kizoom, as a subcontractor to its main *Transport Direct* contractor, SchlumbergerSema, in preparatory planning to deliver scheduled information for every bus stop in the UK via SMS messages. Kizoom has been chosen for this as a result of its proven expertise in software design in this field, established through several commercial applications.

Services for rail and bus are also very different.

Information for bus users has potentially much higher service costs but lower value per journey than rail information.

A final decision on this SMS service is, at the time of writing, still being considered by the main bus operating groups, who, if it goes ahead, will be providing it through their jointly-owned company *PTi Website Ltd.* There is a tension between the potentially large costs of funding mobile services for bus travellers and the desire of bus operators to expand their markets and retain existing customers for a longer period. This tension is less obvious for rail operators, where the message volumes are likely to be smaller, and there is a greater potential loss of revenue if a mobile service is not provided. Train operators require a product differentiator for their services, are seeking to provide passenger benefits as part of their operating franchise agreements, and are looking to provide similar levels of information service to those available for the private car.

The requirements of transport regulators and local authorities vary. Kizoom's service for Transport for London (TfL) is branded as a TfL service, with Kizoom being only a contractor. TfL's goal is to achieve maximum dissemination of public transport travel information, at no cost to the user, in an accessible but cost-efficient way. Certain local authorities outside London, also responsible for public transport information provision but with a less strong remit than TfL, are also using Kizoom to deliver travel information to mobile devices.

This is seen as part of a cost-effective strategy for delivering real-time information and at the same time retaining or expanding new customer markets (e.g. teenagers).

Mobile telecoms service providers' requirements are for services which can enhance the value of their offering to the consumer, and therefore allow them to increase market share. However, so far, these providers have not been willing to pay for these information services. At present, Kizoom services are available on the mobile portals of O_2, Orange, T-Mobile and Vodafone.

1.4 Technical description

The following table outlines some of the services built by Kizoom.

Kizoom offers both 'Pull' and 'Push' services to its mobile customers.

Service Type	Journey Planning & Fares	Disruption Information & Customer Relationship Management Unplanned & planned	Real time arrivals and departures
Pull Users make queries when they want to know something. Applies to Web & WAP services.	"How or when can I get from A to B?" "How much will it cost?" TfL Trains	"Is my service running on schedule? " "Is the train I am meeting on time?" TfL Trains	"When is my train leaving?" "Will my train arrive on time?" TfL DLR Trains
Push System watches in background and lets users know when something has happened. Applies to SMS & Email services.	"Send me a hard copy for later reference." TfL	"Tell me if something is going to affect my journey." "Keep me informed of the development of an issue." My Connex TfL Travel Alerts	"Alert me when a selected service is about to leave, or arrive." My Connex

Kizoom's different methods of service delivery have different uses. For instance SMS is principally used for communicating

with customers individually, and for staff communications, while WAP is used for responding to queries on the move, with, for instance, more detailed information on incidents being available to travellers after they have been notified to travellers by SMS. Messages are targeted at travellers according to their route and /or time of travel.

Real-time information for rail services is a significant strand of Kizoom's current offerings (see above). For instance, it provides real-time incident information for two Train Operating Companies over WAP pages. This data is received from a database provided by Nexus Alpha, which provides real-time information from the control rooms of many major UK transport operators including Transport for London, and most of the UK's rail operating companies. Nexus Alpha similarly provides details to Kizoom for real-time arrival and departure information for several rail companies, including Docklands Light Rail.

Data on scheduled rail services and the rail journey planner engine is provided to Kizoom from Network Rail, and users enter their personal preferences into the system, from a webpage, in order to configure it for fast, personalised journey planning (with the minimum of keystrokes) and to make it possible for it to prompt the user with relevant real-time alert information.

Users can personalise the service and obtain real-time information in case of delays.

Kizoom also provides mobile journey planning for public transport in London from TfL's database, using the same Journey Planning engine as used by TfL for its web-based service. This provides information on all modes, including bus, rail, cycling, ferries, and walking.

Kizoom obtains its data from operators and / or local authorities and regulators, using standard UK-developed protocols, such as CIF, ATCO-CIF, TransXchange, JourneyWeb etc. The data is then held on Kizoom's server, and includes scheduled departures and arrivals, stop locations, route numbers etc. Real-time data includes elements such as actual arrival time.

A significant technical aspect of what Kizoom provides is the careful structuring of applications to make them easy to use on small devices in a hurry. This typically involves Kizoom breaking services down into small sets of richly linked content. The system has also been designed from the start to be highly scalable: coping both with a high volume of users, but also with the natural 'spikiness' of travel information usage, which is prone to peaks and troughs in use.

Kizoom places great emphasis on the careful structuring of applications to make them easy and fast to use on small devices

Mobile users interact directly with Kizoom's server using various client delivery technologies. The services also take advantage of certain specific software elements; such as travel profiles for travel personalisation; travel alert push engines, travel service models, and specialised user interface components to show timetables, departure boards disruption information and other dynamic information.

Other technical developments include subscription and event charging mechanisms for micropayment, integrated with a variety of billing mechanisms such as on-line credit card payment and reverse charge SMS. These have been developed but are not yet implemented in commercial applications.

Kizoom has developed a range of payment mechanisms, ready for implementation.

The business regulations surrounding the data used by Kizoom vary. For some services, such as those for TfL, it is very clear that Kizoom is simply a contractor: the data is owned by TfL and cannot be used for any purpose other than for TfL's mobile travel information service. For Kizoom's other existing clients (e.g. rail operators, local authorities) the data can only be used by Kizoom for the services which the client is funding: however Kizoom can, in some instances, use its own branding on the service.

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

In general, the customer pays for Kizoom's SMS services (at the normal SMS rate), but the TfL Travel Alerts SMS service is provided to users free of charge. WAP services are paid for by the user, as part of their charges to their service provider.

Figure 1.1: Transport for London: PDA

Figure 1.2: Transport for London: WAP: Departure Board Screen

Figure 1.3: Transport for London: WAP: Journey Planner Screen

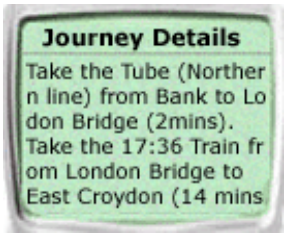


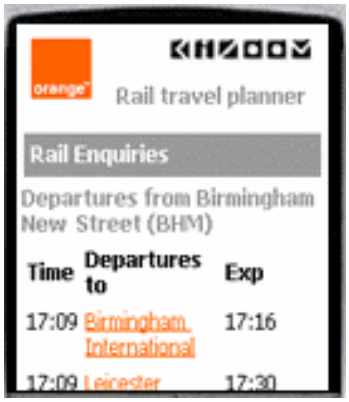
Figure 1.4: Transport for London: WAP: Travel News Screen

Figure 1.5: Transport for London: SMS: Journey Planner Screen

Figure 1.6: Connex Live: WAP: Main Menu

Figure 1.7: Orange SPV: Main Rail and Road Information Screen (giving access to Kizoom service)

Figure 1.8: Orange SPV: Kizoom: Rail Information Screen



1.5 Service set-up

Kizoom believes that mobile technology and travel information are a natural combination; their convergence gives rise to a new specialisation that blends specialist mobile, Internet, and software engineering skills with a cross-disciplinary understanding of a number of complex domains and their accompanying business models. Kizoom is focused on being just such a specialist "Mobile Travel Information System" (MTIS) company.

Kizoom was a technology start-up company formed to exploit a potential business opportunity arising from the growth in the number of mobile telecoms devices.

It was formed at the end of 1999, specifically to create the new sorts of application made possible by the arrival of the mobile Internet. It was founded, as a London-based start–up company, by its Technical Director, a software entrepreneur who had previously developed an award-winning high-level programming language for developing software applications with unprecedented speed and efficiency. He had been tracking WAP for some time, trying to decide when it would be within range of reaching critical mass in the market-place. He believes that a mobile device is a completely new platform, genuinely different from a PC, allowing personalisation because it is a pocket device, and uniquely identified with the user, and performing best with smart, focused applications. With his fellow entrepre-

It took advantage of rapid software programming development techniques developed by the company's founder.

neurs he tested a number of such applications and found personalised travel information to be the one with the greatest potential.

Kizoom decided to focus on this market and by early 2000 had developed a rail journey planning service, offering it as a free pilot in April of that year. Wide exposure in the national business and financial press followed, and in August 2000 it signed a partnership deal with Railtrack (Network Rail's predecessor) to deliver personalised rail timetable information to mobile phone users. This was the first example of a co-operation between a market-leading WAP technology company and a major provider of travel information.

Real-time applications for Docklands Light Rail and Connex (in London and the south-east) followed in Autumn 2000, and then TfL's WAP service in 2001. At the end of 2001 Kizoom services appeared directly on a mobile service provider's portal, with the launch of a live 'departure board' for 275 key rail stations on the Orange portal.

Kizoom developed a family of mobile, personalised public transport TTI applications in a short time. A key event was agreeing a partnership with Railtrack in 2000.

Service offerings were expanded extensively in 2002 with 'My Trains' live departures on the Vizzavi (Vodafone) portal, real-time arrival and departure information WAP services for two rail companies, increased personalisation of some services, and the extension of TfL services to include journey planning. The latter is available on WAP, PDA and SMS. In November 2002 Kizoom developed Europe's first rail information service that automatically detects where the user is calling from. The Orange mobile internet service intelligently suggests nearby stations that the user can then select in order to find out information such as timetables or departure boards.

While most Kizoom offerings to date have been rail-based the TfL service, offering information on all modes, is a very significant exception. Kizoom also provides SMS text messaging real-time information as part of the Star-Trak system in Leicestershire. The move into the bus and multi-modal travel information market has coincided with close involvement in UK national public transport information standards groups from 2002.

The current business model involves public sector funding to establish the systems to produce and maintain good, reliable scheduled and real-time travel information data, and to supply it to Kizoom. This involves both direct and indirect funding, including general public support for rail franchises. In the latter case different parts of the rail industry fund Kizoom's provision of the Network Rail national rail journey planning system over mobile devices and fund the individual Rail Operating Company mobile services which Kizoom provides.

The current business model depends heavily on government funding and leadership, to create a business climate where all parts of the delivery chain can survive.

There is also substantial public funding available to Transport or London (TfL), through which it finances travel information services, including those which Kizoom provides on its behalf.

Public funding has also been the stimulus to unlock funding by bus operating groups to support the continued operation of real-time systems: the Star-Trak system in Leicestershire is a case in point.

A key role of government within the business model has also been to create a framework and opportunity for all components of the business chain to make a profit margin: by initiating and supporting standards, for instance, and by creating a 'climate of expectation' for good travel information.

The business model as originally conceived by Kizoom involved the user paying for the service in some way. To date, most of the services are free to users, although originally, users paid for each message received from TfL's SMS service.

1.6 Assessment and lessons learned

Use of the national rail enquiry service grew from 40000 to 100000 enquiries per week in one year.

Kizoom's services have shown strong growth. Its National Rail enquiries WAP service had 40,000 enquiries per week in January 2001, and 100,000 enquiries per week a year later. However, whilst users have been pleased with the services, there is doubt over whether they are really willing to pay for them. This becomes very relevant when the value of the travel fare is a low multiple of the price of the SMS message, as is the case for most bus trips.

It is not clear whether users are willing to pay for the service.

The user's willingness to pay is in doubt because so far there have been very few examples of charged services (apart from some SMS examples) and users expect the provision of public transport information at no charge since they expect to obtain it as part of the public transport service. There is also a need to resolve the issue of passing costs onto users acceptably, whilst providing an easy user charging mechanism. The current business model is heavily dependent on public-sector funding, and, in certain cases, on funding by transport companies.

The government needs to act as the driving force for infrastructure development, and for creating TTI systems and processes.

As well as Government money, it is also vital to have the political will to create a climate that is supportive of public transport. It is also vital to have Government support for TTI developments: Government has to be the driving force to commission infrastructure and to create the necessary systems and processes. Creation of a mass market is essential for survival because for the information service provider, the cost of the revenue collection and billing systems far outweighs the revenue gained from extra public transport patronage. Added value services need routine, high value use to survive.

The need to find a sustainable long-term business model and a mass market are crucial.

There is a strong need to find a workable business model. The whole business process is interdependent and all 'levels' of

player need to survive (by making a profit) to ensure the survival of the whole delivery chain.

A means of equitable revenue sharing also has to develop over time. Whilst Kizoom is only involved in the public transport sector at the present time, if a viable business model for TTI services did not emerge then it would consider moving out of transport and into other sectors such as banking or commerce.

Achieving a critical mass of public transport information services is a challenge. Coverage has to start with the large cities and conurbations and then spread into the smaller towns, as *Transport Direct* and the associated *traveline* service develop. A likely future strategy is also to include intermodal services based on the coverage of the railways.

Also, more insight into user needs at each end of the journey will be required in order to produce a successful information service design. This is because people use multiple strategies to locate themselves, which makes the user interface particularly difficult to prescribe.

More insight into user needs is also important.

In the short term, good service coverage and quality of TTI for public transport is unlikely to provide the basis for many added value services, as the data and network coverage is too patchy. Moreover the operational benefits of investing in new technology dwarf any benefits gained by users. This means that passenger information systems will be a side effect of the investment in new technology, rather than being the driving force.

The need for standards has been demonstrated by Kizoom's work but it is convinced that they have to be market-led and derived by 'doing'.

1.7 Future prospects

At the time of writing the first service based on third generation mobile phone technology (3G) on the UK mainland has just been launched[1]. Kizoom will take advantage of this and subsequent services, and expects the most popular 3G functions in general to be infotainment, messaging, and location-based services (including navigation, tracking, journey planning, public transport information, emergency services). Development of 3G mobile networks and devices will greatly enhance TTI service provision. Networks will have to allow roaming coverage and devices will have to be very flexible and operate on a 'plug and play' basis. At the same time this can only proceed if the roll-out of 3G networks is speedy, with handsets that are reliable and solve the problems of 'patch' networks, allowing roaming between 2G and 3G networks.

The roll-out of third generation mobile phones will create more opportunities for developing services.

[1] The Hutchison 3 network was launched on 3rd March 2003.

Much of the information traded by Kizoom's information products is low value but high volume. A content-based payment system will require systems for micro billing. For example, a location fix might cost 5 – 10 pence. A Short Message Service to the subscriber ("reverse SMS") might cost 25 pence.

A content-based payment system will require the development of a micro-billing service.

Micro billing will need: a) a system for aggregating the large numbers of information requests centrally and crediting the content suppliers for total usage; b) a simple billing mechanism that the user can understand; c) safeguards to protect the user's privacy; d) to be done in such a way that the user can give global permission for charging for his/her selected services; and e) arrangements for the content provider to be credited for users who are on different networks or who may access services when roaming away from their home network.

Kizoom is actively engaged in research and development. Its approach is to be led by the market, quickly developing systems that it thinks people will like, market-testing them, and then speedily adapting them to suit customers' revealed requirements. In summary, this is "develop, demonstrate, adapt" (by means of small steps).

Kizoom's strategy involves using research and development to "develop, demonstrate and adapt" services.

1.8 References

- Corporate web page of Kizoom Ltd.
  http://www.kizoom.com
- Web page for setting-up access to Kizoom's Personal Rail travel services (WAP)
  http://www.rail.kizoom.co.uk
- Web page for setting-up access to Kizoom's Personal Rail travel services (PDA)
  http://pda.rail.kizoom.co.uk

WAP pages for real-time incident information

- Connex http://www.connexwap.net/
- South Central Trains http://sctmobile.co.uk/

WAP pages for real-time arrival / departure service

- Docklands Light Railway http://dlr.kizoom.co.uk/
- GNER http://gner.kizoom.co.uk/
- First Great Eastern http://fge.kizoom.co.uk
- First Great Western http://fgw.kizoom.co.uk

PDA pages for real-time arrival / departure service

- GNER http://pda.gner.kizoom.co.uk/
- First Great Eastern http://pda.fge.kizoom.co.uk
- First Great Western http://pda.fgw.kizoom.co.uk

Web page for setting-up access to Transport for London's range of personal travel alerts services (WAP, SMS, E-mail) http://www.tflwap.gov.uk/

Web page for setting-up access to Transport for London's SMS service (including Journey Planner) : http://sms.tfl.gov.uk/

Web page with instructions for using Leicester's Star-Trak SMS service http://www.leicester.bus.kizoom.co.uk

Web page for setting-up access to Transport for London's PDA service (including Journey Planner) : http://pda.tfl.gov.uk/

- web page of Transport Direct: http://www.dft.gov.uk/itwp/transdirect/
- web page of RTIG Implementers http://www.centaurconsulting.co.uk/rti_intro.htm

Interviews on Kizoom on 26.07.02 with Nick Knowles, Chief Technical Officer, and 02.08.02 with Damian Bown, Chief Executive Officer.

Table 1 – Synopsis Case Study: Kizoom, UK

Title	Kizoom
Country, Region, City	UK: Nationwide (rail); London (all modes); Leicestershire (bus); specific routes / areas (rail)
Duration / Status	Active
Geographical area covered	See under *Country, Region, City* above
URL	www.kizoom.com Several links from here, as shown under *References* above
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Department for Transport, Transport for London, Leicester City Council, Leicestershire County Council
Infrastructure owners and data collection technologies	Network Rail, Transport for London (TfL), Leicester City Council, Leicestershire County Council. Also regional *traveline* consortia if *PTI Website Ltd*. decides to provide a national SMS bus information service. RJIS, CIF, *Tyrell* (Nexus Alpha real-time system), *Star-Trak* (INIT real-time system), Countdown (TfL real-time system), bus operators' scheduling systems, ATCO.cif, TransXchange
Public sector data owners and providers	TfL, Leicester City Council, Leicestershire County Council
Private sector data owners and providers	Network Rail, several train operating companies, Nexus Alpha, Docklands Light Rail, bus operators in London and Leicester, INIT. Many other bus operators will also provide if *PTI Website Ltd*. decides to operate a national SMS bus scheduled information service (using Kizoom)
Service operator	Kizoom.
Information editors / service database managers	Transport for London, Network Rail / ATOC, Leicester City Council, Leicestershire County Council. Also regional *traveline* consortia if *PTI Website Ltd*. decides to provide a national SMS bus information service.
Communications providers	Mobile operators: i.e. Orange, O2, T-Mobile, Vodafone
Service provider to end users	Kizoom. For some services also in conjunction with mobile operators: i.e. Orange, O2, T-Mobile, Vizzavi (Vodafone), whose portals can be used by customers to access the services
Market segments & end user groups targeted	All public transport users (and potential users) having a mobile phone or PDA

Nature of public-private partnership	London: (Private-sector) Contractor (Kizoom) / (Public sector) Client (TfL) Leicester: Partnership agreement: (Private sector) bus operators / (Public sector) local authorities; with Kizoom as a private sector contractor to the partnership Rail: All private sector Standards framework led / encouraged by Central Government, with both public and private sectors participating in the framework. Financing largely provided by central Government, both directly and indirectly
Strategic marketing partnership	Kizoom, to various extents for different services Transport for London is the main marketing player in London Network Rail and those rail operating companies that have commissioned specific Kizoom services are the principal marketing players for the rail services. Leicester City Council and Leicestershire County Council do the main marketing in Leicestershire
	Main Characteristics of Service Delivery
Modal coverage and mode integration	London: all modes Leicestershire: bus (rail is part of the national system) Elsewhere: rail only
Data quality	Rail and London is excellent as regards scheduled data. Real-time data quality is more variable, particularly for bus, where it is dependent on full co-operation of bus operators and their driving staff
Information contents	Scheduled Times, Journey Planning, Incidents, Real-time information, Departure Boards (varies with specific service)
Distribution stage and transmission media	WAP-enabled mobile phones, SMS, PDAs
Pricing policy and revenue streams	SMS messages are charged, except for the TfL service which is provided free, other services are charged at normal charge rates of mobile service providers
Development of service use	Dependent on data quality / availability and on commercial dissemination policy of bus operators. Delivery of SMS service giving scheduled information for every bus stop in Great Britain is currently being considered as part of the *traveline* service

Good Practice Case Study 8 KORKONET - real-time web and SMS traffic news (PL)

Authors: Paul Riley, Wojciech Suchorzewski

19.11.2002 / edited final version

1 Case Study: Korkonet

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

1.1 Background

Korkonet (Bottleneck-net in English) is an Internet site providing information on road traffic conditions on main arterial routes in Warsaw, the capital city of Poland. It was first established in 1999 as a private sector initiative by a small group of new technology enthusiasts. The service started by presenting real-time CCTV scans of traffic at key junctions in the city on an Internet site, and was the first service of its kind in Poland.

***Korkonet* - Warsaw is the first web site offering real-time CCTV scans of traffic in Poland free of charge.**

www.korkonet.pl

In 2001, the Warsaw Equity Holding Company decided to invest in traveller information services and purchased Korkonet. A new company E-monitoring has been created to develop the system. E-monitoring is systematically expanding the service to offer information on travel and traffic conditions in various forms. In April 2002 the Infokorek service was launched (in English: 'Information about bottlenecks'). This provides mobile phone users with information on traffic conditions on selected route(s) on request using an SMS service.

The *Infokorek* service provides SMS information on traffic conditions on selected routes using mobile phones.

www.infokorek.pl

The service is developing rapidly, and at present it seems to be the most advanced project of this category in Poland. Generally, both sites (Korkonet and Infokorek) are well designed and are being visited by a growing number of clients.

1.2 Goals

Korkonet/ Inforkorek is intended to serve road users and, to a lesser extent, other categories of travellers. It is a business venture initiated, financed and operated entirely by the private sector, with commercial benefits for the company operating the system and those advertising their services on the Internet pages. There are plans to expand the services to other cities in Poland, and also to expand the scope of the service, for example to include monitoring of public spaces in the city.

Profit is the main goal of the service provider, E-Monitoring.

Since the public sector is not involved, transport policy objectives are addressed only indirectly. The service has the potential to serve objectives such as reduction of congestion and modal shift by contributing to changes in travel behaviour such as choice of destination, route, mode of transport and time of travel.

1.3 User and stakeholder requirements

For people driving in Polish cities, particularly Warsaw, the need for up-to-the minute information about traffic conditions is growing, as congestion is increasing and journey times are becoming longer. Radio traffic broadcasts were the only way drivers could obtain traffic information before these services were set up. The city is lacking in telematics systems for managing and guiding the traffic, although there are plans for implementing a complex traffic and transport management system once funding can be found.

The cost of providing the service is reduced by giving benefits in kind to organisations involved in the information chain. These companies receive benefits from the service in terms of raising awareness of their products (through advertising), and free use of the information service.

Costs are reduced by giving benefits in kind to those involved in providing information.

1.4 Technical description

The travel and traffic information service is provided in two ways: as an Internet site, and as an SMS service for mobile phone users.

Figure 1.1 On-line cameras on the roads

The Korkonet Internet site (www.korkonet.pl) provides information free of charge. Real-time information on traffic conditions on Warsaw arterial roads is available from CCTV images. Digital cameras are located at strategic points for assessing traffic conditions. Data from the cameras are transmitted to the web-page via the Internet. On the main page there is a map with schematic plan of Warsaw streets with marked position and direction of cameras (see Figure 1.1).

CCTV cameras at strategic points provide views of traffic conditions on main routes in Warsaw.

So far, 21 cameras have been installed. Each view is refreshed every minute. Beside the view from the camera, the page shows a small advertisement for the organisation providing the funding for the camera (see Figure 1.2).

The Internet site also provides links to public roads and public transport information, maps of the city, information on the situation at border crossings, and details of the location of automatic speed controls and ticket controls for public transport in the city.

The Internet site also provides other traffic and travel information, and links to public transport sites.

Figure 1.2 Real-time CCTV image

The Inforkorek SMS service for mobile phone users provides information on request, for a fee. It is available on www.infokorek.pl, which is accessible directly from the Korkonet home page. Users request information on traffic conditions on selected route(s). Currently all of the three GSM phone operators in Poland offer this service. There are two options.

The SMS services enables mobile phone users to buy traffic information for their selected routes.

- Users can send an SMS message containing the code number for the selected route(s), to receive messages for those routes. A single connection of this sort costs about 0.25 Euros (1 Pln + VAT).
- Subscription for 30 days for which users choose up to 10 routes within the boundary of Warsaw. SMS messages are then received for traffic conditions on the selected route(s), either on request or at a pre-determined time. The monthly subscription costs about 2.25 Euros (9 Pln +VAT), for two to four messages each day.

Information on traffic conditions (bottlenecks, closures, deviations) are collected from selected taxi companies, messenger/courier companies etc. on the basis of agreements with E-Monitoring (see Section 1.5).

1.5 Service set-up

The service was initially set up by a group of enthusiasts who identified a requirement for real-time traffic information and a market for the service. The initiative to extend the service to provide more personalised information on request arose after the investment company purchased the service from the original owners.

The Internet service was started by a few individuals and later bought by an investment company, which then developed the SMS service.

The Korkonet service is funded from advertising on the web site, while the Infokorek service is financed by the telecommunications companies which provide the SMS information using mobile phones.

Cameras owned by E-Monitoring are installed at critical locations in buildings where there is direct access to Internet. The standard agreement provides that the owner of the building allows the camera to be installed and connected to the Internet free of charge, in exchange for an advertisement appearing when users view the picture from that camera. Data on traffic conditions are provided by the largest Warsaw taxi company and courier companies on the same principle, in exchange for advertising and free access to information.

Cameras are installed on buildings with direct Internet access.

Taxi operators and couriers also provide information.

In the case of the Infokorek (SMS) service, revenues are shared between communication company and E-monitoring.

At present data are validated only to a limited extent. Assessment of the traffic condition for a given section of the arterial roads system is made on the basis of incoming messages. Confirmation of information on bottlenecks is needed and/or additional analysis of camera pictures (where possible) is performed.

1.6 Assessment and lessons learned

The number of Korkonet web site users has grown to 5 000 per day, with over 50 000 pages being opened each day. There are currently around 400 Infokorek clients receiving SMS.

There are 5 000 'hits' on the web site each day.

The SMS service has 400 clients.

Korkonet is an entirely private sector initiative. Initially, the originators had limited financial resources and experienced serious difficulties. One of the obstacles to its development was that there was only limited interest in the project from the public sector city and road authorities. This meant that the company had to rely on setting up its own equipment and communications system for monitoring traffic and transmitting images for display on the Internet site, rather than obtaining information from by working in partnership with the local authority.

Despite these difficulties, the first phase of development was sufficient to demonstrate the potential of the service and generated interest in the financial sector (Warsaw Equity Holding Sp. z o.o.), which invested in the project.

E-monitoring was then created as a separate company to develop the systems. Korkonet and Inforkorek are still in a development phase, and are not yet self-financing. Financial success will largely depend Infokorek, which started operating in April 2002. An Infokorek marketing campaign was planned for September 2002 to coincide with the deterioration in traffic conditions after the summer holidays, when it was expected that the demand for real-time information on traffic conditions would grow dramatically. However, so far, interest in the service is rather limited and the number of users is growing slowly.

The services are still developing and not yet self-financing.

1.7 Future prospects

Mobile phone use is becoming widespread in Poland, and Internet access is also growing, so the market for travel information services using the Internet and mobile phone technology is growing. At the same time, the need for such services is becoming greater as journey times become longer and less predictable in congested cities.

As mentioned earlier, there are plans to expand the scope of the service, and to extend it to other cities in Poland.

The local authority in Warsaw is now planning to install a centralised urban traffic control (UTC) system (the second stage of the tender is currently in preparation). The UTC system will include supervision of traffic control at over 400 intersections, monitoring traffic conditions on main arteries (with road side information displays on VMS) and an Internet-based traffic and travel information service.

The local authority is developing a parallel service as part of a package of traffic management and information services.

The UTC project involves both opportunities and threats for the Korkonet and Infokorek services. There will be opportunities if e-Monitoring finds its place in the system (for example, through being incorporated into the local authority's system). The threat is that in Warsaw the Korkonet and Infokorek systems could find it difficult to compete with another similar service offered by the local authority as part of the UTC system.

The future of the private services depends on whether they can have a role in that package of services.

1.8 References

- www.korkonet.pl
- www.Infokorek.pl
- Regulamin korzystania z serwisu infokorek.pl (Rules of using Infokorek service)
- Piotr Jaglak, Kazimierz Bartczak, and Tomasz Krysiak (2002). TTI Profile Poland, ATLANTIC Project.

Table 1 – Synopsis Case Study: Korkonet service in Warsaw, Poland

Title	Korkonet
Country, Region, City	Poland, Warsaw
Duration / Status	Since 1999; in the development phase
Geographical area covered	Warsaw agglomeration, with plans to cover other cities and the whole country
URL	www.korkonet.pl and www.infokorek.pl
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Private company - E-Monitoring
Infrastructure owners and data collection technologies	E-Monitoring; data from CCTV via internet, data from public agencies and co-operating companies (taxi, courier/logistic companies etc.) via various means of communication.
Public sector data owners and providers	Public transport companies (authorities), road administration, police, border crossings.
Private sector data owners and providers	Taxi companies, messenger/courier services etc.
Service operator	E-Monitoring
Information editors / service database managers	E-Monitoring; some data are coded and pre-processed by data providers.
Communications providers	Internet and 3 mobile phone companies (SMS), cable TV
Service provider to end users	as above
Market segments & end user groups targeted	primarily road users; some information for public transport users
Nature of public-private partnership	N.A.
Strategic marketing partnership	None
	Main Characteristics of Service Delivery
Modal coverage and integration	Mono-modal for road; information for public transport users (local, regional and national transport operators) through link indication
Data quality	Real-time: scan of traffic by CCTV (internet) and information on congestion on selected routes
Information contents	Scan of traffic in selected points, SMS information on traffic conditions (congestion, deviations etc.) on selected route(s).

Distribution stage and transmission media	pre-trip via internet, on-trip via SMS
Pricing policy and revenue streams	*Korkonet service* - free of charge; *Infokorek service (SMS)* - pay-by-call, monthly subscription, revenue sharing with mobile phone operators
Development of service use	Plans to develop the system through adding positioning capability and territorially

Good Practice Case Study 9

LOGICA CMG – a range of traffic and travel information services in the Netherlands (NL)

Authors: Richard Harris / Kate Nastys

13 May 2003 / Final version

1 Case Study: Logica CMG – Netherlands

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

1.1 Background

CMG started as a small IT company in the UK, developing accounting software and related products.

CMG Plc was founded in 1964 by three individuals in the UK. CMG started trading in December 1964 and by 1966 had an initial turnover of £7000 and five employees. Since then the company has gone on to expand into an international company, employing over 13,000 people and has a worldwide presence with offices in most European countries, China, Brazil, US, South Africa, Singapore, Australia and Malaysia.

Initially writing software packages for accounting and payroll, they continuously expanded and improved their portfolio of software into covering sales ledger, invoicing and stock control. In the 1970s the expansion into other European countries was driven forward even further. At the same time software packages for specific industries began to appear.

In the 1980s the company's acquisition activity was stepped up and the product range became wider. Consulting on technical issues and company management, dealership for Personal Computers and information processing as well as the software development were now part of the business that had over 1,000 employees by the end of the 1980s.

During the 1990s, CMG Plc grew into an international Information and Communications Technology group with leading positions in the provision of Mobile Business, Advanced Security, Business Process Outsourcing and Advanced Payroll solutions.

CMG merged with Logica to become LogicaCMG, and serves a range of industries, including transport.

In December 2002, CMG Plc merged with Logica Plc to become LogicaCMG. LogicaCMG is now the second largest provider of IT services in Europe and a global force in wireless telecommunications and payments software built on the delivery of high performance, high reliability short message service centres to mobile network operators.

LogicaCMG supports clients across a diverse range of markets, including telecommunications, financial, energy and utilities, industry, distribution and transport and the public sector.

CMG started developing traveller information services in 1991. Services for travellers account for 5% of annual turnover.

CMG started working in the traveller information industry in 1991. Traveller information services were seen as having

growing importance globally, yet some of the original systems available at the time were seen to be ineffective. Traveller information services now contribute 5% to CMG's total market turnover, with projects in areas throughout Europe and Australia. Projects in which CMG have been involved include:

- Mobile Traffic Services, using mobile phones as mobile traffic probes to provide data for making accurate journey time predictions. There are plans to implement this system in the Dutch Ministry of Transport's Intermizzo project.
- Traffic Management Centres
- Mobile broadcasting, using SMS text messages to warn drivers of traffic events or hazardoous road conditions.
- Seamless travel, using communications technology to reduce the number of processes or events on a journey.
- The Mobile Ticket Service for users of NoordNed bus and train services in the Netherlands, M Tickets, enables a user to buy rail or bus tickets and have them sent straight to their mobile phone. MTS trials began in September 2002 with plans for full implementation within six months.

CMG is a full service provider with offerings ranging from management consultancy, systems development and integration to the outsourced management of targeted business processes. Details of the Mobile Ticketing Service for NoordNed's bus and train services are used here as an illustration of one of the services offered by CMG.

1.2 Goals

CMG's purpose is to lead the creation and development of the most advanced IT services and wireless data solutions. Constantly at the forefront of business change, CMG's goal is to deliver enhanced operational efficiency and competitive advantage to their clients.

CMG plans to use the data collected from its Mobile Ticket Service to expand the service to include mobile real time information.

A goal for the Mobile Ticket Service is to use the information gained from its customers, to provide new mobile services. One new mobile service planned will provide real time information on bus and train times and cancellations.

The bus and train operator, NoordNed, aims to use the MTS system to extend their service to customers. Also involved in the project are Connekt, an innovation network whose goal is to develop, secure and disseminate traffic and transport knowledge, and the Dutch bank Rabobank, a leader in concept generation for future mobile payments.

1.3 User and stakeholder requirements

For the Mobile Ticketing Service to succeed requires a large proportion of train or bus users to own and carry mobile phones. CMG state that in Europe approximately 70% of the population owns and carries mobile phone, in public space.

CMG bases its traveller information services on mobile phones; its figures show that 70% of people in Europe carry mobile phones.

For the customers to trust and use the service it must charge accurately for tickets. Customers will not trust a service that over charges for tickets, when they can pay over a counter and know exactly what they have paid. Users and stakeholders require the service to be secure. If the service is not secure customers will lose faith that their account is safe and the stakeholders will lose profit from forged codes.

NoordNed will use the service as an additional selling point to promote use of its public transport services; for this to be effective, NoordNed require the Mobile Ticket Service to become commercially well known.

1.4 Technical description

The Mobile Ticketing Service will be available to customers who own a mobile phone, making it possible for them to order tickets without using ticket offices or paper tickets. A user will be able to order their ticket by telephone or via the NoordNed web page. To use the ordering service users must become members, but to obtain rail or bus information, users can freely browse the web site. Once a user has become a member they can use the ordering service free of charge, with the cost of the tickets being debited from their account each week.

Users of the Mobile Ticketing service must become members, and can then access the service by phone or Internet.

The telephone service is via a 0800 number so users have free access when they have no Internet access. The telephone service operates using IVR, an interactive voice response software application. IVR can be used with voice commands or using touch-tone. The order is confirmed by an automated voice (in Dutch).

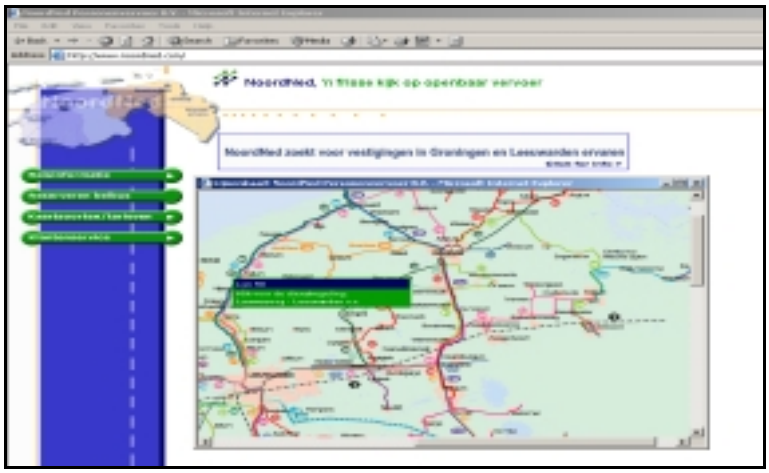


Figure 1.1 Bus or train route information for NoordNed

When a ticket is ordered via the Internet or by phone, a ticket code is sent by SMS straight to the users mobile phone. The ticket code holds details on the time and date of travel including an authorisation code to assure its authenticity. When a ticket is requested by a ticket collector (NoordNed Personnel) the code is entered into a hand-held, Compaq Ipaq, computer. The hand-held computer communicates with the Mobile Ticket Service via GPRS to check the ticket details.

When users buy a ticket, a code is sent to their mobile phone, which is presented to a ticket collector who checks it using a hand-held computer.

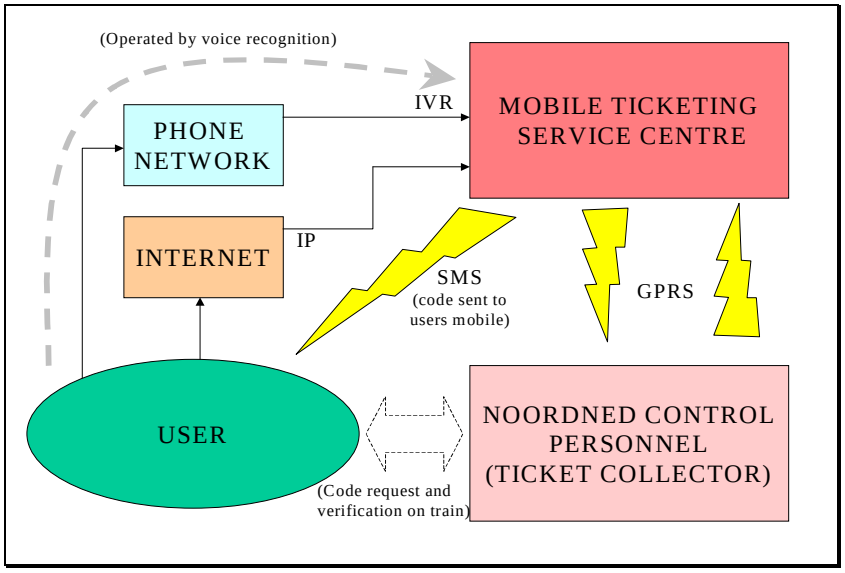


Figure 1.2 Information chain for CMG Mobile Ticket Service

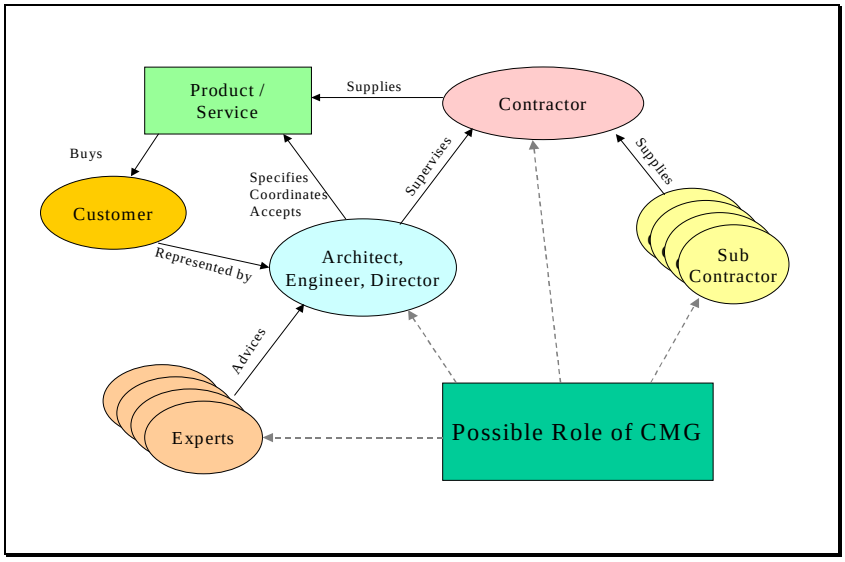
1.5 Service set-up

Business models and arrangements are developed separately to suit each new service for travellers set up by CMG. This method of creating a new business model based on the information collected is adopted for all the different industries within CMG. They use their enormous knowledge and experience in systems as a selling point, stating that it gives them the ability to implement 'very good systems'.

CMG develop a new business model for each new task dependent on the nature of the project and the industry.

Trials of the Mobile Ticketing Service are being carried out on three sections of the rail network and one bus route. A sample of five hundred participants, who regularly use the service, are being used to test the service and after six months (in March 2003), will be asked for their opinion. The trial will be classed as a success if users feel MTS has improved the existing NoordNed service.

CMG provides support in many different areas during the life cycle of its various projects (see Figure 1.3).



CMG's expertise is in integrating individual components and partial solutions of information and communication technology, and the company can offer a variety of roles in projects.

Figure 1.3 Possible roles for CMG in the life cycle of a project

For the Mobile Ticketing Service, CMG are responsible for project management and project implementation. They have the task of managing multiple partners, who are involved in varying tasks, they include:

- Rabobank Heerenveen, responsible for the Mobile Payments;
- Vrije Universiteit Amsterdam, dealing with research on user feedback;
- Connekt is involved as an institute for knowledge in traffic and transportation.

1.6 Assessment and lessons learned

CMG's expertise is in integrating individual components of information and communications systems and developing technologies into the most effective solutions for their clients.

As an IT company, CMG can develop technologies into the most effective solutions.

The Assessment of the Mobile Ticketing Service is difficult for CMG to comment on before the outcome of the trial study. They have high hopes for the service, with expansion already planned, dependent on the success of the feedback from the sample participants.

Over the twelve years CMG has been involved in mobility services it has been able to draw some general conclusions for TTI services. CMG states that to produce the finest solution for transportation problems it must integrate the most optimal technology. To gain this optimal technology CMG maintains the necessity for; excellent relationships with suppliers of components and partial solutions whilst keeping track of state of the art technology.

Cooperation is a key to success: excellent relationships with suppliers enable CMG to stay at the forefront of technology.

CMG have had a long-term partnership with Compaq Computer Corporation, which enabled them to be the first to introduce an end-to-end GPRS multimedia messaging solution. A recent agreement with Royal Philips Electronics will incorporate Philips' Platform4 solutions into LogicaCMG's Multimedia Messaging Service Centre product range. Philips' Platform4 range of solutions is optimised for deploying multimedia services through 2.5 and 3G mobile networks and handsets.

CMG considers that the number of processes and events in a journey need to be reduced to decrease the cost and time of travel. The development of information and communication technology will reduce delays to travellers, and travel companies will be able to reduce the amount of dedicated infrastructure and staff. This approach is currently being implemented at lorry loading points, where drivers send a PIN code to obtain authorisation for loading or un-loading, saving on paperwork and staff numbers.

Journeys need to become smoother, with less processes and events; information and communications technologies can help achieve this.

In the last ten years CMG has been involved in implementing traffic management centres. This experience has demonstrated to CMG that developing traffic centres is a complex and intricate process, requiring the involvement of experts from several different disciplines. CMG overcame this complexity with a structured and traceable development process, based on systems engineering. They have learnt that the many issues in traffic management are clustered, and early decisions on these issues have an impact on subsequent phases. To overcome this CMG has built a systems model that allows a gradual transition from high-level goals through system concept requirements to system realisation requirements.

CMG has developed a systems model for developing Traffic Management Centres to deal with the complex issues involved.

There is a lack of standards. Standards are available for Traffic Management Centres, but not for public transport data. One common standard is essential in order to broadcast correct data to the public.

Inter-modal initiatives between rail, airports and buses could be highly successful if common data could be made available.

Naturally, as CMG is one of the leading companies to deliver short message service centres to mobile phone operators, they believe in the success of 3rd Generation mobile communications. This technology offers new possibilities for services because data can be transferred at very high speeds, and services can be accessed from anywhere.

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

1.7 Future prospects

CMG have a great interest in traveller information services and in the future plan to use the expertise gained in this area, to improve their existing systems in other areas.

CMG have a long term plan to develop Global Traffic Services.

One future prospect for CMG is to eventually implement enough traffic systems, running on similar software/hardware to allow services to interact globally. This Global Traffic Services

Solution is just an idea at present, but represents a possible future progression for CMG.

1.8 References

- www.logicacmg.com
- CMG Mobility Solutions International
  mobility.solutions@cmg.com
- www.NoordNed.com

Table 1 - Synopsis Case Study: CMG, Netherlands

Title	CMG Plc
Country, Region, City	Worldwide
Duration / Status	Since 1964
Geographical area covered	Worldwide
URL	www.cmg.com
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Private company
Infrastructure owners and data collection technologies	Data from public agencies
Public sector data owners and providers	Public transport companies, road administration, police, Dutch Ministry of Transport, Dutch Ministry of Internal Affairs
Private sector data owners and providers	Mobile phone companies
Service operator	CMG Plc or their clients
Information editors / service database managers	CMG Plc
Communications providers	Mobile phone companies, internet, TV, radio
Service provider to end users	Mobile phone companies, internet, TV, radio
Market segments & end user groups targeted	Road and public transport users; emergency services
Nature of public-private partnership	Business contracts
Strategic marketing partnership	none
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Mono- and inter-modal
Data quality	Real-time
Information contents	Personalised journey planning
Distribution stage and transmission media	SMS, internet, TV, radio
Pricing policy and revenue streams	Client’s discretion
Development of service use	Integration of systems and using latest technology

Good Practice Case Study 10

MAPPY - Internet service providing road travel information for Western Europe free of charge (F)

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12.02.2003 / version 4

1 Case Study: Mappy

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

1.1 Background

Mappy was set up by Wanadoo, a subsidiary of France Télécom, in 1987. It is a web-based service providing maps, route planning (for road) and associated tourist and local information covering most of Western Europe. The 15 countries covered are France, Italy, Switzerland, Austria, Germany, Belgium, the Netherlands, Luxembourg, Portugal, Spain, Andorra, the UK, Denmark, Sweden, and Norway.

TTI European website covering mapping and driving itineraries

Covers Western Europe

It is operated as a commercial venture by Wanadoo, a subsidiary of France Télécom, the major (but not the only) telecommunications operator in France.

Operated by Wanadoo (subsidiary of France Télécom)

Wanadoo's activities include Internet access and portals, e-commerce and directories. It is a major actor in France, being the country's largest Internet access, portal and directory provider. For instance, it runs the www.voila.fr search engine, the "yellow pages" and "white pages" telephone directories in France, in both paper and electronic form, and provides on-line cultural products, and professional services. In addition, Wanadoo is present in several other countries, e.g. in the UK, where it is the leading Internet service provider (owner of Freeserve), in Spain, where it is the third largest Internet service provider and the second largest directory provider, and in the Netherlands where its www.wanadoo.nl portal was the country's ninth most visited site in 2001.

Supports advertising (Wanadoo products and other advertisers)

When it was set up in 1987, Mappy was available on the French Minitel system (France Télécom's audiotext server), with the first itinerary calculation engine being launched in 1988. Its expansion from providing information related to France to providing European information took place in 1993 and the first Mappy guide on CD ROM was produced in 1996.

Service started as Minitel audiotext in 1987, Internet service launched in 1997

The Mappy website was set up in 1997, in 1998 it expanded to offer tourist information and in 1999 it offered hotel reservations in France. In 2000, Mappy took over the iTi European trip calculation engine.

The service is currently free to users and is 100% funded by France Télécom. Revenue from Internet access calls does not cover the costs of the service because many Internet users use service providers other than Wanadoo, however Mappy serves as an advertising tool for Wanadoo's services.

1.2 Goals

The key aims of developing the Mappy service are to provide services for end users, giving back revenue to the owners of strategic data. The proposal is to offer value-added services to current users for a fee in future.

Mappy is a commercial service for the travelling public, financed by France Télécom.

Although at present it requires finance from France Télécom to operate (it does not make a profit), it is seen as a key tool in promoting the image and services of Wanadoo and France Télécom in general.

The site also aims to tap into the market for mapping and travel related business services, through paid-for services. These include “Mappy Direct Link” (which offers visitors to the client’s website a link to Mappy services) and “Mappy Portal Services”, which adds mapmaking services to the client’s website.

It aims to attract business users by providing an access point for mapping and related business services.

Mappy is the leader in France for on-line routing (trip calculation by road) and maps on the Web, and aims to replicate this in other European countries. There is a large market potential for trip calculation engines in Europe, and especially in France, and Mappy therefore aims to pursue the provision of these services.

The leading provider in France of route planning for road journeys, Mappy aims to achieve this elsewhere.

Mappy would also like to provide multimodal information, but at present it cannot gain access to public transport data. Its mission is also to develop new and emerging services such as AOS Palm, GSM services, GSM with Java engine, etc, and take the associated risks.

1.3 User and stakeholder requirements

Mappy aims to meet user requirements in terms of trip planning and map provision on a pan-European basis. It also aims to provide local and tourist information relating to the map area chosen. As it is aimed at a multinational audience, its pages are available in Dutch, English, French, German, Italian and Spanish.

Users benefit from a ‘one-stop shop’ for the package of information they need for driving to an unfamiliar area, and finding their way around when they arrive. The site is not aimed at regular users of a certain route, as Mappy cannot compete with users’ intrinsic knowledge and it does not provide real time information. It is aimed at tourist/leisure traffic and business journeys, generally for medium to long distances.

One-stop shop for travel to unfamiliar areas.

Its ability to meet user requirements is constrained in some cases by lack of available data, or (more often) data existing but its owners being unwilling to supply it to Mappy (or only willing to do so for a high price). This means that mapping detail (supplied by TeleAtlas) is not available for all countries, and most tourist information (provided by the French Ministry of Culture) is limited to France. Because much information is provided by partner organisations, the degree of European coverage depends on that organisation’s coverage. (For

example it has links with Groupe Accor hotels, which has a dense network in France, a fairly comprehensive one in Germany, but a much sparser network in Italy and Spain – hence hotel information in these latter countries is limited.)

Other stakeholders are the organisations with which Mappy has data agreements (including the two companies mentioned above). In return for providing data, these companies receive publicity on the Mappy Website and bookings for hotel accommodation, for example, are directed to the Websites of Mappy's partner organisations, bringing them additional business.

Data supplied by map companies and other partners are shared in return for publicity on the Mappy web site.

Mappy provides a useful service but its wide coverage, coupled with the fact that it is in the private sector and relies on external organisations for its data, means that the information provided cannot be as comprehensive as the end user (or indeed Mappy itself) would wish for.

Reliance on other organisations limits the coverage of the information.

1.4 Technical description

Services are primarily provided via the Internet, although there is also a Mappy WAP portal and maps can be downloaded onto a Palm Pilot. The concept of the service is that users can obtain map-based information, which they may either print before they start their journey, or download onto mobile devices which they can refer to when necessary.

The site is reached by:
www.mappy.com

The website can be found at www.mappy.com or at one of various national sites (see right hand column). These all come to an identical series of national sites, in either English, French, German, Italian, Dutch or Spanish.

www.mappy.fr

www.mappy.it

www.mappy.de

www.mappy.be

www.mappy.nl

www.mappy.es

www.mappy.co.uk

The user options available are summarised in Figure 1.1. They include services for individuals and for companies, and some require prior registration.

- ✓ **Routes: "itinerary in Europe**" – can be selected between two towns or down to address level. The level of detail to which an arrival or departure point can be chosen varies somewhat by country, with France being the best covered. Intermediate stops can be chosen and the engine can calculate either the quickest route or a route without tolls. Travel costs are also given (tolls and fuel, depending on vehicle type selected).
- ✓ **Routes: "Expenses"** – provides costs or reimbursement expenses for a given road itinerary in Europe. The user can select vehicle type, fuel type and cost per litre, company reimbursement per km, currency used, distance units used (km/miles) and whether itineraries may include mountain passes.
- ✓ **Maps: "Town maps"** – provides a map down to street level of anywhere in the countries covered by Mappy (these are the same as the countries covered by Tele Atlas, whose map database is used by Mappy. The scale of the map depends on the level of detail entered (town or city only, or street name/underground station). The user can zoom in or out.
- ✓ **Maps: "Personal maps"** – service requires registration. The user specifies an address for which a map is needed, and the map is emailed to them within an hour in the form a specific URL. The user can then supply this URL to their contacts, e.g. to give them directions to the user's home or office.
- ✓ **Mappy Guide: "Mappy Tourisme"** (French version only) – tourism guide to 65 cities in 10 European countries, including details, descriptions, access and prices for the main tourist attractions and a selection of hotels and restaurants, as well as a photo gallery of each city (see Figure 1.2).
- ✓ **Info route: "Info trafic"** (French version only) – maps of traffic density (location of traffic jams and roadworks) for Île-de-France (Paris region), for the French motorway network, including zooms on the main provincial cities in France. This information is provided by Visionaute and by the French toll motorway companies.
- ✓ **Info route: "Bison Futé"** (French version only) – gives traffic density forecasts by date and direction (to or from the main holiday regions). Data comes from the French Ministry of Transport's Bison Futé information service.
- ✓ **Info route: "Météo"** (French version only) – links to the Wanadoo weather page for France (http://meteo.wanadoo.fr)
- ✓ **Mobile Mappy** – allows downloads of maps onto Palm Pilots and provides a link to the Mappy WAP portal.
- ✓ **Mappy Corporate** – offers professional mapmaking services such as custom maps for business websites (charged for service).

Figure 1.1 Mappy - user options on the web site

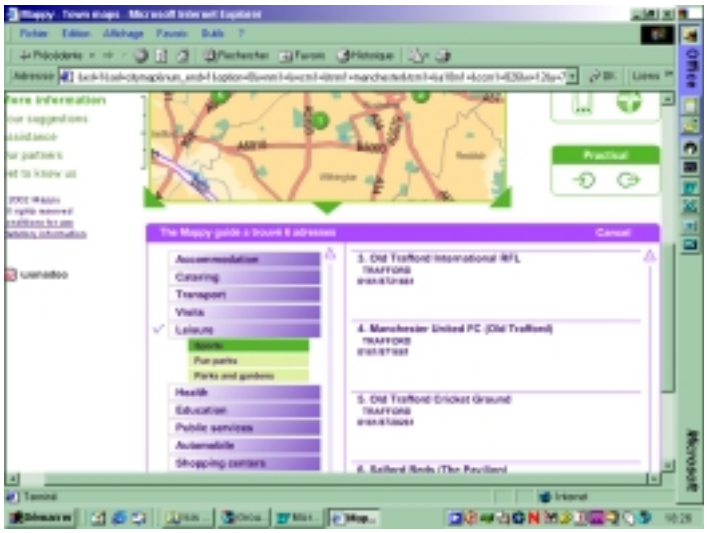

Figure 1.2: Mappy Guide – example of Manchester

1.5 Service set-up

Access to good quality data and response to users' needs have been key to the success of the service.

The key factors in the set-up and operation of the Mappy website have been access to good quality data. It uses TeleAtlas, although this does not cover some countries, which constrains the countries Mappy can cover. A key driver behind the venture is response to user demand: users like itinerary calculation engines and other practical services such as locations of services or hotel booking, all from the same website.

The business model is based on supplying services to end users based on information and data from providers (e.g. Tele-Alas) and providing revenue back to these suppliers.

The site is not aimed at regular users of a certain route, as Mappy cannot compete with users' intrinsic knowledge. It is aimed at tourist/leisure traffic and business journeys, generally for medium- to long distances.

Estimated travel-time information is provided for itineraries based on the route taken and vehicle type. However, these are not in real-time and take no account of what day or time the trip is made (the website does not ask for a departure or arrival time/date, as is the case of many public transport sites). Although real time travel time estimation exists on some routes (e.g. on the peri-urban motorway network around Paris), it would be needed for the entire road network before point-to-point real time travel information could be provided to users.

Contracts with partners are arranged for providing different types of information, revenues are shared.

The Mappy site does not provide intermodal travel information as it is unable to acquire the necessary data from the organisations and transport operators involved.

In terms of institutional contexts, Mappy's major contract is with TeleAtlas (map provision). It has a range of other partners such as Wanadoo Voila Régie (on-line advertising management), e-

stat (measurement and certification of website audiences), ASFA (Association of French Toll Motorways), Bison Futé (French Transport Ministry) and Visionaute – all for traffic data, and Groupe Accor and Envergure (hotel groups). The Mappy concept is based on revenue sharing with such partners, as nobody can cover the entire market demand.

Mappy's unique selling point is that it is the leader in France for on-line routing (trip planning by road) and maps on the Internet. However the service is currently losing money because apart from some tailored services to businesses, the service is free, and advertising revenue does not cover costs.

Most services are free of charge, and advertising revenue does not cover costs.

1.6 Assessment and lessons learned

The web site users are spread across Europe and there has been a growth of 50 per cent in the number of users between mid 2001 and mid 2002. By the autumn of 2002, the total number of different users per month was 4 million.

Over 4 million different users per month.

50% growth in users in 2001 - 2002.

The service demonstrates that a comprehensive web service such as Mappy cannot be made free to users and be expected to cover its costs by advertising (either on screen, or through agreements e.g. to give prominence to certain hotel chains in tourist accommodation information sections). Advertising revenues are simply insufficient to cover costs, particularly for a website whose users expect it to provide a wide range of comprehensive and reliable information.

A service such as Mappy needs to be part of a large organisation (like France Télécom) in order to support it until it becomes profitable.

Support from a large organisation is essential until it becomes profitable.

Private sector operators can encounter difficulties in setting up a commercial service that relies on data held by public authorities. Such authorities may either refuse to make data available to value-added service providers, or attach an unrealistically high price to such data.

Commercial service can encounter difficulties if reliant on data held by public authorities.

1.7 Future prospects

The future perspective is to provide services to current users for a fee, as a package of services. This would ideally involve users being charged for Mappy's services via their Internet service provider's bill or mobile phone bill (for example as a "mobility services" item, rather than charging users' credit cards individually for each enquiry.

Plans to charge fees for the service as part of a package in future.

The current free service can therefore be seen as a promotional service to get Mappy known, used and trusted, so that there will be a significant customer base who, it is hoped, will continue to use a charged-for Mappy service. However, no decision has yet been made on the methods and timetables for charging for this service.

The current service is being used to establish a customer base for the future services.

1.8 References

- Winder, A (2002). TTI Services – France. ATLANTIC Project, August 2002.
- Mappy website (www.mappy.com)
- Interview of Mr Nicolas Gagnez (Wanadoo Maps) by Steve Morello. ATLANTIC project, September 2002.

Table 1 – Synopsis Case Study - Mappy

Title	Mappy
Country, Region, City	Western Europe (site is in French, English, Italian, German, Dutch and Spanish)
Duration / Status	Site in operation since 1997. Status: Full web service in operation (public and free).
Geographical area covered	Western Europe: EU (except Ireland, Finland and Greece) + Norway and Switzerland
URL	www.mappy.com (“national” URLs also exist, i.e. www.mappy.fr, .co.uk, .de, .it, .nl, .be, .es; all go to the same site in the language of the country selected)
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	None
Infrastructure owners and data collection technologies	Mapping and services (hotels, restaurants, etc) information: no infrastructure for real-time data collection.
Public sector data owners and providers	French Ministries (Ministry of Transport: Bison Futé traffic predictions; Ministry of Culture: tourism, etc), France Télécom /Wanadoo (directory information, e.g. location of local services and attractions), ADEME (French Environment Agency)
Private sector data owners and providers	TeleAtlas (mapping), Visionaute (Île-de-France real-time traffic information)
Service operator	Wanadoo Maps (subsidiary of France Télécom)
Information editors / service database managers	Wanadoo
Communications providers	Wanadoo/France Télécom
Service provider to end users	Mappy
Market segments & end user groups targeted	Motorists, tourists, general public
Nature of public-private partnership	Private service: no PPP
Strategic marketing partnership	Operated solely by Mappy (part of Wanadoo), with several commercial partners with which revenue is shared.
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Road and pedestrian
Data quality	Static. Mapping data (level of detail) is generally down to street level.

Information contents	Detailed maps and plans, personalised journey planning, points of interest, hotel and restaurant information, traffic (for France only), weather.
Distribution stage and transmission media	Pre-trip via internet, On-trip via Palm Pilot and WAP
User interaction	Instructive information: user needs to input a place (for a map or local information) or an origin/destination (for a trip plan). Only “pull” information is provided, i.e. the user has to interrogate the system each time they want to obtain information.
Pricing policy and revenue streams	Free. No direct revenue, but used to advertise Wanadoo products and partners’/advertisers’ products (banner advertisements)
Development of service use	4 million different users per month (Europe-wide) as of autumn 2002. Growth has been 50% over the 12 months since summer 2001. Aim is for a 75% growth over the next 12 months.

Good Practice Case Study 11

MATTISSE - (Midlands Advanced Transportation and Telematics Information System and Strategies in Europe) multi-modal travel and traffic information for the Midlands (UK)

Authors: John Austin, Lesley Atkinson

20 March 2003 / Final version

1 Case Study: Mattisse

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. Matisse is a partnership between local authorities and transport operators, with innovative contracting and procurement processes. It enables up-to-the-minute travel information to be exchanged easily between transport authorities, allowing them to respond more quickly and efficiently to travel problems.

1.1 Background

Mattisse started off in 1998 and was developed as part of the European Commission's Fourth Framework research programme, building on the work of the QUARTET project in developing Integrated Road Transport Environments.

Mattisse provides a range of real-time and other TTI services for the Midlands area of the UK.

It brought together nine UK regional authorities, covering the nation's "crossroads" in the Midlands (the intensively-populated West Midlands region together with Leicestershire and Leicester City), with the aim of defining co-operative management and control strategies for the transport network. An innovative and flexible communications network was built, providing a common platform for information sharing.

Initially funded by a European R & D, project, it is now run as an innovative Public-Private Partnership.

Since then Matisse has become an established service, but one which has been progressively under development. It now has a unique characteristic of an innovative business model involving a new public-private partnership with two private-sector organisations. The legal 'Partnering Agreement' for this was signed in May 2002, and a Matisse Partnering Group has been formed to administer the agreement. These arrangements have replaced the original publicly-funded operation, which had been set up before a full business case had been developed.

1.2 Goals

The goal of Mattisse is primarily to promote modal shift and ease congestion through traffic and traveller information (TTI) services, and to do this with a workable business model. It aims to achieve this by providing substantial amounts of high-quality data direct to the public and to Value Added Service Providers, using 'next-generation' technology as appropriate, applied in a way which gives users flexibility.

Goals are to use information to reduce car use and congestion.

Mattisse provides high-quality electronic TTI data, partly as a 'wholesaler', and partly as a direct supplier to the public.

A key goal of the public sector generally is better access to information; e-Government initiatives play a significant part here, and Mattisse fits very well into this strategy. Mattisse is

also consistent with the UK government's Transport Direct project to provide door-to-door travel information on different travel modes.

1.3 User and stakeholder requirements

The West Midlands region lies at the "crossroads of Britain".

Users require a range of information, both real-time information and information on planned or scheduled services. The West Midlands region, which forms the heart of the area covered by Mattisse, is heavily populated and industrialised, has a dense road network, an expanding heavy rail system, light rail (metro), and an intensive bus network. It also lies on several major cross-country routes, which include key motorways. There are several innovative transport schemes in the area, including the UK's first toll motorway, the M6 Toll ™ motorway, due to be opened in early 2004. To a great extent the Leicester City area also shares these transport and geographic characteristics.

Mattisse provides a wide range of static and real-time multi-modal information.

Travellers and other users of the transport network (e.g. road hauliers) therefore require incident information, both in real-time and for planned or expected events, covering accidents, road closures, congestion, events, hazards, roadworks, and temporary signals. In addition, other information can make the traveller's journey much easier, such as information on car parking and weather conditions. Real-time rail information and information on rail station facilities is also important. In the context of multimodal travel and travel by alternative modes, information for cyclists, and real-time bus and metro information are also of value.

A large number of different stake-holders have an interest in the Matisse service.

Central government's aims are to achieve better use of the road network and to minimise congestion, delays and accidents, and to encourage multimodality where appropriate. Local authorities seek to create economic benefit for the region and its employers, maximise the net benefit of the transport system for the quality of its residents' lives, and improve the environment. In Hampshire and Southampton in Southern England, the ROMANSE TTI project has contributed to regeneration and to interest in the area, making it more attractive to live in; there are hopes that Matisse will bring similar benefits to the Midlands.

The business model is based initially on most revenues coming from business users.

The commercial partners involved in the new Mattisse joint-venture aim to recoup their investment and make a profit from the services that Mattisse provides. They plan to do this by creating value for Mattisse's users, initially by providing chargeable information which will give business customers a competitive advantage.

1.4 Technical description

Mattisse collects information from a range of different sources, some manually and some automatically, public and private, including bus and train operators and the police. Matisse consolidates the information and distributes it via a number of

different types of media (see Figure 1.1). Real-time rail information is provided by the private sector train operators through service level agreements. Real-time bus information is being introduced in some areas from 2003.

Currently, information on incidents, congestion, roadworks, future events, static bus timetables, real time road and real-time rail are all being provided - the latter through links from external data sources in the rail industry. Information on air quality is also being delivered. Most information is currently available pre-trip, but on-trip information is conveyed to users via mobile devices and will develop in future (see Figure 1.2 to Figure 1.4).

Information is disseminated using a wide range of media.

Delivery of information is over the Internet (http://www.mattisse.org.uk), mobile devices, public information screens, Internet kiosks provided by Marconi and the major telephone operator (BT), large screens in shopping centres, radio (indirectly via the Travel News Consortium) and SMS. Mattisse intends to use third generation mobile phone technology eventually, and considers that this will bring major benefits to users of its services. However plans have not been fully developed, as the mobile phone operators have not yet finalised implementation dates.

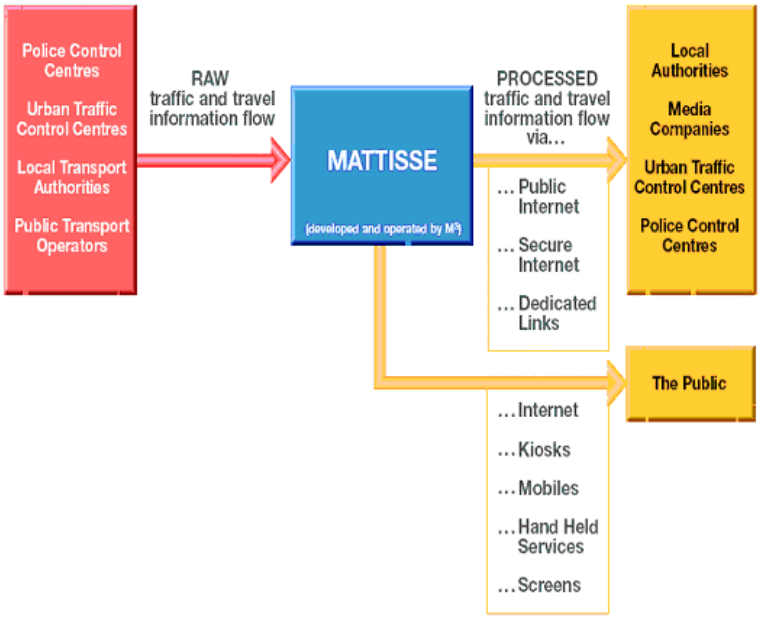

Figure 1.1 Information flows within Mattisse

The quality of free text information on the web site is variable, but will improve with introduction of standard text fields and new processes.

Currently, the quality of information on the public website is variable. Operators input data on a 'free text' basis and entries are replicated on the public site; this means that any spelling and grammatical mistakes, different interpretations etc. are also included here. In the future, where possible, free text is likely to be replaced by standard text, with a list of pre-determined incidents which will appear in a drop-down menu, reducing the chances of errors and subjective interpretations. This will bring a real improvement in data quality because it will mean that

users of the data can have much more trust than previously in the reliability and meaning of the incident information displayed. New standard protocols and processes to improve data quality and reduce 'human error' will be introduced in conjunction with improvements in technology, such as the introduction of new Geographical Information System software which will give much more accurate locational referencing.

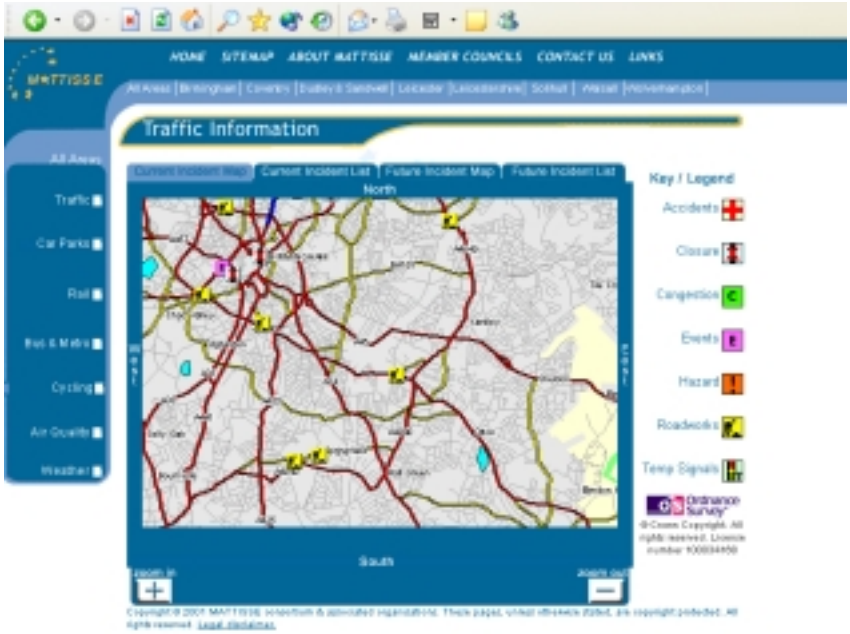

Figure 1.2 Matisse Current Incident map for south-east Birmingham

The website is also planned to be rebranded during 2003, and the domain names help2travel.com and help2travel.co.uk have both been registered by the Mattisse joint-venture commercial partners.

The Mattisse service operates 24 hours a day, 365 days a year. Mattisse is aimed at all types of user, but has developed a customised service for business users, and will provide data as and when required, in the customer's preferred format.

Business users can buy customised services.

Figure 1.3 Matisse Future Traffic Incident List for Leicester

Figure 1.4 Matisse Real-Time Train Information for Wolverhampton

1.5 Service set-up

Although Mattisse began in 1998 as part of a European Commission research programme, bringing together nine UK regional authorities, the Mattisse consortium has recently entered into a public-private partnership agreement with two private sector technology and service providers, Marconi and Mott McDonald (summer 2002). In order to develop a revenue stream, it is vital is to ensure that the TTI services provided give significant added value to the user. Mattisse is allowing the private sector partners to develop and exploit this potential, so that they can recoup their investment.

The innovative Public-Private Partnership enables private sector partners to develop added value services.

For the local authorities, the main benefits of this arrangement are that costs and risk will be offloaded onto the private sector partners, and these partners will also provide additional

The public sector offloads risk but achieves services to meet policy objectives.

investment to develop and improve the service. The private sector partners expect to recoup their investment by stimulating market demand for the service. Additional funding also means that the timetable for introducing some TTI services can be brought forward to meet government objectives, e.g. for Transport Direct.

The service is expected to be profitable after about 5 years. There will be a mechanism for the Mattisse consortium (i.e. the local authorities) to take a 15% share of profit, but this will be finalised when the profits begin to accrue.

Partners bring particular skills with mutual benefits..

The key features of the Public-Private agreement are mutual benefits, an open process with a clear audit trail, and the development of the agreement under a competitive procurement process leading to an exclusive agreement between the Mattisse consortium and the two private sector partners – Marconi and Mott McDonald. Mutual benefits arise because the Mattisse consortium has strong links to public sector bodies and can therefore bring about 'institutional buy-in', particularly with organisations such as the police, whilst the private sector provides commercial incentives. The security afforded to the private sector partners by the exclusivity of the arrangement also allows them to develop the business in whatever way they choose; this can include obtaining TTI data from additional sources, augmenting the data already received by Mattisse, and / or making separate agreements with other organisations.

The agreement will initially run for a ten-year period, with major reviews after three, six and nine years. The business model will be reviewed from both sides at the end of year 3. In the interim there will be review periods every quarter for the first three years.

Local Authority payments are focussed on achievement of Public Service Criteria,

Local authority financial contributions of about £250000 (400000 Euros) per year will be made against nine Public Service Criteria (PSCs), with payments being made against a fixed timetable of 'delivery milestones' agreed for each of the PSCs. The Mattisse partners expect the system to become self-financing after 3-4 years.

There is a clear management structure with a neutral leader.

The consortium will be managed by a small, tightly focussed group, consisting of equal representations from the public and private sectors. There will be one representative from each of two major local authorities (Birmingham City Council and Leicester City Council) and from each of the two private sector partners, whilst a neutral chairperson will be directly accountable to the Mattisse consortium.

The partnership may form a model for similar services elsewhere.

Mattisse hopes that the Joint-Venture agreement can be used as a model for other local authorities. Cost and risk are key issues for local authorities, so the successful demonstration of providing a revenue stream from TTI back to local authorities would be looked on with great interest.

Mattisse views users as being divided into two distinct markets: businesses and the public. For the first two to three years of the Public-Private (P-P) Partnership agreement, it is envisaged that revenue will come from a business-business model: it is expected that businesses will be willing to pay for TTI, because information can give them a competitive advantage. A business-general public model will develop later, and it is likely that the provision of TTI via SMS will test the viability of this approach: there is a need to find out how much consumers would be willing to pay.

Mattisse will focus differently on two distinct markets: businesses and the general public.

The Public-Private arrangements have raised issues of data ownership. To date, Mattisse has developed in a spirit of mutual co-operation, especially with the police. However, with the P-P operation, more formal, contractual agreements will have to be entered into, probably an exchange of letters or a Memorandum of Understanding. The indications are that the co-operation will continue and develop: for instance, the police are keen to co-operate with Mattisse in supplying traffic data since it should reduce the number of calls they receive.

Initially the service relied on mutual co-operation but more formal arrangements are now needed for sharing data.

1.6 Assessment and lessons learned

The website, which is currently unpublicised, has an average of more than 4000 hits per day. There are plans to 're-brand' Mattisse under a new name, and when this happens the service will be publicised.

The web site has 4000 hits per day without publicity. Ways to measure success in achieving policy goals are to be developed.

It is hoped that in future it will be possible to measure success in relation to the objectives of the Local Transport Plan, e.g. the extent to which modal shift in terms of encouraging greater use of public transport has been achieved, the extent to which the safety of the public transport environment has improved, and the reduction in congestion which has occurred. However, actually measuring these is difficult, so one goal of Mattisse is to devise a method of measurement.

Mattisse is thought to have been successful so far partly because of good 'human factors' – the existence of people who will act as 'champions' and driving forces to make things happen. Other reasons are the existence of forward-thinking, visionary, local authorities operating in a progressive environment, and the existence of joint professional groups working in a spirit of cooperation. An example of this is the Joint Transport Plan for the West Midlands area, which is produced by the various local authority bodies in the area. Political will, support, and encouragement from government have also been important. For example, central government wanted more information about Mattisse to be included in the Local Transport Plan, and this was very encouraging and gave a positive message regarding the promotion of TTI. However, in terms of local government, it has been difficult to sell the advantages of Mattisse to local politicians: local political support is a key

Key determinants of success are non-quantifiable 'human' factors, co-operative working and political will.

determinant of success and an area where strong efforts continue to be made.

Strategies for dealing with technological change and central government lead in providing overall architectures for TTI services are important.

Mattisse believes that the business model it has developed, in conjunction with its new partners, is sustainable. These partners, particularly Marconi, also provide a key 'knowledge' element by allowing Mattisse to keep abreast of new technological developments and therefore to exploit them where appropriate. Development of robust strategies for coping with the speed of technological change is critical because the cost of replacing outdated equipment can be very steep. In this regard, strategy-formulation is also determined by the external 'standards' environment, and it is considered that the construction of a robust strategy would be easier if there was greater integration or harmonisation between the different 'families' of existing and developing standards (such as UTMC, TRIDENT, DATEX, TIH). Strong leadership from central government in providing overall architectures for TTI is judged to be a critical factor for success.

Data ownership has become an issue for the partnership.

Data ownership and associated ownership rights have also emerged as key issues under the new commercial business arrangements associated with the Joint Venture. Lively discussions over profit sharing from the proceeds of TTI have taken place: for example, a bus Real-Time Information Project is now showing up real issues in terms of data ownership which could delay implementation. Issues of exclusive rewards for financial risk, the ownership rights associated with data provision, the legal obligations and duties imposed by the Transport Act 2000, and Intellectual Property Rights, are all coming into focus.

Lack of enough finance can be a key barrier to success. As local authorities are unable to compete with the private sector in terms of salaries, and therefore find it difficult to recruit and retain experienced staff, the reliance on outsourced services from the private sector is likely to increase.

The Public-Private Partnership was complicated to put into place.

Finally, the Public-Private agreement for Mattisse took longer to put into place than anticipated and was finalised one month late. The delay might have been longer without the existence of a single person who had 'ownership' of the project and was committed to making things happen.

1.7 Future prospects

Service quality is being improved and added value services for business travellers are being developed.

The Mattisse service will develop with the provision of more 'added value' information for business travellers. In line with the commitment to provide the highest-possible quality of data, Mattisse is planning to do away with free text for the display of messages. Standard text is likely to be introduced, together with a list of pre-determined incidents which will appear in a drop-down menu. This will reduce the opportunity for errors and subjective interpretations e.g. of 'heavy congestion'.

Mattisse will also seek to take advantage of smart card developments in the Midlands region. It would like to see an integrated smart card system in operation eventually – a 'citizen's card' which could be used for access to all public services, such as transport, libraries etc. However, such a move towards widespread application of a 'cashless society' would require a major change in public attitudes.

Future success will also depend on the rate of innovation.

1.8 References

- Mattisse web site : http://www.mattisse.org.uk/
- QUARTET PLUS Project Deliverable 3.1, accessed at http://www.cordis.lu/telematics/tap_transport/library/quartet_plus_d3.1.html
- Paper by Stephen George, Peter Eccleson and John Glen "Future Directions of ITS – the MATTISSE Perspective", given at ITS UK Summer Conference 2002, 3rd and 4th July 2002, Birmingham, UK
- Various Marconi and Mott McDonald press releases
- Interview on Mattisse on 30.08.02 with Stephen George, Project Leader, Mattisse

Table 1 – Synopsis Case Study: Mattisse, UK

Title	Mattisse
Country, Region, City	UK; Midlands; Birmingham, Wolverhampton, Coventry + Leicester
Duration / Status	Active
Geographical area covered	Midlands area (West Midlands region + Leicester City + Leicester-shire)
URL	www.mattisse.org.uk
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Birmingham City Council, Coventry City Council, Dudley Metropolitan Borough Council, Leicester City Council, Leicestershire County Council, Sandwell Metropolitan Borough Council, Solihull Metropolitan Borough Council, Walsall Metropolitan Borough Council, Wolverhamp-ton City Council
Infrastructure owners and data collection technologies	Highways Agency, West Midlands Police Authority, West Midlands Public Transport Executive (Centro), Leicestershire Police Authority, Network Rail and other private-sector organisations in the rail industry All local authorities as above ('Relevant Authorities' list) Urban Traffic Control systems, rail-industry real-time systems, CCTV and other congestion monitoring systems, Automatic Vehicle Location systems (for planned real-time bus information), car park management systems, Police control rooms, Pollution monitoring systems
Public sector data owners and providers	Highways Agency, Local authority highways agencies (local authori-ties, as in 'Relevant Authorities' list above), West Midlands Police Authority, West Midlands Public Transport Executive (Centro), Leicestershire Police Authority
Private sector data owners and providers	SchlumbergerSema, providing information on behalf of the rail franchise operating companies (the major one being Central Trains), other rail industry partners; Travel West Midlands, RAC
Service operator	Marconi – Mott McDonald Joint-Venture
Information editors / service database managers	Currently, the individual organisations supplying data to Mattisse, plus Marconi – Mott McDonald Joint-Venture
Communications providers	A wide-area network for data communications is provided by British Telecommunications plc. Marconi also have significant input to communications
Service provider to end users	Marconi – Mott McDonald Joint-Venture, Travel News (a joint venture between Trafficmaster plc and Independent Television News),
Market segments & end user groups targeted	Drivers, business users, rail travellers

Nature of public-private partnership	'Partnership Agreement'
Strategic marketing partnership	Marconi – Mott McDonald
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Road conditions, rail users. Other modal users covered as well: significant expansion for bus users planned for 2003 with real-time information. There is little mode integration at present.
Data quality	Traffic conditions data is good and updated in real-time (though with provisos regarding terminology and spelling errors as referred to above); source data for real-time rail information is part of a national beta test. Other static data currently on website is of uneven quality.
Information contents	Incident / event / congestion information for roads, real-time rail information, some information on car parking facilities, cycles, airports, bus services, metro services and rail station facilities. Real-time bus information is planned.
Distribution stage and transmission media	Internet, television channels, street kiosks, Value-added service providers. Increasingly delivered to mobile devices
Pricing policy and revenue streams	Value Added Service Providers are charged. Delivery direct to the public is currently not charged. Business revenue is expected to be the main revenue stream.
Development of service use	Business-to-business services, mobile access, real-time bus information

Good Practice Case Study 12

MIZAR Mediaservice - transport telematics services, based on work in research and development projects (I)

Authors: Richard Harris / Kate Nastys

13 May 2003 / Final version

1 Case Study: Mizar Mediaservice, Italy

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

1.1 Background

MIZAR Mediaservice is a small IT company specialising in software for traffic information and providing traveller information services.

Mizar Mediaservice is based in Verona, Italy and was set up in 1981, in response to the growing demand for ITS services in the country. The company was set up by a group of university researchers and control engineers, and has grown to employ 40 people in offices located in Rome and Turin.

The company specialises in software for multimedia traffic information services and providingf ITS services for travellers.

The latest development is 'personal navigation' services providing traffic information and driving directions over the Internet, and traffic information via WAP, SMS and PDA.

ITS services are a rapidly growing area of the business, with the newest range described as 'personal navigation' services. This includes pre-trip and on-trip travel information as well as personalised alert services supporting multi-modal transport services. The service is available only in Italian at present, but there are plans to include an English language version within the first few months of 2003.

Mizar Mediaservice is divided into three main areas of work:

- Traffic control systems;
- Fleet management; and
- Business to business services.

1.2 Goals

Mizar Mediaservice's enthusiasm for cooperating with other companies allows is to stay small, whilst being active in ITS developments.

MIZAR Mediaservices is aiming to increase the market for its 'infomobility' service to 10% of the national market. A co-branded initiative will shortly be launched with a major European Internet service provider, aiming to bring an extra 100000 users to the Walkie service by the end of 2003.

MIZAR Mediaservices is keen to cooperate with other companies, and by using these contacts has succeeded in keeping to a limited size, whilst also getting involved in large projects.

MIZAR Mediaservices mission statement is:

"Research, development plus deployment of systems and services within the domain of Intelligent Transport Systems"

1.3 Technical description

The MIZAR Mediaservices are provided both on demand in response to users' requests (e.g. route planning, public transport timetables) and provided in response to events and incidents (e.g. information on accidents, traffic and public transport disruption).

Information is provided both on demand and in response to incidents.

The main ways of disseminating information from Mizar Mediaservice are through:

- TMC (Traffic Message Channel to vehicles equipped with a receiver);
- The Internet and WAP based Walkie service;
- The software tool MISTIC (based on DATEX-Net specifications); and
- Mobile phone based applications.

MISTIC or 'MIZAR software tool for Traffic Information Centres' is an interface system. Its value comes from the capability of interfacing several traffic information centres. In addition MISTIC's ease of use has made it most popular software tool among traffic centre operators who use it. It also has the added advantage that it can interface using conventional EDIFACTS, more recent FTP connections and XML formats.

MISTIC, based on DATEX, is popular with traffic operators' for its ease of use and varied options for connection formats.

MIDAS or 'Multi-modal Information and Dynamic Application Server' is a software service platform that was specifically developed by MIZAR for ITS services, in 1998. MIDAS is a platform/gateway for personalised travel information services (including both requests initiated by users and sending users information in response to incidents, and multimedia services). It is also the platform on which Walkie is based. The design enables an ITS provider to extract data from content owners in a variety of ways. The main European digital road map databases are used as the map server, and full packages for end users are supplied.

MIDAS is the software service platform and basis for MIZAR's personalised information services such as Walkie.

Walkie provides personalised transport information services, available on the website: www.Walkie.it. Walkie enables pre-trip and in-trip dynamic planning. Users can either subscribe to a regular service or make single enquiries. Access to the information is via:

- PC workstations;
- public kiosks with Internet access;
- GSM/SMS mobile phones; and
- GSM/WAP mobile phones.

Walkie is available through mobile phones, public kiosks and internet:

www.Walkie.it.

Figure 1.1 Enquiry interface for www.Walkie.it showing area covered

Mizar Mediaservice is hoping to expand this area of their service to offer a wider range of services on multiple channels. To achieve this, the company is aiming to cater for large bandwidth applications. One idea for using the larger bandwidth is called “Virtual” navigation. “Virtual” navigation would be used for showing more than just directions. For example showing photos of inter-modal steps in a journey, or showing plans or details of potential car parks, restaurants or petrol stations on route.

New developments such as Virtual navigation, delivering information about points on the journey, are made possible using large bandwidths.

MIZAR Mediaservice collects static and dynamic traffic and travel information from different data providers, as part of their "back-office" activity. The company then validates and sorts the data retrieved. The end result is that the data is made available in agreed formats to Service Providers who are willing to provide MIZAR ITS services to the final user.

MIZAR interacts with the market in three main ways:

- By selling the software and operations through system integrators or licensees;
- By selling engineering support to system integrators; and
- By selling specific tailor made developments directly to customers, although this is very limited.

In order to develop the software and operations, MIZAR follows a three-step approach:

1. Research prototypes are developed in a research frame-work;
2. Large scale demonstrators are built with the help of local authorities and operators; and finally

MIZAR develops commercial services on the basis of research and collaborative demonstrations with authorities and operators.

3. Those prototypes that show potential in phase 2 are then developed into standard products and released onto the market.

1.4 Service set-up

Walkie is the result of many years of research and development, by MIZAR, into technical marketing aspects of the infomobility service. MIZAR's ITS unit carried out this R&D before the Mediaservices label was attached. The research included users' "willingness to pay" and end users' perceptions of added value, and was obtained by analysing the results of work in various European R&D programmes including PROMETHEUS, DRIVE, ATT, TAP and IST. Since the Walkie service was set up in 2000, the number of users has grown steadily to 1500-2000 different visitors each day. The number of users is currently growing at approximately 20% per month. This growth is attributed to growth in availability of Internet access, and customer awareness.

Previous EU funded projects were used to provide information on the viability of Walkie as a new service.

Use of Walkie is growing rapidly.

1.5 Assessment and lessons learned

MIZAR has been involved in a large number of projects, including the following:

- 5T (Telematics Technologies for Traffic and Transport in Torino);
- CORVETTE (implementation of transport telematics around a corridor connecting Italy. Switzerland, Austria and Germany); and
- INFOTEN (Information on the Trans European Network).

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

These projects have lead to further developments within the same field of work and therefore the company has been able to build upon early research.

There is a concern at MIZAR Mediaservices that there are still obstacles to providing access to high quality data between all three markets: the authorities, businesses and consumers. This is seen not as a technical problem, but due to a lack of rules and difficulties with integrating the approaches of the three markets. MIZAR believes the EU recommendations for traveller information services are open to interpretation and are not being followed in the way that was originally intended. With this in mind, MIZAR consider that a fully exploitable market is still a long time away and that it will take more than another simple recommendation from the EU to resolve the issue.

MIZAR believes concise rules need to be laid down by the EU, to enable authorities, businesses and consumers to obtain high quality data.

MIZAR's conclusions on the basis of the development of the Walkie service include:

- Partnerships are mainly required to market the service. The new brand of Walkie requires higher customer awareness

than currently exists, because users are now required to pay for the service. For customers to pay for the service they also require a greater level of trust.

- Services on Walkie road traffic information require a large level of cooperation with content providers. To obtain a better level of content, it may be necessary for the European Union to enforce some rules for the content providers to follow.
- The information chain should be kept as simple as possible to favour the business model and avoid any unnecessary intermediary platforms.
- With business models the revenue sharing is feasible, but fixed costs should be sustained.

Walkie shows partnerships are needed for marketing, good cooperation with content providers is important and information chains need to be simple.

1.6 Future prospects

At present a new English language version of the Walkie system for Italy is being developed and should be implemented by early 2003. A new initiative is also being set up to try to make the new, paid for service, and the Walkie brand more visible. As mentioned above, a more visible product is needed if the customers are going to gain trust in the service and be willing to pay for it.

An advertising campaign is raising the profile of Walkie and the new paid for service.

An English language service is being developed.

1.7 References

- http://www.5t-titos.it/PagineGialle/SerProPri.htm
- www.miz.it
- www.walkie.it

Table 1 – Synopsis Case Study: MIZAR Mediaservices, Italy

Title	MIZAR Mediaservices
Country, Region, City	Italy
Duration / Status	Founded in 1981
Geographical area covered	Areas within projects - Europe
URL	www.miz.it www.Walkie.it
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Private company. Work with local authorities on projects
Infrastructure owners and data collection technologies	
Public sector data owners and providers	
Private sector data owners and providers	
Service operator	
Information editors / service database managers	
Communications providers	GSM/SMS, WAP, Internet,
Service provider to end users	RDS-TMC, WAP, Internet, PC workstations, public kiosks with Internet access; mobile phones
Market segments & end user groups targeted	Many European projects are targeted - CORVETTE, HERITAGE, ROSETTA, FRAME, etc.
Nature of public-private partnership	
Strategic marketing partnership	
	Main Characteristics of Service Delivery
Modal coverage and mode integration	
Data quality	
Information contents	
Distribution stage and transmission media	
Pricing policy and revenue streams	
Development of service use	

Good Practice Case Study 13

OVR - national public transport information service for the Netherlands (NL)

Author: Richard Harris / Kate Nastys

13 May 2003 / Final version

1 Case Study: OVR (Openbaar Vervoer Reis-informatie), Netherlands

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.

1.1 Background

OVR provide travel information incorporating bus, tram, metro and train services throughout the Netherlands.

OVR (Openbaar Vervoer Reisinformatie) is a privately owned company providing a series of services for public transport users in the Netherlands. The whole of the Netherlands is covered by one central service providing information on times of all bus, tram, metro and train services, which represents a large scale data collection operation.

The two main services OVR provide are:

- Call Centre set up in 1992; and
- an Internet service (named a Journey Planner) set up in 2000.

The database includes all streets, addresses and points of interest.

The data collated makes up a full street-address to street-address system for the whole of the country. In addition to all transport stops, services and street address information the software OVR use also includes over 500,000 geographical objects, such as:

- Streets; and
- Points of interest.

1.2 Goals

The focus is on quality and end-to-end information for planning journeys, to maximise use of the service.

A key objective is to provide high quality, accurate travel data. OVR is committed to offering clients not just bus or train timetables, but a whole package of information for the journey to enable links between the modes to be established and planned.

1.3 User and stakeholder requirements

The information service covers a range of transport modes to ensure that users can obtain details of a fully linked journey from start to finish. Users are more likely to use a service if it can provide details for a full route.

OVR require up to date, accurate information from public transport companies in order to be able to provide an accurate service.

OVR provides a one-stop shop for planning journeys involving public transport.

Transport operators benefit from transferring responsibility for providing information services to one specialist company, while users benefits from having a one-stop shop for accessing co-ordinated information.

1.4 Technical description

OVR notes that information needs to be as accurate as possible when providing such a service to the public. Suitable quality and accuracy of data will encourage the services to be used. As a result, alterations to the journey planner are made every week to keep up to date with any timetable changes or week changes, such as bank holidays. OVR thus has a regular and on-going task to refresh the data. All systems use the same software for the information on the various components of the journey, and use exactly the same data sources. This ensures consistent quality of information for all distribution channels.

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

OVR's main method for disseminating travel information is via the company's '9292' Journey Planner, which is available on the Internet (www.ovr.nl). This free service provides information to up to 50000 users per day, and provides up-to-date information on public transport times and best routes. At present there are no journey planning kiosks in the Netherlands, which means access via the Internet is through the user's own technology. A view of the homepage is shown in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

Users can obtain the information via a free Internet service:

www.ovr.nl

New journey planning software was introduced in 2000, and by the autumn of 2000 the journey planning systems at the nine OVR call centres were gradually replaced by the new software. In January 2001 the OVR Internet site began using the new software.

The OVR Internet Journey Planner attracts 50000 users per day.

Figure 1.1: Internet home page for the OVR service

Currently the Internet site handles around 1 million queries per month. The service overview is shown in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

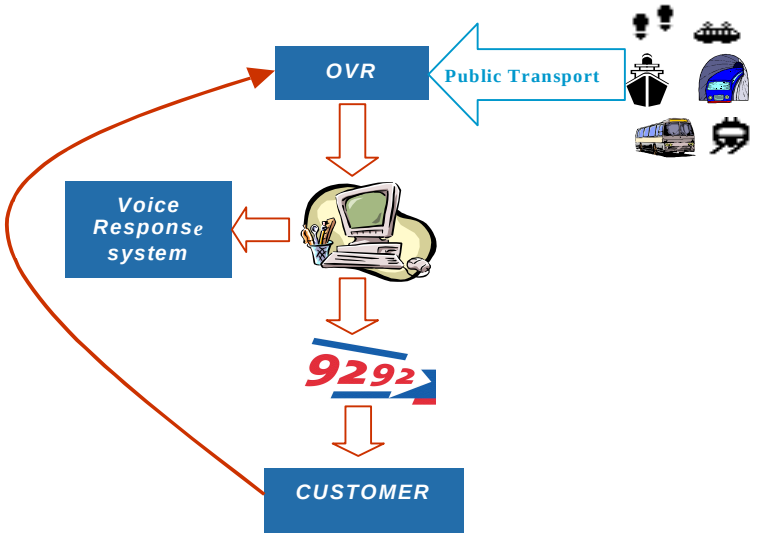

Figure 1.2: Overview of service system for OVR

In addition to this service, OVR provide a telephone hotline number serving approximately 25000 callers per day with similar information. Call centre operators are able to answer all questions about travelling door-to-door by public transport in The Netherlands. These call charges are kept to a minimum to

A telephone call centre serves 25000 callers per day, at a low call charge.

encourage the use of the service, but are not enough to cover the outgoing costs of the call centre. The problem is that people are not willing to pay much for public transport information.

An automated voice response service has been developed to assist operators when demand is high.

The call centre service uses the same software as the Internet Journey Planner and is very well used. Many more calls are made to the service than can be answered by the operators, so callers have to wait in a queue and the operators suffer a high workload. An automatic spoken dialogue system in Dutch has been developed to relieve the work pressure on the operators. This has been developed and built especially for the OVR travel information service, and is called VIOS (Voice Input Output System). The system can recognise and answer requests for train schedule information. The aim is to reach a comparable high level of service quality to that provided by the current call centre operators.

1.5 Service set-up

Public transport operators have a legal obligation to provide service details to one private company.

In the Netherlands the law states that public transport operators must make their travel information available to one private sector company. OVR was set up in 1992 by the public transport operators to provide a joint information service, and is thus the company receiving this data. The company was established as a result of a task force comprising the Ministry of Transport and public transport operators, aiming to implement government policy for access to public transport information. The first director succeeded in convincing both Poergonomiclitics (providing financial support) and public transport companies (providing data and financial support) that this service set up did not need to follow a competitive tendering process.

Government funding for OVR provided a strong base for setting up the service.

Financial support for the business has changed over the past few years, due reductions in government funding. The level of government funding was high for the first seven years of OVR's development, which provided a strong base for establishing the services. Figure 3.3 shows the change in level of support over the years.

OVR is now funded by public transport operators, in proportion to the amount of use of information.

Government funding ended after 2000, so OVR now relies entirely on funding from the public transport operators themselves. This means that the public transport companies have to pay for a share of the services their data is used for. For example, OVR gives responds to about 20 million requests per year. Each public transport operator contributes to OVR's costs in proportion to the number of these requests containing information about their own services.

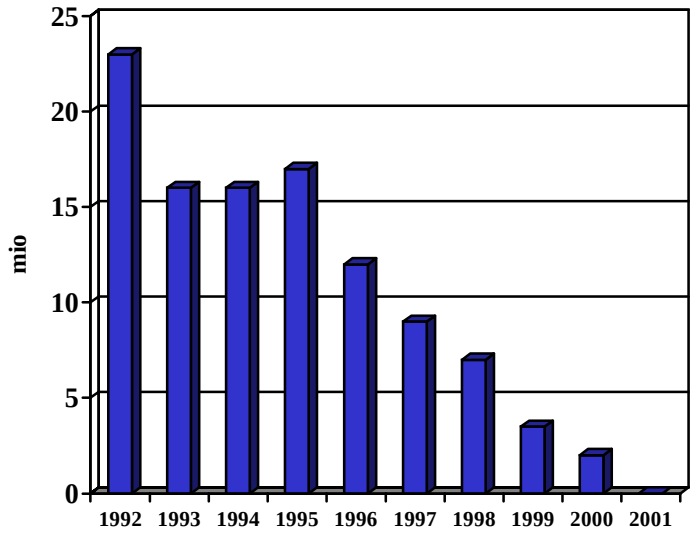

Figure 1.3: Reducing government support for OVR

Public transport operations in the Netherlands are run under a competitive tendering process. Every four years, operators submit bids to operate services across a region. Since the changes in the government's financial support, public transport companies have been more reluctant to fund the costs of the information service.

1.6 Assessment and lessons learned

OVR recognises the importance of using suitable technology for providing travel information. Displaying the information in an appropriate way is just as important as collation of the data itself. The Travel Planner that OVR provide, as an Internet search engine, shows data in the most effective way possible. The importance of way the information is collated and displayed is demonstrated by the case of another organisation that used the same data as OVR, but attracted a low number of users, largely due to the fact that their technology was not able to select the correct data to meet users' needs.

OVR recognise to have the most effective web site they must use the most suitable search engine available.

OVR have also learnt that to be able to provide a successful service, extensive work needs to be devoted to identifying user needs and finding gaps in the market that can be filled and a niche created. OVR were able to carry out this fundamental research and develop a service that is well used and accurate. OVR also recognise that customer needs are dynamic, so research is carried out twice a year amongst 2000 clients. This ensures OVR are continually focused on customer require-ments.

OVR recognise that work on customer needs must be constantly updated to ensure that customer needs continue to be met.

1.7 Future prospects

Future developments may include integrating road traffic information into the journey planner, and developing services for 3rd generation mobile devices.

OVR are identifying new ways of disseminating data for future developments. One possibility being studied is integrating road traffic information into the journey planner. This would provide clients with real time information about both public transport and traffic conditions.

OVR have been focusing on developments in the area of 3rd Generation mobile technology. OVR would like to be one of the first companies in the Netherlands to succeed in this area.

Third Generation technology will be capable of transferring data at very high speeds and will subsequently result in a 3G device that is capable of a wide range of services including:

- High-speed, mobile access to the Internet.
- A choice of entertainment on demand. This will include movies (on the device's high-resolution screen) and music (on the device's in-built MP3 player).
- Video-conferencing (using the device's in-built micro video camera).
- Mobile shopping (m-commerce). Browse available items and pay using electronic cash.
- Travel information: congested roads, flight departures. And if you get lost, find your current location. Location services can be obtained, e.g., suggesting nearby restaurants or when an emergency call is made from a cellular phone the user's location can be traced

Recent work to develop a Japanese telephone (KPN IMOTE) is continuing which would allow 24-hour Internet access to the company's public transport information. Response in the Netherlands towards 3G communications has been very good; therefore OVR would like to be involved in its future development.

1.8 References

- www.ovr.nl
- www.compuleer.nl
- www.journeyplan.co.uk
- Interview and further discussions with Hans Van Veer from OVR

Table 1 - Synopsis Case Study: OVR, the Netherlands

Title	OVR
Country, Region, City	The Netherlands
Duration / Status	
Geographical area covered	Service covers the whole of the Netherlands
URL	www.ovr.nl
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Private company
Infrastructure owners and data collection technologies	Private sector
Public sector data owners and providers	Public transport companies provide data - they must disseminate this data by law
Private sector data owners and providers	OVR, software developers
Service operator	OVR
Information editors / service database managers	OVR
Communications providers	
Service provider to end users	Internet, call centre
Market segments & end user groups targeted	All users of public transport in the Netherlands
Nature of public-private partnership	
Strategic marketing partnership	
	Main Characteristics of Service Delivery
Modal coverage and mode integration	mono-modal, inter-modal for PT (local, regional, and national information)
Data quality	static, historic
Information contents	personalised journey planning (preferred mode, route), points of interest and streets
Distribution stage and transmission media	pre-trip via internet, call centre
Pricing policy and revenue streams	pay-by-call, data received by public transport modes due to legal requirements
Development of service use	Further development into 3rd Generation services

Good Practice Case Study 14
P4 - Dynamic TTI messages (NO)

Author: Børge Bang

30 October 2002 / edited final draft

1 Case Study: P4 Dynamic TTI messages in Norway

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

1.1 Background

The "Dynamic TTI messages" service is the main outcome of the Norwegian R&D project "ICT in Road Traffic", (Information Communications Technology) which evolved as a joint initiative from a Public Private Partnership between five organisations:

- Telenor Mobile (Telecom operator)
- SINTEF (Research and development organisation)
- NPRA (Norwegian Public Roads Administration)
- P4 (the only nation wide commercial radio station in Norway)
- Bravida Geomatikk (Geographic information technology).

The project was a continuation of several previous R&D projects that had been working in two areas: traffic information and driver workload.

The Dynamic TTI Messages service has been developed through a Public Private Partnership to provide high quality road traffic information from a variety of sources to drivers in Norway through a variety of media.

The project was partly funded (40%) by The Research Council of Norway, and partly by the members of the partnership. The development work started in 2000, and finished in the spring of 2002. The service has been available to the public since 2001.

The development of the service was funded partly by partners and partly by the national research budget.

The service is one of the first services in Norway involving a public private partnership to collect and disseminate traffic and travel information and also one of the first in the country to collect, analyse and integrate information from a variety of sources. TTI messages are disseminated using several different platforms including radio broadcasts, Internet, SMS, WAP and (PDA[1]). The WAP service is temporarily closed due to lack of demand.

Radio listeners form the main audience for the service but the Internet service is also popular:

www.p4.no/trafikk

While the SMS service has a limited[2] number of users, the Internet service is popular and the radio programmes at P4 that

The SMS service has few users.

[1] In co-operation with the R&D project "Sm@rtTravel" a service on PDA platform has been developed. This service is not yet publicly available.

[2] Exact number of users is not available

broadcast the TTI messages have a large audience. The average numbers of 'hits' on the Internet page was about 3000 per month in 2001. During the first half of 2002, the peak hour radio broadcasts which make extensive use of the TTI messages had an average of 526000 listeners in the morning, and 455000 in the evening.

1.2 Goals

Previous projects in Norway have focused on single elements of the information chain for providing TTI services and on the traffic safety aspects of in-vehicle ICT devices in cars. The overall objective for the development of this service was to extend existing services by offering a high-quality service on a range of platforms.

The service was developed through a project to create a platform for providing services that could help to make more efficient use of the road network.

The goals of ICT in Road Traffic were to:

- Create a platform for Information and Communication Technology services which are designed to make more efficient use of the existing road network
- Develop procedures for collecting, refining and redistributing road traffic data
- Develop user interfaces with an emphasis on user friendliness, traffic safety and efficiency
- Test and evaluate the use of in-vehicle TTI services in the driving simulator at SINTEF/NTNU [3]

Other objectives focused on the safety of drivers using in-vehicle devices to receive information.

The TTI service covers the whole country, although the majority of the messages are related to Oslo and the surrounding area, which is where the most congested roads in the country are located.

1.3 User and stakeholder requirements

These overall goals encompass both policy-driven public sector goals, and commercial goals for the private sector members of the partnership, arising from the opportunity provided by the project to be involved in developing and testing new technologies in a new service for the travelling public. The private sector partners were keen to test new technology and services on new platforms including WAP, SMS, PDA, Cell Broadcast and voice Input/ Output.

The public sector goals are policy-driven. The private sector communications provider and solutions provider have benefited from the opportunity to develop and test new technologies and services.

The service was designed to make use of multiple data sources, and to be easy to extend to include new and future sources of data and additional ways of accessing the information.

3 - http://www.samf.ntnu.no/kjoresim/eng/Default.htm
- http://www.sintef.no/units/civil/roads_and_transport/Norsk/laboratorier/simulator/kjoresimulator.html (Norwegian)

The TTI messages distributed through the service are restricted to road traffic messages, aimed at both private motorists and professional drivers. Some public transport information is processed at the P4 radio station's Traffic Information Centre (TIC), but this is distributed only through radio broadcasts. The reason is that distribution of messages about public transport on the other platforms would have required additional development costs, and to start with it was decided to concentrate on road traffic messages.

Messages cover road traffic conditions, but the radio broadcasts include some public transport information.

1.4 Technical description

Information for the service is collected from several data sources. The most important sources are road users, radio listeners, and the Public Roads Administration (NPRA). In addition data is obtained from the police, the P4 traffic surveillance helicopter and a team of observers: the P4 Road Team. This team has been specially recruited to provide information for the service, and consists of professional and private drivers who spend considerable amounts of time on the road.

The service uses information from a specially recruited team of drivers who report on traffic conditions as they encounter them, a traffic surveillance helicopter, the national road administration's data, and the police.

Data from roads administration are retrieved from the NPRA TTI database through their public web site[4]. This database contains mainly of information on road closures (temporary, seasonal or permanent), but also some information about traffic conditions. It is not real-time information, but rather a general description of the current situation at particular locations. Information from road users can be reported to P4 by telephone, SMS or e-mail.

At the P4 TIC, messages from the road users are stored in the radio station's TTI database (which is in standard database software) using their tool Max Traffik (Figure 1.1), where properties of the incidents are added and/or specified. All messages are also coded with timing and location information. To obtain location reference details, Max Trafikk connects to the map engine at Bravida Geomatikk. The location reference may be in the form of coordinates, a section of road or a region.

4 - www.vegvesen.no/trafikk/vegmeldinger

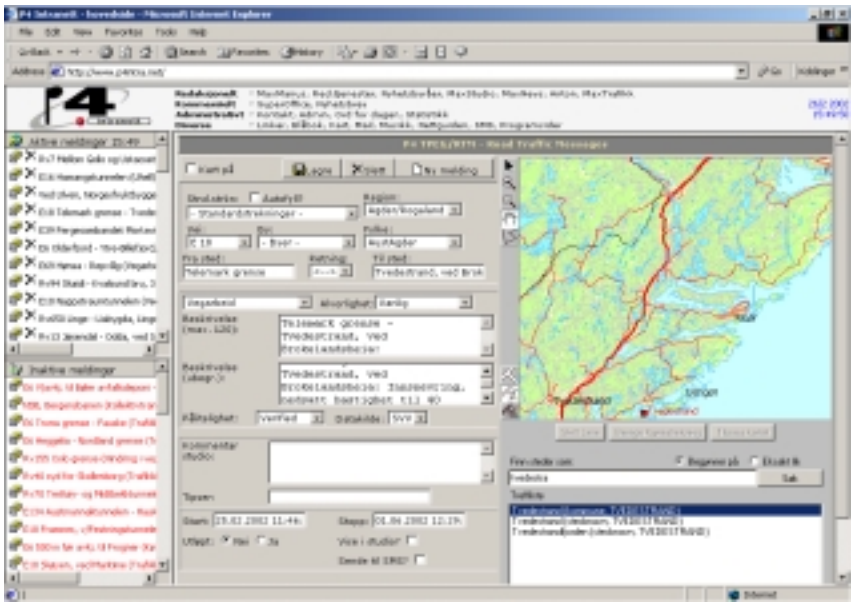

Figure 1.1 "Max Trafikk" information screen

At P4 the data collected from all the different sources are processed. During this fusion process, data are filtered and a quality check is performed. Messages are coded according to a simplified TPEG-RTM (Transport Protocol Experts Group - Road Traffic Messages[5]) standard, consisting of only two levels: Level 1 which is the top level in the TPEG-RTM hierarchy, and level 2 which is in free text form. The first level is used to classify the messages, while the free text contains the actual message. Using non-standard free text in this way simplifies the transfer of information from the NPRA TTI database.

Information from different sources is analysed, checked and integrated in a database, before it is formatted for use on the Internet site, in traffic broadcasts and in the WAP and SMS services.

As well as being broadcast and distributed on the P4 Internet site, data are e-mailed to Bravida Geomatikk for dissemination via the WAP service. From Bravida Geomatikk the data are forwarded to Telenor Mobil in a format which is readily accessed by standard software. The TTI messages are then sent by SMS to the end-users[6].

An overview of the dataflow within the entire service is shown in Figure 1.2. A detailed flow chart is shown in Figure 1.3.

5 www.tpeg.org

6 During the development of the service, Telenor Mobile has been re-organised several times, resulting in changes in the area of responsibility between Telenor Mobil and Bravida Geomatikk (partly owned by Telenor ASA, which is the parent company of Telenor Mobil). As a result the SMS service is currently run by Bravida Geomatikk. The text and figures summarise the position as it is described in the final report [1].

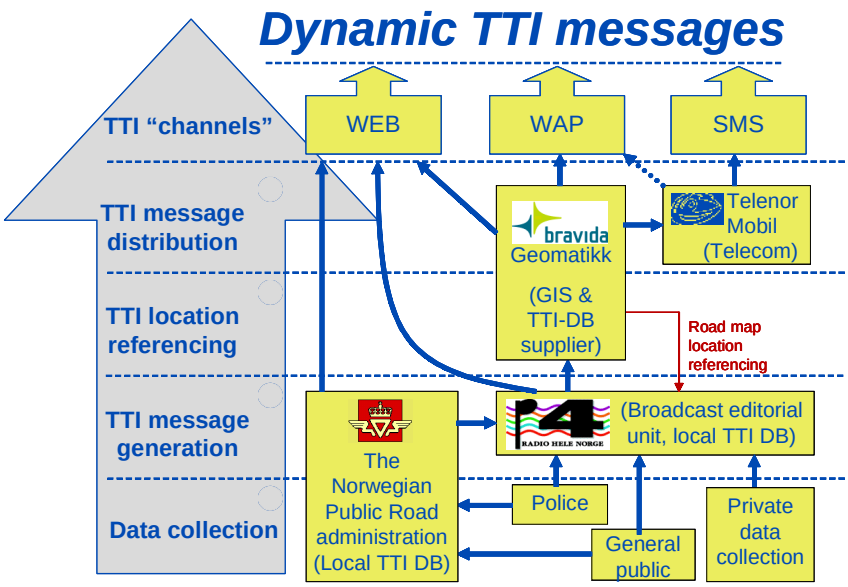

Figure 1.2 Overview of dataflow

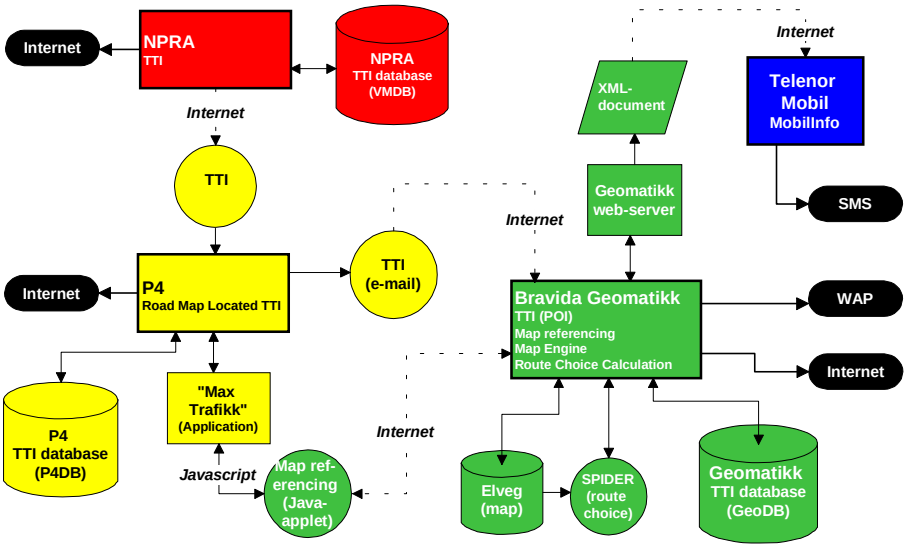

Figure 1.3 Detailed dataflow. (Colours show partners' responsibilities)

The Internet service is available free of charge, while the SMS service is a subscription service costing around 0.4 Euros per message. SMS subscribers sign up for the service through a web interface or by sending an SMS message in a specified format. Users are billed by their telephone operator in the same was as ordinary SMS messages. Revenues are shared between the content provider (P4), the solution provider (Bravida Geomatikk) and the telecommunications operator (Telenor Mobil), under a CPA (Content Provider Access) contract.

The Internet service is free of charge. SMS users pay for each message.

The revenues are shared between the partners, on the basis of a contrac-tual arrangement.

In both the Internet service and the SMS service, users can select either regions or predefined sections of the network for which they wish to obtain messages. At Bravida these selection criteria are compared with the location references for each message, and messages are only sent to individual users if they relate to the area which the user has selected.

Users can specify the area or sections of the network for which they will receive messages.

However not all the technologies or platforms have yet been fully implemented in this service; the technology and infrastructure for Cell Broadcast were not ready for implementation, and more time and resources are needed to develop Voice Input/ Output.

Further development is needed for some of the technologies.

Work is progressing towards the goal relating to the development of user interfaces. The remit was to develop on-board equipment for receiving TTI messages that would not have an adverse effect on the safety of the driving task. Several “eyes free” interfaces have been tested in the driving simulator at SINTEF, using a combination of touch and voice input/output, but this has not yet been integrated in the current service.

User interfaces have been tested, using touch and voice instead of a visual display.

1.5 Service set-up

Of the three organisations currently running the service, P4 is the one with the best previous experience of providing a TTI service. P4 has been broadcasting traffic bulletins since the company was set up about nine years ago. TTI messages have always been an important part of the service to listeners. P4 did have a traffic information centre (TIC) at Lillehammer even before the development of this service, but during the ICT in Road Traffic project, routines for systematically processing messages and maintaining quality assurance have been developed. In addition significant improvements have been made in communication methods and in standardising the messages. P4’s main motivation for developing and running the service is to strengthen their position as the “number one” radio station for traffic information. To help with achieving this goal, P4 has invested in its own traffic surveillance helicopter and established the P4 Road Team. Although P4 receives its share of the revenue from the SMS service, the main source of funding for the TTI service is radio advertising.

The benefits of the service to the radio station are seen in promoting its position as the leading source of traffic information.

The main source of funding is from advertising.

The other two partners; Telenor Mobil and Bravida Geomatikk (formerly Telenor Geomatikk) have recently become part of the same company: Telenor ASA. Bravida Geomatikk is now partly owned (46%) by Telenor ASA. As a result of the reorganisation Bravida Geomatikk is the solution provider, while Telenor Mobil owns the mobile infrastructure, and handles the billing of the SMS service. The revenue from the SMS messages is not enough to cover the development cost. As mentioned earlier, the motivation for being involved in developing the service has been to use it as an example for promoting concepts and technical solutions, and to test new technology and services on new platforms.

Considerable effort has been devoted to developing the structure of the messages and ensuring their quality. A training programme has been developed for the staff at P4 TIC to ensure consistency, make staff aware of the consequences of misinformation and to ensure that staff members have a common understanding of the difference between important messages and "noise".

High quality messages are ensured through careful technical analysis of the data, and a training programme for staff.

The unique properties of this service compared to others in Norway are that data are collected from different sources, both public and private, and that a great deal of effort has been put into the quality and structure of the messages.

1.6 Assessment and lessons learned

The WAP and SMS services have made the service available on new platforms but the number of users is currently low.

One of the aims of the development project was to be able to launch services on new platforms. This has been achieved by the WAP and SMS service, even though the number of users currently is rather low. The market for WAP services is generally small, and as a result of this the WAP service has been temporarily closed. Even on the SMS service the number of users is rather low at present, but this service will continue. The effort devoted to ensuring high quality information has been worthwhile. An evaluation of the message quality, carried out by SINTEF, showed a dramatic improvement during a 3-month assessment period early in 2001; for example the number of messages that were wrongly classified (level 1 in the TPEG hierarchy) fell from 88 to 3.

Message quality has improved dramatically.

Partners have spent significant effort in accommodating different ways of working so that they could co-operate to develop and implement the service.

Members of the partnership have found that people from different professions, each with their own specific cultures, need time to become accustomed to different ideas and ways of working in partnership. Partnerships must therefore expect to incur significant "transaction costs" in working together. Despite this, the partners providing this TTI service for Norway agree that they have achieved a satisfactory level of cooperation through developing and implementing the service. They also agree that the solutions and structures they have developed form a very good basis for further development of new solutions and services.

The partnership has been successful and forms the basis for developing further services in the future.

The various partners have had different motives for becoming involved in providing the service, but the public private partnership has been successful, and no major problems have arisen. It has not been necessary to make any special agreements, because the public data source used was already available free of charge and published on the Internet.

While the impact of the service in terms of its policy objective of helping to make better use of the road network has yet to be evaluated, the partnership has proved to be an effective way of gathering information from a variety of sources and integrating it to provide a high quality service for travellers that is available through a variety of platforms.

1.7 Future prospects

Plans are being considered for integrating the service with related services such as route planning and tourist information.

There are plans for marketing the service more widely, and also for integrating the TTI service on SMS, WAP and possibly also PDA (Personal Data Assistant) and MMS (multi-media messaging, which is being made available on third generation mobile phones), together with similar location services (Point of Interest, shortest route from A to B, to nearest Hotel, to address x etc.). These developments are currently under discussion between Bravida Geomatikk, Telenor Mobil and a new partner.

Potential future developments also include tailoring the service more closely to users' needs, enhancing it with travel time prediction and advice on route planning.

Although much effort has been put into developing user-friendly planning, and integrating it with other related services. interfaces, further work could potentially improve the service by ensuring that the information received can be customised even more closely to users' requirements.

The potential also exists to enhance the service by developing a system to generate travel time predictions and advise drivers on alternative routes in the case of incidents. Considerable resources will be needed to achieve this, including investment in new technology for data collection. For this purpose the use of electronic toll tags and positioning information from GSM mobile phones has been discussed, but these data collection techniques have not been tested in the ICT in Road Traffic project.

From the point of view of the travelling public, the service could be further improved in future if TTI services were integrated with other services using mobile technology and communication.

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- P4, www.p4.no
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- Telenor Mobil, http://telenormobil.no
- TPEG, www.tpeg.org

Table 1 – Synopsis Case Study Dynamic TTI messages

Title	Dynamic TTI messages
Country, Region, City	Norway, Oslo/Lillehammer
Duration / Status	The service has been available to the public since 2001.
Geographical area covered	Whole country
URL	http://www.p4.no/trafikk/ (http://telenormobil.no/tjenester/trafikkinfo/ and http://www.geomatikk.no/produkter/produkter_sms.htm)
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Norwegian Public Roads Administration (NPRA)
Infrastructure owners and data collection technologies	Data collected from NPRA, Road user team, Police, Traffic surveillance helicopter
Public sector data owners and providers	P4
Private sector data owners and providers	P4
Service operator	P4, Bravida Geomatikk (and Telenor Mobil)
Information editors / service database managers	P4 (and Bravida Geomatikk)
Communications providers	Telenor Mobile
Service provider to end users	P4 and Bravida Geomatikk
Market segments & end user groups targeted	No particular target, but focus on road users during peak hours.
Nature of public-private partnership	Public authorities deliver some of the data, collected from their website. NPRA has also participated in the R&D project, through which the current version of the service has been developed.
Strategic marketing partnership	Discussions and negotiations are in progress
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Road traffic all media, public transport only on radio broadcasts
Data quality	Dynamic, but not real-time. Resolution varies. Messages follows a simplified version of the TPEG-RTM standard

Information contents	Incidents, Traffic congestion, Weather and road conditions, Road maintenance/Road closure, (Delays in public transport broadcast on the radio only), (POI on PDA platform)
Distribution stage and transmission media	Internet, SMS and Radio broadcast. (The WAP service is temporarily closed).
Pricing policy and revenue streams	Subscription for each specified part of network, or regions. The internet service is free of charge, while users pay for the SMS service (about 0.4 Euro/message). Revenues are shared between the Content provider (P4), Solution provider (Bravida Geomatikk) and the telecom operator (Telenor Mobil)
Development of service use	All partners

Good Practice Case Study 15

STADTINFOKÖLN - developing urban traffic management, traffic information and mobility services in an integrated way (D)

Author: Marc Wolfram

13.05.2003 / final

1 Case Study: stadtinfoköln, Germany

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

1.1 Background

The Cologne region represents one of the major conurbations in Germany with around 2.5 million inhabitants and a concentration of 0.5 million jobs in the central city. In addition, the trade fair and various major cultural events attract a large number of visitors every year, leading to severe mobility problems at these times.[1]

Since 1991 the city has been implementing a municipal action plan for transport telematics applications (PVT), financed by local, regional and national funds.[2] At the same time the city has also participated in various EC-funded R&D projects.[3]

The enabling framework was the 1991 municipal action plan for ITS implementation.

Building on the systems implemented under these earlier programmes, such as a parking information and guidance system which has been operating since 1986, measures within the framework of the PVT included establishing a traffic management centre (TMC) run by the city, implementing variable message sign (VMS) systems, a public transport priority scheme and Park & Ride sites, and adopting a formal policy for data-sharing.

Basic TTI services are co-ordinated through the Traffic Management Centre, which delivers real-time traffic information to end-users via collective user-interfaces (VMS, radio, videotext,). In 1996 agreements were signed with a local network operator for the provision of TTI services via the internet (pre-trip traffic information, on-line parking information, video traffic images).

The city has seen successive extension of the urban TMC, parking information system and quality TTI services.

[1] The trade fair attracts 1.5 million visitors each year, while the traditional Carnival attracts approximately the same number in a single weekend.

[2] The PVT (Programm Verkehrstechnik - programme for transport technology) resulted in investments totalling €12.5 million between 1990 and 2000.

[3] SCOPE (DRIVE II/ ATT), EUROSCOPE, ENTRANCE (THERMIE), CENTRICO, EUROTRAFICOM

In 1997 the public-private partnership project “Cologne Park-info” was started.[4] This project provides real-time parking space information and forecasting via the internet, in-car systems and mobile phones.

A public-private partnership was created for the TIC through a federal R&D project.

In 1999 the R&D project “stadtinfoköln” was proposed, with the aim of establishing a high-quality traffic information centre (TIC). It was chosen by the federal government together with urban transport telematics projects in four other German cities for funding through its research programme “Mobility in conurbations”.[5] All of the project consortia selected were required to develop business and financing models for the systems and services they were planning to implement, and to form public-private partnerships.[6] For Cologne, this meant an organisational separation between the TMC operated by the city, and the TIC set up as a partnership. Federal funding was provided at different rates for the various types of partner in stadtinfoköln:

- Industry: 40%
- Small- and medium-sized enterprises (SME): 50%
- City of Cologne: 80%
- University departments: 100%

1.2 Goals

Strategic objectives link traffic development, cost efficiency, quality of the urban environment and promotion of the location to attract businesses to the area.

The stadtinfoköln project has a number of interrelated overall goals that have guided the specific set-up and technological solutions offered. They reflect the fact that beyond the traffic and transport related objectives, strategic public interests have played an important role. These goals are to:

- Assure mobility, but achieve a modal shift towards public transport modes
- Reduce emission of pollutants in the conurbation
- Reduce the economic costs of congestion
- Promote Cologne as a business location and develop know-how
- Improve quality of life
- Improve traffic management possibilities

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[4] Partners were: City of Cologne, BMW AG, Ford AG, Cellway, NetCologne, Technical University Aachen, Siemens AG

[5] http://www.mobiball.de

[6] Partners are: City of Cologne, ave GmbH, BMW AG, Robert Bosch GmbH, CAOS GmbH, CarPool GmbH, Dambach-Werke GmbH, DLR e.V., Ford Forschungszentrum GmbH, ISB RWTH Aachen, Isac RWTH Aachen, KVB AG, meteomedia Deutschland GmbH, PTV AG, SfV Universität zu Köln, Siemens AG

The specific aims of the project are to make traffic information available to individual devices (e.g. in-car systems, Personal Data Assistants) and create new mobility related services (e.g. parking reservation and payment), and thus to effectively improve the existing traffic management functions. The general philosophy is to follow a pragmatic "step-by-step" approach, using the available infrastructures as far as possible.

The project has adopted a pragmatic step-by-step approach to ITS implementation.

1.3 User and stakeholder requirements

The implicit aim of stadtinfoköln in terms of ITS is therefore to build up a provider structure for the TMC/TIC that can be operated economically after the end of the project. The discussion about different models is now reaching a conclusion. The strategic public interests and non-monetary (image) benefits are seen to require public sector involvement. Also, the city authority wants to maintain final control over collection of traffic data. Thus the operating company will need to involve some form of public-private partnership.

The project aims to build up a provider structure for TMC/TIC with public and private partners.

The set-up and design of the services is aimed at two principal target groups. Basic information services are delivered free of charge to collective interfaces to ensure effective management impacts and a socially inclusive coverage. In contrast, specific on-trip and real-time services are delivered only to individual devices.

Both collective and individual services are provided.

1.4 Technical description

The stadtinfoköln TIC receives data from various sources. An 'open' system architecture has been developed which makes it possible to integrate separate systems on the basis of common interfaces. The architecture is based on Internet communications, using the HTML format. The use of CORBA[7] was considered, but was not adopted to ensure simplified management of the system and delivery of services to mobile devices (PDA, navigation units). For short-range communications 'bluetooth' wireless communications technology is being used.

The Traffic Information Centre has an open system architecture based on the internet (HTML).

Urban road traffic data is obtained from detection sensors covering the entire urban network (unique in Germany). A total of 37 operators of multi-storey car parks and four Park and Ride sites provide their occupancy data in real-time, while parking meters connected to the system provide occupancy data for roadside parking. Weather conditions and forecasts are obtained from a meteorological company, and the various organisers and promoters provide information on events.

Real-time data collection covers the entire road network, parking and weather conditions.

Public transport operators deliver static data digitally to the TIC, while incident information is delivered verbally. Real-time data for public transport is not available and cannot be communi-

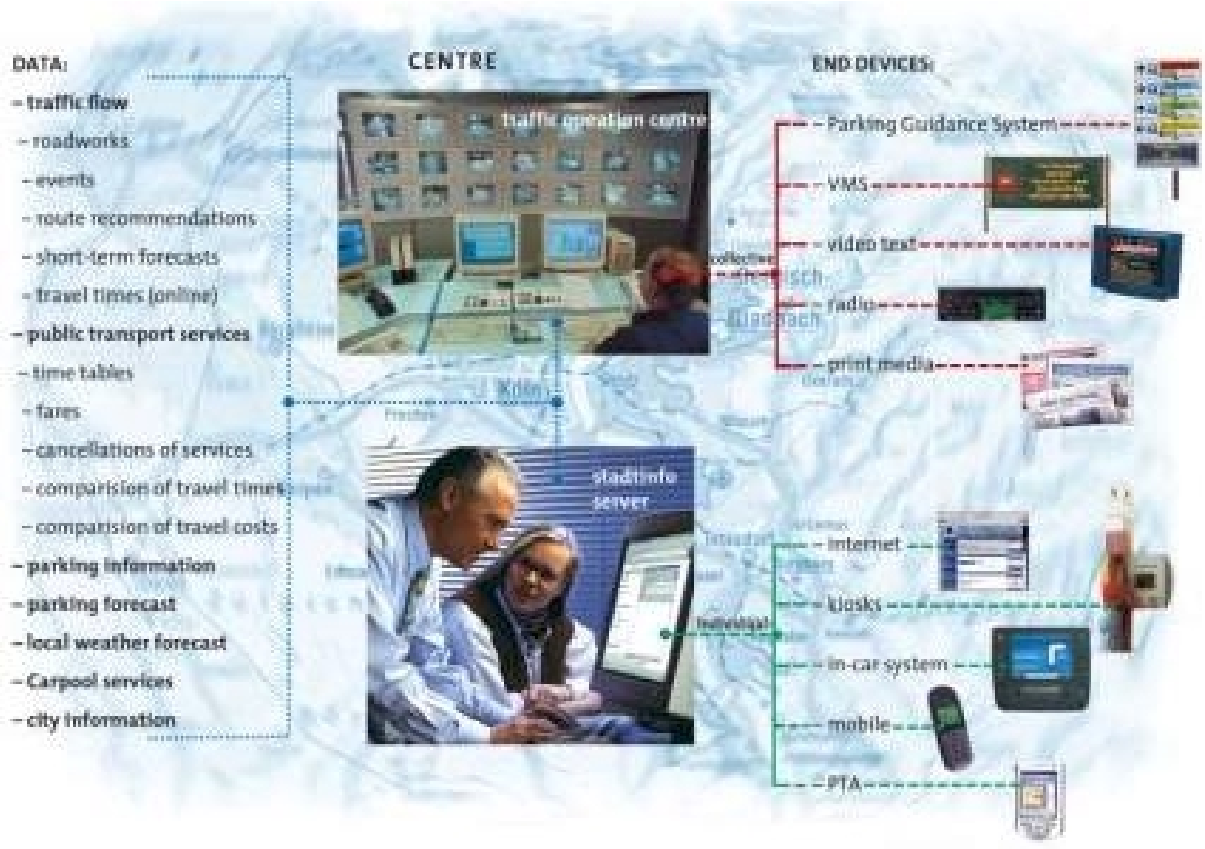
Static data covers public transport and city information.

[7] Common Object Request Broker Architecture

cated, but KBV, the local public transport operator, is currently planning to introduce an SMS service for incidents on its transport services.

Currently information and services are provided both pre-trip and on-trip. The Traffic Management Centre disseminates the collective information (VMS, videotext, TV, radio, printed media), while stadtinfoköln TIC disseminates individual information (internet, information kiosks, mobile phone, in-car systems). So far no contracts have been signed with private service providers for commercial data exploitation (Figure 1.1).

Figure 1.1: stadtinfoköln system architecture – data sources, processing and delivery channels



1.5 Service set-up

The stadtinfoköln project consortium involves 16 partners, including system and software providers, service providers, car manufacturers, transport operators, universities, and the city. This consortium is responsible for running the TIC until May 2003. A final operating model will need to be decided for continuing the services after the end of the project.

A public-private partnership consortium runs the TIC. A long term operating model will be defined after the end of the R&D project.

The partnership cooperation contract is binding only for the four year duration of the project. During this time the project partners have the right to free use of the traffic information, of applications, services and developments.

The internal organisation of the project consists of 14 work packages dealing with information service contents (parking, private transport, public transport, forecasting, time/cost comparison, weather, car-pool), technical issues (geo-referencing, system architecture, data structures, operating structure, devices) and evaluation (user acceptance and traffic impacts, economic assessment). The final evaluation results will be available from May 2003.

Evaluation and comparative analysis of the R&D projects will be available from May 2003.

In addition five groups including participants from the other four "Mobility in conurbations" projects have been working on traffic management, operating models for TMC/TICs, traffic status analysis and forecasting, Geographical Information Systems, and intermodal services.

1.6 Assessment and lessons learned

Although an evaluation of the specific impacts of the stadtinfoköln project has not yet been finalised[8], measurable results of the city's traffic and ITS policy are fairly positive.

Between 1991 and 1998 public transport passenger volume has *increased* by 25%, and while the motorways show an 18% growth in traffic volume, inner city traffic has *decreased* by 10%. Compared to annual operating costs of €1.4 million, the economic benefits total €9 million per year. At the same time, fewer residents perceive traffic problems and congestion in the inner city to be an important issue (1991: 65%, 1999: 40%).

The ITS policy has had positive effects on urban traffic volumes, modal split and perception of transport problems.

These changes rely on the combination of measures ranging from information and marketing campaigns, the provision of information services, traffic and parking management, to the promotion of public transport modes (new vehicles, public transport priority). stadtinfoköln is the most sophisticated element in this package of measures.

However it is important to stress the importance of the underlying conditions: the clear long-term political commitment and

Basic conditions for success have been long-term political commitment and implementation in successive steps.

[8] expected in July 2003

policy framework (PTV) on the part of the local government towards implementing ITS in Cologne has provided a stable base and security for planning the investments and establishing partnerships. In addition, the decision to adopt a pragmatic step-by-step approach has prevented the city from developing ambitious service structures or features that do not really match with present requirements and funding possibilities.

Defining the operating model for the TIC through an R&D project has been a successful approach.

The approach to the problem of defining an organisational and financial structure for the operation of the TIC, through the R&D project aimed at providing a tailored solution, appears to have been successful. In this the (obligatory) public-private cooperation has ensured that different perspectives and solutions have been taken into account.

There is a need for cross sector cooperation between government ministries.

For future R&D projects, the partners emphasise that the funding ministries (transport and research) also need to cooperate very closely to improve the possibilities of transition from project results into permanent operation, thus avoiding the production of high-quality stand-alone solutions that require further work after the end of the project before they can be implemented.

Technically, a particular success has been the demonstration of a service providing travel-time comparisons between public and private transport on a major road (Aachener Straße). However, this feature will not lead to the immediate creation of new services as the demand and financing are not certain.

1.7 Future prospects

The public-private partnership will become the TIC operator in 2003. It will be possible for this newly founded body to deliver traffic information to businesses (e.g. to hotels, retailers) and traffic data to private providers of personalised services. With this development, it is expected that the quality and variety of services will improve.

Some of the partners have agreed to test alternative operation models. The share contributed by the city has not been decided.

At present six of the original sixteen partners have agreed to continue cooperating to operate the TIC for one year, discussing and testing alternative operational models over this period. Meanwhile the TIC is being operated in a test-stage, making data available for potential value added service providers, although no concrete data exchange arrangements have been made to date. As the financial situation of the city does not currently allow major investments, the operating entity will have a mixed public-private accountability. The city's share is still subject to negotiation (between 25% and 50%).

Integration with regional TTI services is envisaged.

As part of a major future TTI demonstration project covering most of North Rhein-Westphalia (RuhrPilot[9]), it is expected that an interconnection with the stadtinfoköln information server will

[9] http://www.projektruhr.de/de/ruhr_pilot

be established in the near future. In particular, TTI coverage of the transport links with the nearby city of Bonn is expected within two years.

Last not least, at the strategic level the close cooperation between the city and some of the key stakeholders in ITS from the private sector is expected to contribute to the promotion of Cologne as a business location, with possible spin-off effects.

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Table 1.1 – Synopsis Stadtinfoköln

Title	stadtinfoköln
Country, Region, City	Germany, North-Rhine Westphalia, Cologne
Duration / Status	operative since 1998, continuous extension of services
Geographical area covered	Cologne region
URL	http://www.stadtinfokoeln.de;
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	city of Cologne
Infrastructure owners and data collection technologies	road authority (city): area-wide loop detectors, infrared detectors; public transport operators
Public sector data owners and providers	road authorities (city, Land), public transport operators
Private sector data owners and providers	car park operators, meteorological service, car-pool operator, address/geo-database provider
Service operator	city of Cologne (partly)
Information editors / service database managers	city of Cologne
Communications providers	PTV AG
Service provider to end users	city of Cologne: Stadtinfo-Server (central server with interface to TMC/TIC to store data as well as make accessible to several service operators)
Market segments & end user groups targeted	commuters and travellers in the Cologne region, all transport modes
Nature of public-private partnership	operating company envisaged as PPP
Strategic marketing partnership	involvement of private sector: car manufacturers, system providers, telecom operator
	Main Characteristics of Service Delivery
Modal coverage and mode integration	public transport, road, air, rail – travel time comparison between road and public transport for one major corridor
Data quality	real-time for road – static for public transport

Information contents	multi-modal route planner for public transport and private car with travel time+cost comparison, parking (forecasting, reservation, P&R), public transport schedules, car navigation, un-/planned incidents, short-term traffic prognosis, weather forecast, district car pool, city information; links to railway route planner and Cologne airport schedules
Distribution stage and transmission media	pre-trip and on-trip; *collective*: VMS, radio, videotext, TV, printed media; *individual*: internet, mobile internet (PDA), info-kiosk, in-car systems
User interaction	interactive journey planning; instructive information; (collective) push & (individual) pull services
Pricing policy and revenue streams	free collective and partly individual services; selling of information packages (business to business, business to customers) and/or charging for individual services are future options
Development of service use	not yet available

Good Practice Case Study 16

TRAFIKANTEN - public transport information for the Oslo area of Norway (NO)

Authors: Richard Harris / Kate Nastys

13 May 2003 / Final version

1 Case Study: Trafikanten, Norway

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

1.1 Background

Trafikanten is entirely owned by the three transport authorities in the Oslo region: Sporveien, Stor-Oslo Lokaltrafikk and NSB BA.

Trafikanten is a limited company, founded in 1986 to provide public transport users with information about services in the Oslo area of Norway. The company was set up on the initiative of the three public transport operators in the Oslo region:

- Sporveien - this is the city of Oslo's main operator and organising authority operating rail systems, and buying bus and ferry services;
- Stor-Oslo Lokaltrafikk (SL) – the authority for Akershus (surrounding region of Oslo); and
- NSB BA - this authority manages the state railways, which operates and controls all rail transport within and outside the Oslo region.

Trafikanten offers information and ticketing services for all public transport modes. This information can be sold free of charge to commercial public transport operators.

The three authorities are the only shareholders in Trafikanten, so the company is fully controlled by the organising authorities. The authorities can purchase services from Trafikanten on a yearly contract basis, while Trafikanten is able to sell its services free of charge to the commercial public transport operators which do not come under the organisation of the three main companies mentioned above. Trafikanten provides information and ticketing services for all public transport in the region (buses, trams, ferries, metro and trains), under the contractual arrangements with its owners.

Trafikanten provides a series of traveller information services:

- Service centre centrally located at the airport for all passenger services covering all public transport companies;
- Call centre;
- Visitor centre;
- Internet service through a Travel Planner;
- WAP based Travel Planner; and
- SMS based Travel Planner.

Information and journey planning services are available through a range of media.

The popular Internet service was implemented in 1997, and the WAP service was launched in December 1999.

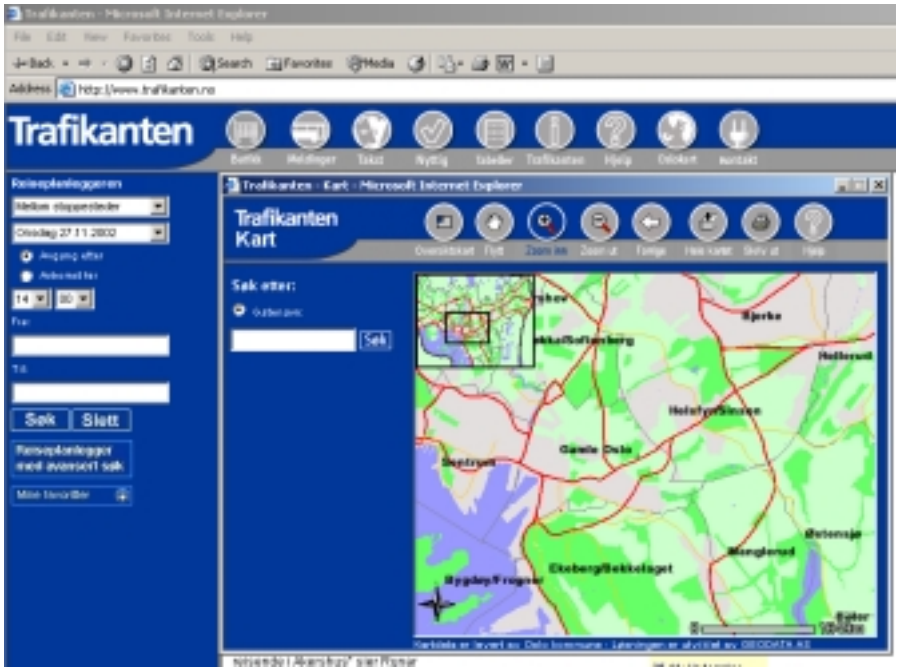

Figure 1.1: Trafikanten Internet information screen

Trafikanten is a local partner of the national association of companies distributing travel information “Ruteopplysningen 177”.

1.2 Goals

The overall aim of Trafikanten is to make travelling by public transport easy and "competition neutral". This means that customers should receive information on their desired journey based on what route is best for them, rather than encouraging the use of certain companies or services. Thus Trafikanten has an advantage in being run by the public transport authorities, rather than private commercial operators.

The aim is to provide a “competition neutral” service, finding people the best route without encouraging use of services run by any particular operator.

Trafikanten is also focused on developing new solutions and tools to improve the service offered to the public. Its activities include campaigns to promote public transport use.

1.3 User and stakeholder requirements

Because Trafikanten is fully owned by operators of the main public transport services, there is no problem with obtaining accurate information about their own services. However the competition neutral attitude of Trafikanten means that some of the other commercial operators are reluctant to provide information to Trafikanten. Before a really high quality service can be achieved, it will probably be necessary to set up a forum

To achieve the best information service, Trafikanten see a need to set up a forum for standardisation.

for standardisation, forcing commercial operators to provide Trafikanten with data on their services.

The users require an accurate service that is easily accessible and inexpensive to use. Trafikanten provides a 'one-stop shop' for public transport information in the region.

Public transport operators benefit from an integrated service, but in a competitive environment, do not see the benefits of a neutral information service.

1.4 Technical description

Public transport companies deliver data to Trafikanten using a small export format called "Regtoppformatet" which can be used by all existing route planning systems. At Trafikanten information is then imported into a database. When new information is imported, the database is updated, and updates are only made when new information is received. Small updates are made at random intervals but major changes are generally made regularly e.g. before and after school holidays.

Topp3 is the name of the Travel Planner that serves as the core software in a growing system of various distribution technologies. Topp3 is available in various forms. There is a more advanced version for the call centre and WAP service.

Trafikanten has five main ways of disseminating information. The Internet service (www.trafikanten.no) is the most popular, with a total of 1.4 million customers using the site during the year 2000, growing to approximately 2.6 million customers during 2002. This system gives users instant access to a travel organiser, which is able to give the fastest route between every public transport stop in Trafikanten's database. Other information such as maps, ticket prices and a help page are also provided.

The three most popular ways of obtaining information from Trafikanten are the telephone enquiry service, WAP and the Internet:

www.trafikanten.no

The WAP service allows users to access the Internet organiser from mobile phones. The information obtained can be described as 'permanent' as it is stored on the telephone until deleted. Whilst this service is not as popular as the Internet site, the number of users is increasing: from 98000 in 2001 to around 190000 in 2002.

Figure 1.2: Trafkanten Internet home page

A call centre provides ‘transient’ information to customers. Users phone a common telephone hotline number 177 to obtain any information on times, dates and mode of transport that are best suited for making a particular journey. The hotline provides the user with access to five regional travel information centres, making the new telephone system much larger and more dedicated to TTI than existing systems. Trafikanten travel information centres cover 25% of the population and 50% of trips made. Some commercial operators however have not opted to join the Trafikanten service. National Expressbus, National and International ferries services have shown a reluctance to pay to join the service, not wishing to participate in an unbiased journey planning system.

To access Trafikanten’s telephone service, users dial a common telephone number ‘177’ which can be used anywhere in Norway.

Unlike the WAP and Internet services, the call centres have seen a decrease in the number of customers from 1.3 million in 2001 to an approximate 950 000 in 2002.

New projects that are being planned include SMS, speech recognition and real-time information systems. The flow of information around the chain is explained in .

New services are being planned, including real-time information.

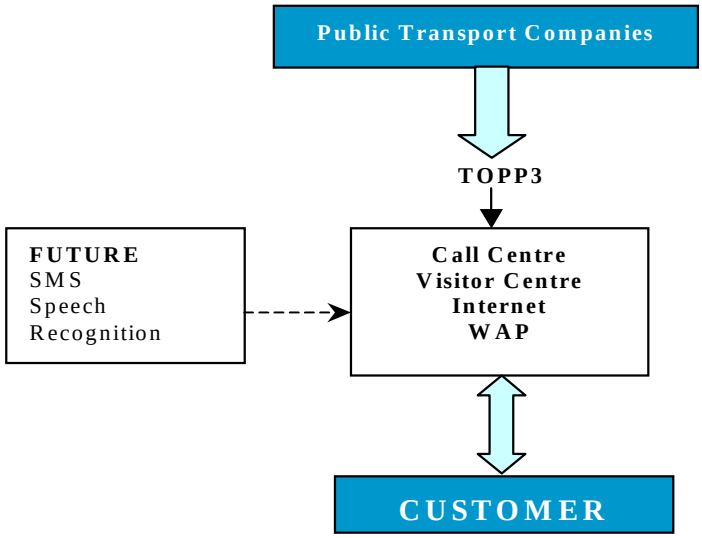

Figure 1.3: Information chain for Trafikanten

1.5 Service set-up

State grants contributed to the set up costs.

Sales of the software to other counties are used to fund improvements.

The original analysis of the market was achieved by investigating customers' main concerns under the previous separately organised information services. This analysis was then followed by a study of existing travel planners. State grants were provided to help to set up Trafikanten, covering 50% of the total costs for developing what was at that time the most advanced Travel Planner and Internet site available for public transport users. Once the Internet site was launched Trafikanten sold the concept and related software to a number of other counties in Norway that were developing the same types of model. The capital generated from these sales was used to fund improvements in the company's service. Another benefit is that the same Travel Planner software is used in a number of services, which allows for the possibility of developing nationwide systems in the future.

The travel planner has increased public transport use.

Recent surveys have been carried out with members of the public to discover the effects the Travel Planner has had on travel patterns of public transport. The surveys that were carried out showed that 12-14% of people would not have used public transport if Trafikanten's service had not been in place. The positive outcome of this can be noted when it is calculated that the ticket revenue from the extra 12-14% of people exceeded the operating costs of the call centre by 50%.

With the privatisation of more public services, Trafikanten have to struggle against becoming fragmented.

The service relies on obtaining information from all the major transport operators. This enables the service to be complete for all modes, and avoids the travel information being fragmented. However, many public transport operators have recently been privatised, and have set up their own information services. The result has been that data is no longer shared, and there is a growing concern that travel information services are becoming more fragmented and deregulated. If customers

have to telephone or visit three or more websites to obtain information about a public transport journey, it is likely that they will be inclined to give up on these services and potentially loose interest in public transport, using the car as an alternative. It is therefore important that the needs of customers are considered.

Currently, Trafikanten obtain all of the main public transport data, but it is predicted this is likely to change within a year's time due to the public transport companies being less willing to distribute data. This will result in data that is less comprehensive and more fragmented. Regional initiatives to enable cross-region and cross company solutions and data sharing would be a real benefit for traveller information services in Norway.

1.6 Assessment and lessons learned

The Internet service has seen rapid growth but originally the number of customers using the WAP service was low.

The target audience for the WAP service had not been clearly identified and the service was less user-friendly than the Internet site.

While use of the Internet service has grown rapidly, the WAP service that was set up in 1999 has not had the growth in use that was expected. September 2000 saw only 2627 users of the service. It is thought this service was not as well received as expected due to target audiences not being clearly identified before the product was released. Also, there did appear to be some differences between the organiser provided on the WAP and that available on the Internet service, which may have discouraged users. The search on the WAP service allows only one piece of information to be filled in on each page, unlike the main Internet service, where details of requests can be entered more quickly, so it is quicker to find routes.

Two important lessons can be learnt from this:

- It is important to consider the ease of use and completeness of a service; and
- The needs of the public must be considered to discover any potential markets.

To avoid fragmentation, Trafikanten often subsidises smaller commercial operators so that they can be included.

As mentioned earlier, there are lessons that should be learnt from the fragmentation of traveller information services. Commercial private operators are unwilling to be included in competition neutral services such as Trafikanten and some are even willing to pay more for operating their own customer service. Deregulated public transport services have to be granted a licence to operate and therefore they operate under different regulations. At present these regulations do not include mandatory use of a public transport information service.

Trafikanten has learnt that to avoid the threat of fragmentation in their service, it is often worth subsidising smaller commercial operators in order to be able to include them in the service.

1.7 Future prospects

As mentioned earlier, Trafikanten is working to develop new services involving SMS and speech recognition, and is also developing real time information systems.

In the deregulated environment, standardisation of structures will be very important if traveller information services are to develop. At present there is no forum to ensure standardisation of information and services. The only guidelines that are enforced include the CEN (TC278WG3) and ISO (TC204WG8). There are many ideas and solutions emerging. One of which may be to follow the model of the Nordic countries that have set up national workgroups. Unless standardisation is implemented, there will be too many forms with little benefit to the companies that need the information. This issue will no doubt affect Trafikanten, like many other TTI service providers.

National working groups may be needed to ensure standardisation of information and services in a deregulated industry.

1.8 References

- www.trafikanten.nl
- www.stud.ifi.uio.no
- Interview and further contact with Jarl Eliassen

Table 1 - Synopsis Case Study: Trafikanten, Norway

Title	Trafikanten
Country, Region, City	Norway
Duration / Status	Founded in 1986
Geographical area covered	Oslo, Akershus
URL	www.trafikanten@trafikanten.no
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Sporveien, Stor-Oslo Lokaltrafikk and NSB (State railways)
Infrastructure owners and data collection technologies	Publicly owned
Public sector data owners and providers	The three authorities in and around Oslo
Private sector data owners and providers	
Service operator	Trafikanten, mobile telephone companies
Information editors / service database managers	Trafikanten

Communications providers	Database where all transport mode data is stored - TOPP3
Service provider to end users	Internet, WAP, Call and visitor centre
Market segments & end user groups targeted	All public transport users in Oslo and the surrounding municipalities
Nature of public-private partnership	
Strategic marketing partnership	
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Multi modal service
Data quality	static, historic
Information contents	personalised journey planning (preferred mode, route)
Distribution stage and transmission media	pre-trip via internet, WAP, call and visitor centre. On-trip via WAP.
Pricing policy and revenue streams	pay-by-call,
Development of service use	

Good Practice Case Study 17

TRAFIKINFO - integrated traffic and travel information services in Copenhagen (DK)

Authors: Richard Harris / Kate Nastys

May 2003/ final version edited by JH

1 Case Study: TRAFIKINFO

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

1.1 Background

The responsibility for managing traffic in the Copenhagen area of Denmark is shared between several authorities and public companies. TRAFIKINFO was formed to enable these organisations to co-operate in sharing and disseminating traffic and travel information with the aim of helping to encourage users to make informed decisions when choosing which modes of transport to use, and also to make better use of existing transport infrastructure.

TRAFIKINFO aims to encourage more informed travel decisions and better use of infrastructure through integrated TTI services.

TRAFIKINFO was formed in 1986 as a co-operative organisation. Membership is voluntary and is renewed each year. Members pay an annual subscription, which is used to fund TRAFIKINFO activities. Activities are governed by a Steering Committee consisting of representatives from each of the members. The members are:

The TRAFIKINFO forum members are the main public authorities and organisations concerned with traffic and travel in the city.

- Greater Copenhagen Authority (HUR)/Copenhagen Transport (HT) (bus authority)
- The City of Copenhagen (local road authority)
- Frederiksberg Municipality (local road authority)
- Copenhagen County (local road authority)
- The Danish Road Directorate (national road authority)
- The Danish National Railway Agency (national railway authority)
- The Danish State Railways (national train operator)
- The Danish State Railways, S-train (local urban train operator)
- Ørestad Development Corporation (local urban metro authority)
- The Copenhagen Police (police authority)

TRAFIKINFO is the only forum in which all the organisations with responsibility for traffic in the Copenhagen area meet regularly.

From an informal start, the group has continuously formalised its commitments and has created an action plan for 2001 –2006.

The way in which the group works together has evolved from an informal forum at the outset to more formal institutional commitments. In 2001 all the members agreed a common vision, strategies and an action plan for 2001-2006.

A common project plan was launched for the period 2002 - 2006 which will have two types of activity: small effective activities (such as the web site, co-ordinating information from different authorities and improving the quality of the traffic information broadcasts), and more ambitious projects.

The largest project is the TRAFIKINFO project, named after the forum itself, which is intended to demonstrate the effects of an intensive use of transport telematics systems along a well-defined east-west corridor. This corridor connects suburbs with the city centre and is part of the TEN[1] route between the Copenhagen area and Sweden (Figure 1.1)

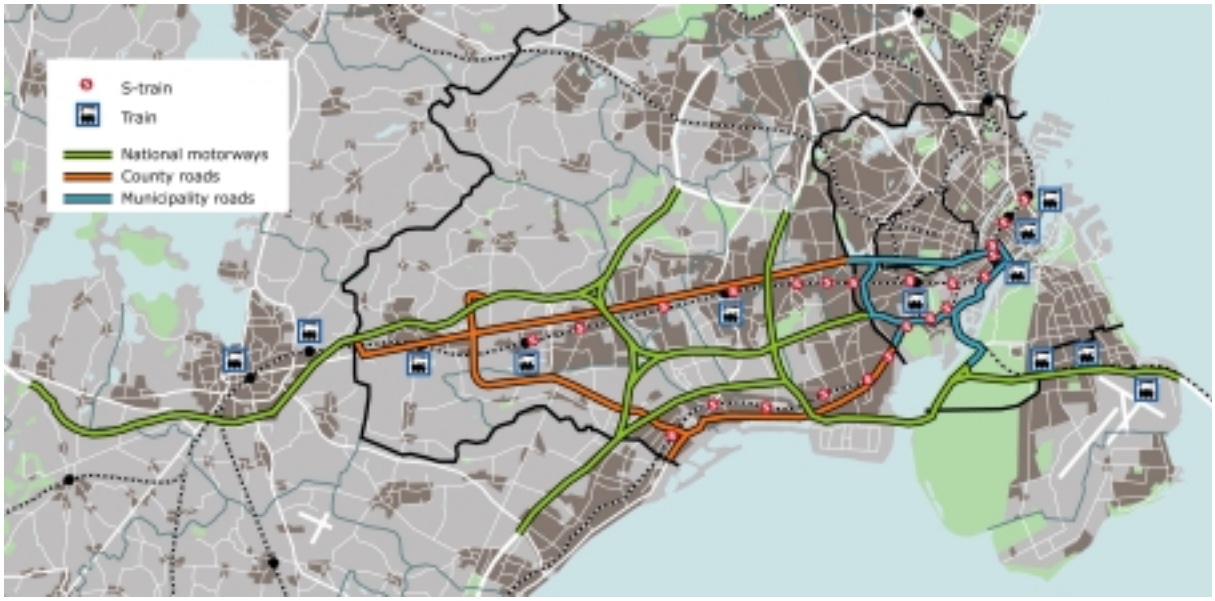

Figure 1.1: Transport infrastructure in the east-west corridor of Copenhagen

1.2 Goals

The objectives of TRAFIKINFO are to:

Achieving the conditions of collaboration: Common objectives and a long-term vision

- improve the joint use and co-ordination of traffic information and telematics

[1] Trans-European Networks

- be the forum for discussions and initiation of new joint activities, projects and collaboration.

The vision is:

- The public shall have an easy overview of the transport system and the possibilities it offers
- Travellers shall be offered pre- and on-trip information to help with choosing the best possible transport mode
- The active traffic management system shall contribute to achieving the members' transport policy objectives.

The TRAFIKINFO project plan includes:

Small effective improvements and larger joint projects on one corridor are combined.

- common development and standardisation of projects as a basis for data exchange between the parties
- joint implementation of ITS projects in the east-west transport corridor of Copenhagen.

The development of the corridor projects is currently in a funding phase, in which the members involved are securing funding and investigating the options for Public-Private Partnerships.

1.3 User and stakeholder requirements

The forum is for the public sector organisations and authorities involved in providing and managing traffic and transport in the area; it does not include user representatives or the broadcasting media who are involved in disseminating travel information.

Individual forum members retain ownership of data and infrastructure.

Within the forum, collaboration is based on the principle that each organisation retains ownership of their own data and ITS infrastructure. This is considered to be the best way of securing responsibility for the quality of data, staying at the forefront of developments, maintaining contact with customers and end users of the information chain, and promoting the activities of the members.

Services are free to the general public and designed to help meet transport policy objectives.

The TRAFIKINFO forum provides traffic information free of charge to the end users. This is seen as an important element in promoting inter-modality and modal shift, contributing to reducing energy consumption and emissions, and improving transport safety and the capacity of the entire transport system.

The private sector has only limited involvement in traffic and travel information in Denmark, and there are currently no plans to encourage the private sector to develop traveller information services. Although there are no Public-Private Partnerships in this field, they are seen as a possible mechanism for providing additional information to the end users, for example web sites

about shopping and leisure facilities with links to travel planning web sites based on valid and reliable traffic information.

An agreement has been reached to ensure that private providers will only be able to obtain common traffic information from TRAFIKINFO if they have negotiated a contract for using the information. This contrasts with the situation for public transport information, where the aim is to disseminate information about the public transport system using as many channels as possible. While the Road Directorate requires private service providers to pay for the use of its traffic data, the public transport companies make all their data available for free.

The role of the private sector is still limited, but Public-Private Partnerships are being investigated for infrastructure finance or added-value services.

Public-Private Partnerships are also seen as a possible framework for joint financing of ITS infrastructure, such as a Build, Operate and Transfer solution for parking information systems.

There were plans for setting up a common SMS information service offering real-time information free of charge on all modes in a transport corridor, but these have been suspended because it has not been possible to agree on the policy over selling information: The Danish Road Authority uses one tariff for information about traffic on national roads. The Danish State Railways uses another tariff for information about train services, while for frequent train users information is free of charge, while the Greater Copenhagen Authority prefers information to be free of charge for all users.

However some of the partners have established SMS services, each covering their own modes, with different tariffs.

The plan for 2002 includes the following activities:

Activities cover a range of information services and the facilities and architectures to support them.

- Managing joint projects that have already been implemented (ongoing).
- Development of the TRAFIKINFO project (ongoing).
- Detailed analysis of the need for co-ordination, description of the members' information systems, investigation of the need for common systems and standardisation issues (ongoing).
- Investigating possibilities for Public-Private Partnerships in which commercial web sites provide travel planning services using links to travel information web sites (ongoing).
- Planning a subcontracted project to implement a Park & Ride information system using VMS and Internet (ongoing).

- Planning a subcontracted project for a real time information system for public transport using displays and supplying other information services (ongoing).
- Planning a subcontracted project for a real-time information kiosk with a 'touch screen' Internet information service for travellers about their onward journey from a public transport terminal (ongoing).
- Establishing a common system architecture for public transport information (ongoing).
- Creating a common 4-digit telephone number for public transport information in the Copenhagen area.
- New versions of the common home page www.trafikinfo.dk will be launched soon.
- Work on standardisation of bus priority in signal systems.
- Innovative opportunities and new ideas (ongoing).

1.4 Technical description

www.trafikinfo.dk provides dynamic traffic information and journey planning.

Sharing information through TRAFIKINFO has enabled a flexible platform to be developed for supporting a range of traveller information and traffic management services for the Copenhagen area.

TRAFIKINFO members have a common web site (http://www.trafikinfo.dk), which offers current traffic information and support for journey planning, presented in a co-ordinated way (previously information was available separately from the various authorities). The web site presents dynamic real-time information direct from the authorities and in future the intention is to develop a comprehensive traffic information service with advantages of integration; for example including Park & Ride information and other services that depend on collaboration between organisations.

TTI quality and broadcasting have been improved through standardisation and co-ordination.

One of the first achievements was to standardise the interface for reporting traffic incidents to the main radio station in the Copenhagen area, Copenhagen Broadcast Company. Agreements were reached for providing traffic and travel information via fax and email to the Broadcast Company, and broadcasting information about all modes in a co-ordinated way to radio listeners. Subsequently, the agreement between the authorities was refined to define the levels of roads and the types of incident to be included in the traffic broadcasts, and a standardised description of the locations, time issues and the type of incidents. Advice to the broadcasting company was also provided on where to obtain the relevant information from the transport authorities, and how to present coherent information

on all modes of transport. Thus the quality of the information available through traffic broadcasts improved dramatically.

More recently, a common web-based information service on events and road works has been developed, and is maintained by the forum. The police and each road authority deliver their information via protected Internet pages direct to a common database, from which the information is provided via www.trafikinfo.dk to the end users. The end users can see the information on maps. There is also a free subscription personal e-mail service, which provides daily bulletins; users may choose to receive more frequent bulletins or to receive information only for selected routes.

Events and road-works information is co-ordinated on the web site.

Users can obtain maps and a free subscription e-mail service tailored to individual routes.

The forum is also developing traffic management services. For instance a common standard is being developed for bus equipment and bus priority signal systems, which can be used by Greater Copenhagen transport and all road authorities in the Copenhagen region.

Traffic management services are also being developed.

1.5 Service set-up

The TRAFIKINFO forum was set up by directors and other decision makers from the authorities, who were keen to meet together and discuss ideas for collaboration in a good team spirit. Collaboration in the forum is based on maintaining a balance between the individual interests of those involved, and the need for collaboration. From the beginning the strategy has been based on the implementation of small secure successes.

Transport decision makers set up the forum, seeking the benefits of collaboration. Success has been achieved working in small stages.

The forum has shown that independent public partners can successfully make progress in the same direction, if this is done in small stages. Results could have been achieved more quickly if there were a common governing body. But in the absence of such a body, the only way to make progress has been through this voluntary collaboration.

All parties in TRAFIKINFO pay a yearly basic fee of around €30000, towards the costs of administration, activities and projects. The activities are planned a year in advance. Most projects are developed jointly and financed by the membership fee. Some projects are developed and financed by pairs of members working together. TRAFIKINFO also provides the inspiration for individual members to finance projects which are beneficial to the forum as a whole, but which would not otherwise have been implemented.

The forum is funded from members' subscriptions. Private service providers will pay for any information they use.

It has been agreed that private service providers will be charged for the information they use, under written agreements over responsibilities and financial arrangements, which provides an additional source of funding.

During the first few years, budgets were very limited, there was insufficient focus on collaboration at the executive level, while members found it difficult to prioritise between working on

The forum was less successful initially, when the focus tended to be on individual interest at the expense of collaboration.

collaboration and progressing the individual goals of their own organisations. As a result of these constraints, the TRAFIKINFO steering committee took a decision to re-focus on collaboration.

This process is now working successfully. Plans are approved step-by-step by the Steering Group, which meets 1-2 times per year. There are now common rules, contracts for operating and development of common applications, a common vision for the future, a common strategy and a project plan for 2002-2006.

1.6 Assessment and lessons learned

The motivation and commitment of individuals have been key to trigger the process.

Before TRAFIKINFO was set up, each authority produced different types of traffic information without co-ordination. The result was that the information provided to the public was not clear, and authorities were wasting resources. The motivation for the forum came from individual decision-makers in the various organisations involved in managing roads and transport in the Copenhagen area, who could see the possibility of improving the service to travellers if collaboration between organisations in the information chain could be achieved.

TRAFIKINFO has stimulated service quality improvements and the development of new services based on a flexible data platform.

TRAFIKINFO has achieved far more than simply co-ordinating the flow of traffic and travel information. By having operating budgets, and by enabling the information providers and those using it to manage traffic and travel in the area to meet each other regularly to discuss possibilities for improvements, better quality services and new services are being developed. Sharing information has enabled a flexible platform to be developed for supporting a range of traveller information and traffic management services.

The strategy of starting with small, cheap, and successful steps (such as improving traffic broadcasts and co-ordinating information from different authorities in one web site), combined with voluntary collaboration, has been easy for the organisations to work with. It has enabled planners and operators to work together constructively on practical collaboration across geographical and organisational boundaries and developing common information tools. Thus the initial successes were based on the voluntary involvement of the operators from the relevant authorities and simple solutions.

Voluntary collaboration, securing support at all levels in the member organisations, and a common vision have been key success factors.

Those working within TRAFIKINFO have found that it is crucial for the collaboration to secure support at all levels within the organisations concerned, from operators and planners, to the executive directors and politicians.

Data quality has been maintained by ensuring that individual data providers retain ownership of and responsibility for their data.

Another important factor in the success of the collaboration has been establishing the common vision, which has been accepted

by all involved. Once the overall vision was accepted, realistic objectives were set for working towards it.

1.7 Future prospects

The achievements planned for collaboration in the east-west transport corridor of Copenhagen in 2002 - 2006 are:

Park and Ride information: is intended to include information on availability of parking spaces, departure times for public transport at terminals, and travel times by car, bus and train based on real-time information from the relevant authorities.

Route Guidance information on major roads: will be based on real-time information from relevant road authorities (Figure 1.2).

Figure 1.2: Possible route guidance

Traffic Management system on motorways: will be based on data about actual traffic conditions. The data will also be available for use in other information systems.

Adaptive signal control systems for county and local roads: will also be based on data about actual traffic conditions and will be made available to other information systems.

Improved passenger information systems for public transport modes: at terminals, bus stops and in public transport vehicles, will be based on standardised real time information (Figure 1.3)

Personal pre- and on-trip information: will be based on real-time information from TRAFIKINFO and relevant authorities (Figure 1.4)

Figure 1.3: Improved passenger information systems in public transport vehicles

Figure 1.4: Personal on-trip information for drivers

The TRAFIKINFO forum has become a well-established organisation for the promotion of traffic information services in Copenhagen. The realisation of these plans, and the development of public-private partnerships to support additional services based on the flexible platform developed by the forum, represent a dramatic increase in the scope and scale of the forum's work since its formation.

Furthermore, there are good prospects for private sector involvement in specific areas: supplying authorities with hardware and software, service monitoring of information systems, and providing traffic information to end-users via radio

broadcasting and via websites e.g. for shopping and leisure facilities.

1.8 References

- Interview of and comments from Mogens Buch-Larsen, HUR, Sep. 2002, edited by Jens Thordrup, COWI, Feb. 2003
- "TRAFIKINFO 2006, Visions and strategy", 13. June 2001, English version, nov. 2002
- "TRAFIKINFO 2006, The first step", 1. June 2002, English version, nov. 2002
- http://www.trafikinfo.dk

Table 1: Synopsis of the TRAFIKINFO Case Study

Title	TRAFIKINFO - Traffic information in the Copenhagen area
Country, Region, City	Denmark, Copenhagen area
Duration / Status	1995 - ongoing
Geographical area covered	The Copenhagen area: The Copenhagen County, Cities of Copenhagen and Frederiksberg
URL	http://www.trafikinfo.dk
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	see below
Infrastructure owners and data collection technologies	• The City of Copenhagen (road authority) (verbal information about road works, electronic information about availability of parking spaces) • Frederiksberg Municipality (road authority) (verbal information about road works) • Copenhagen County (road authority) (verbal information about road works) • The Danish Road Directorate (national road authority) (verbal information about road works, electronic information about congestion status) • The Danish National Railway Agency (national railway authority) (verbal information about rail works, electronic information about expected and realised departure status) • Ørestad Development Corporation (local urban metro authority)

Public sector data owners and providers	• Greater Copenhagen Authority (HUR)/Copenhagen Transport (HT) (bus and local train authority) (electronic address-based travel planner, verbal information about disruption) • The City of Copenhagen (road authority) (verbal information about road works, electronic information about availability of parking spaces) • Frederiksberg Municipality (road authority) (verbal information about road works) • Copenhagen County (road authority) (verbal information about road works) • The Danish Road Directorate (national road authority) (verbal information about road works, electronic information about congestion status) • The Danish National Railway Agency (national railway authority) (electronic address-based travel planner, verbal information about rail works, electronic information about expected and actual departure times) • The Danish State Railways (national train operator) (electronic address-based travel planner, electronic information about expected and actual departure times) • The Danish State Railways, S-train (local urban train operator) (verbal information about rail works and other types of disruption, electronic information about expected and actual departure times) • Ørestad Development Corporation (local urban metro authority which opened its first lines in October 2002) • The Copenhagen Police (police authority) (verbal information about events which can disrupt traffic)
Private sector data owners and providers	None yet, but the possibility of selling information to commercial web sites is being considered, e.g. shopping and leisure information.
Service operator	Partly TRAFIKINFO and partly each authority
Information editors / service database managers	Partly TRAFIKINFO and partly each authority
Communications providers	Partly TRAFIKINFO and partly each authority
Service provider to end users	Partly TRAFIKINFO and partly each authority
Market segments & end user groups targeted	General public, radio companies, operators and planners at the authorities
Nature of public-private partnership	None at present, but possibilities for partnerships are being investigated

Strategic marketing partnership	Each authority is responsible for its own marketing. TRAFIKINFO creates comprehensive integrated traffic information with synergy advantages
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Inter-modal for private car, bus, metro (automated people mover), regional and national trains
Data quality	Real-time information Travel planner is based only on static time schedules but real time information services are being planned Users can obtain information bulletins on specific routes requested through a free subscription email service
Information contents	Address-based journey planning, personalised information by e-mail about disruption in bus services (preferred routes) and about events and road works (preferred roads), traffic status on railways, congestion on highways, vacant parking in city centre. There is also information on vacant parking at public transport terminals, but this is only updated once per month.
Distribution stage and transmission media	Radio broadcasts; pre-trip via internet and some e-mail services. Plans for a common on-trip information via SMS have been suspended but some individual operators are providing this commercially for some of their own services
Pricing policy and revenue streams	The service is free for end-users. If private providers emerge, they will be charged.
Development of service use	The number of users of www.trafikinfo.dk (including radio companies etc.) is approx. 4.000 - 30.000 per week, depending on the weather conditions. Since the launch of the web-site usage has increased by about 20 % per year. On days with particularly difficult weather conditions, demand can rise by a factor of 100.

Good Practice Case Study 18

TRANS BASEL - Internet-based travel information service for the Basel area (CH)

Author: Christian Egeler

March 2003 / Version 3

1 Case Study: TransBasel

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

1.1 Background

Trans-Basel is a multi-modal Internet-based information service developed in an R&D project.

TransBasel is a trial project that provides travellers with trip planning and real time information across Basel TAB, a conurbation which spans the borders of three different countries. The project was launched in Summer 2001 within the project TRANS-3, which received funding from the European Commission's *Information Society Technologies (IST)* programme of the 5th framework programme for Research and Development between summer 2000 and summer 2002. Switzerland is associated with this programme through the FOES. In its current format, the TransBasel service provides car, public transport, cycling and walking information via the TransBasel web site.

The main partners in TransBasel are:

The service relies on co-operation between operators and authorities in Switzerland, France and Germany.

- ***Switzerland***: Cantons Basel-Stadt & Basel-Landschaft
  Federal Roads Administration
  Federal Office for Spatial Development
  Basler Verkehrbetriebe (BVB)
  Swiss Federal Railways (SBB)
- ***France***: Société des Autoroutes Paris-Rhin-Rhône (SAPRR)
- ***Germany***: Landratsamt Lörrach

The success of the service relies on a history of existing co-operation between all the participating agencies.

Other organisations involved include various transport and car park operators, providing some of the information displayed on the TransBasel web site. A complete list of the transport agencies providing railway, bus and tram timetables as well as real-time traffic data is provided in Table 1-3.

The TransBasel web site is aimed at travellers (residents and visitors) in the conurbation of Basel, which crosses the borders of three countries (see Figure 1.1). The goal of the web site is to inform mode choice decisions: individual car, bicycle, walking, public transport, Park + Ride, Cycle + Ride. TRANS-3's achievement has been to implement, for the first time and for the general public, a web site which covers all of these modes,

enabling multi-modal journeys to be planned, and which covers comprehensively a medium-sized European conurbation and its catchment area. Of particular note, the site provides travel time information.

TransBasel is managed by a consortium of transport agencies in the Basel area. Co-ordination and implementation of the project is provided by:

- RAPP Trans AG, Basel (CH, Project Managers)
- S.A.S. Carte Blanche Conseil, Paris (F, Coordinator with the European Commission)
- R. Keller & Partner Verkehrsingenieure AG, Basel (CH)
- Rosenthaler + Partner AG, Muttenz (CH)

Figure 1.1 Geographical Coverage of Trans Basel

1.2 Goals

The strategic objectives of TransBasel are to improve the efficiency of the transport network, and to promote public transport especially multi- and inter-modal travel behaviour. TransBasel contributes to these objectives by providing travellers with an integrated set of information combining all modes of travel. This helps travellers to plan their journeys and raises the image of public transport.

TransBasel aims to improve transport efficiency, inform mode choices, promote public transport and encourage multi-modal journeys.

TransBasel is currently in a transitional stage, using external revenue to ensure continuity of the service. The local authorities

in the area recognise the need for the TransBasel service and appear to be willing to contribute to the service, enabling it to continue and be enhanced in future.

The service is in a transitional stage, maintained using external funding.

The local authorities, transport and car park operators participating in the project are customer-oriented and aim to provide efficient and accurate information to their customers, the travelling public.

TransBasel shows how the various modes of transport complement each other not only within a single city, but also across the region, which in this case extends over three different countries. For transport modes to exist alongside each other efficiently, it is important that all elements of journeys by each mode are optimised (e.g. avoid traffic searching for parking space) and that there is optimal co-ordination between modes.

1.3 User and stakeholder requirements

The multi-modal and cross-border transport information service TransBasel inevitably involves several types of stakeholders.

Travellers in Basel needed co-ordinated information covering cross-border journeys and linking journeys using services run by different transport operators.

Through TransBasel, road and public transport operators have provided a new information channel for their users. Because journeys in the conurbation cross international borders, road and public transport operators need to co-operate closely. Although there are cross-border commuter trains and bus services, the public transport timetables and travel information systems are only loosely linked, and services would improve if the operators worked more closely together in future. TRANS 3 is the first attempt at collecting data for all three countries and displaying it in a unified format.

TransBasel provides pre-trip planning information and real-time traffic conditions.

For the travelling public within the region, whether they are commuters, those making journeys for leisure or shopping, business travellers, or tourists, TransBasel provides a useful tool for planning journeys in advance and for checking the traffic conditions before setting out.

The public authorities responsible for planning and management the regional transport infrastructure and services see the multi-modal travel information service as a potential instrument for achieving regional transport policy objectives. There is also a political goal to strengthen identity and self-understanding in the TAB region, and interconnected transport networks facilitate this process.

The project consortium ran the information service and developed plans for a future organisation.

The information service is multi-modal and covers three countries, so its remit is not confined to a single transport operator or a single public authority. For the duration of the TRANS 3 project, the project consortium acted as the service operator, and the project worked on recommendations for the form and nature of the ultimate operator or operating consortium as part of its exploitation plan.

1.4 Technical description

The web site can be reached at www.transbasel.com

The web site www.transbasel.com is TRANS-3's main product, and its most innovative feature is the multimodal route calculation tool. The route calculation tool is more advanced than any other travel information service currently operating, in the way it integrates private and public transport modes. In addition, the web site serves as a platform for travel information including real-time information, webcams and traffic information on the network.

The screen capture in Figure 1.2 below illustrates the main TransBasel user interface. Here the user can enter origin and destination details for their trip, obtain parking information, view web cameras showing traffic on the network, link with timetable information and other traffic information, as well as obtain information about the project.

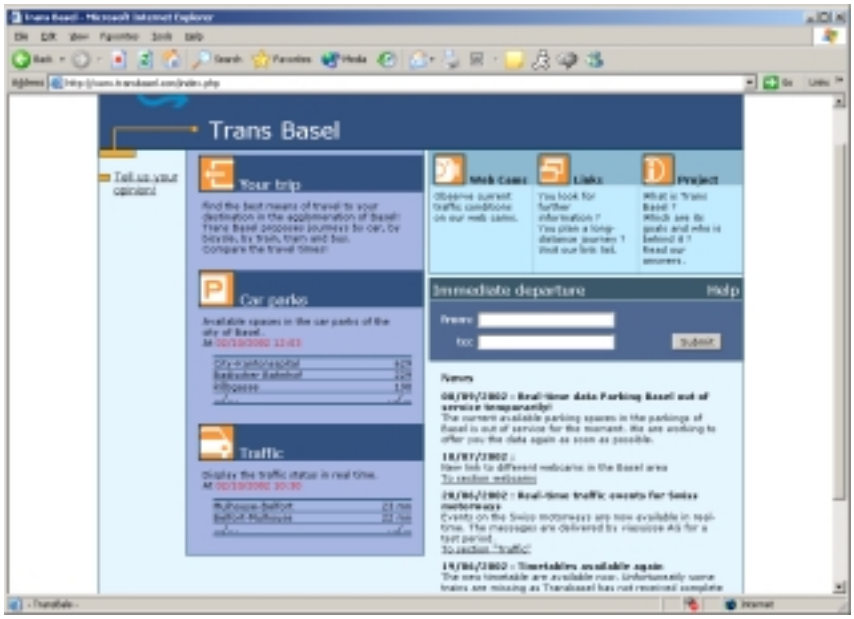

Figure 1.2 TransBasel entry page

1.4.1 Multi- and inter-modal route calculation

For planning journeys, travel time calculations are used to compare journeys by different modes and combinations of modes.

The site offers a **multimodal choice** of alternative routes and indicates journey time as a criterion for comparing public and private transport. In certain cases it offers **inter-modal solutions**, for example Park + Ride. The service may recommend Park + Ride if there are constraints (e.g. if the origin or the destination is inaccessible by car or public transport), or simply to optimise travel time (if Park + Ride is faster than car alone and public transport alone).

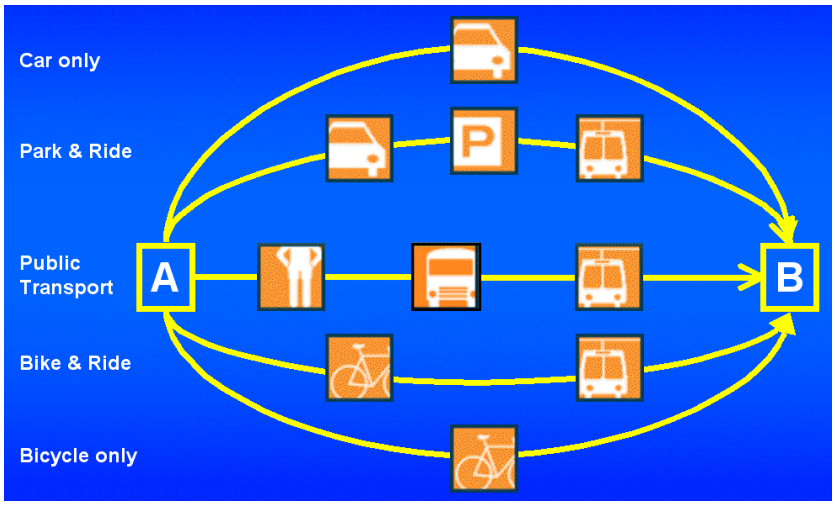

Figure 1.3 TransBasel: principles of route calculation

The **data** underlying the route calculation are:

- Fixed link travel time values for walking and cycling
- Daytime-dependent link travel time values by car
- Detailed (vehicle-by-vehicle) public transport timetables
- Real-time car park occupancy data.

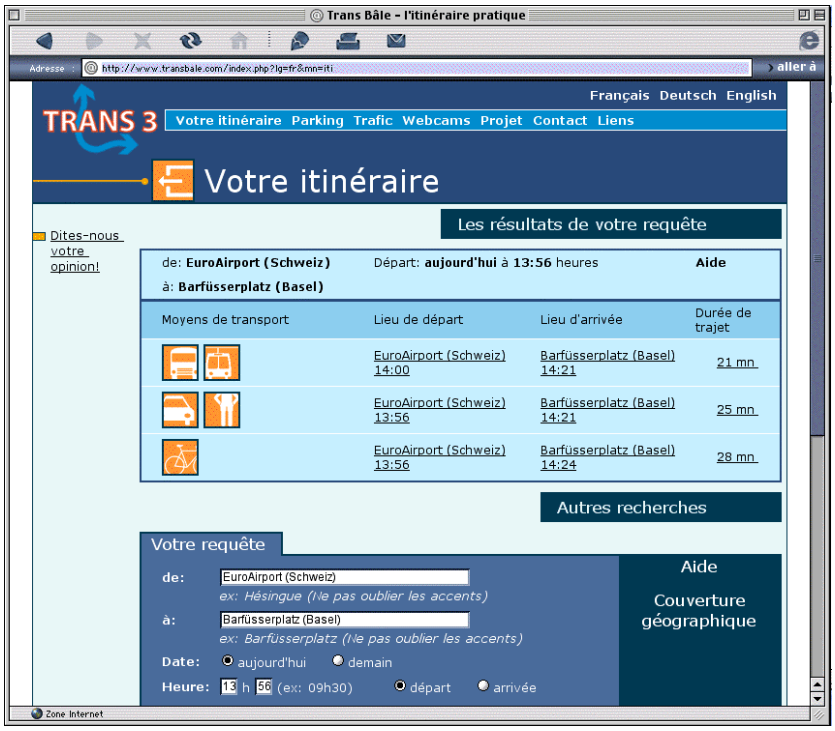

Figure 1.4 TransBasel: user interface route calculation

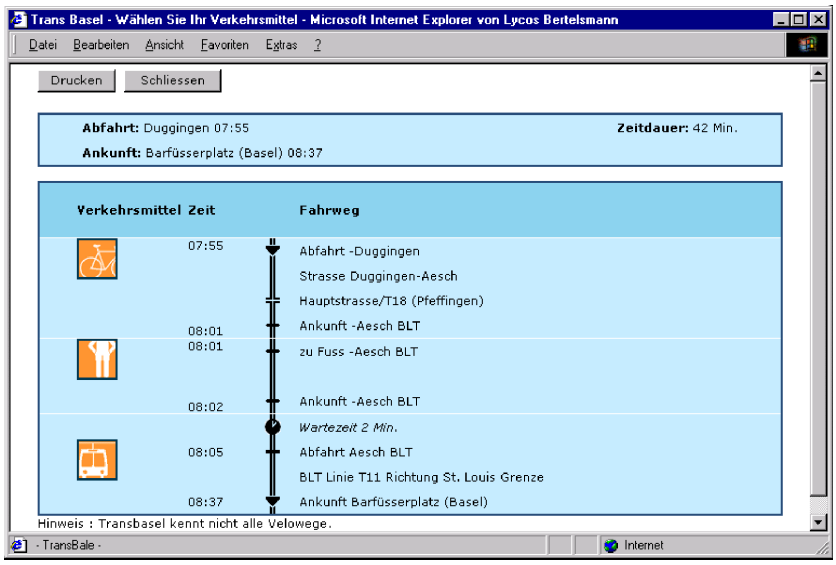

Figure 1.5 TransBasel: an inter-modal itinerary

1.4.2 Platform for multi-modal travel information

Other features of the TransBasel traffic and travel information service include:

- Real-time display of available **car parking spaces**
- Real-time display of **motorway traffic status** using maps (including travel times) and web cams
- A series of **links** to related web resources.

The data from the web cams cannot be used to identify individuals or vehicles.

The service includes real-time information on parking availability and traffic conditions on the motorways.

Web camera views and maps show traffic conditions.

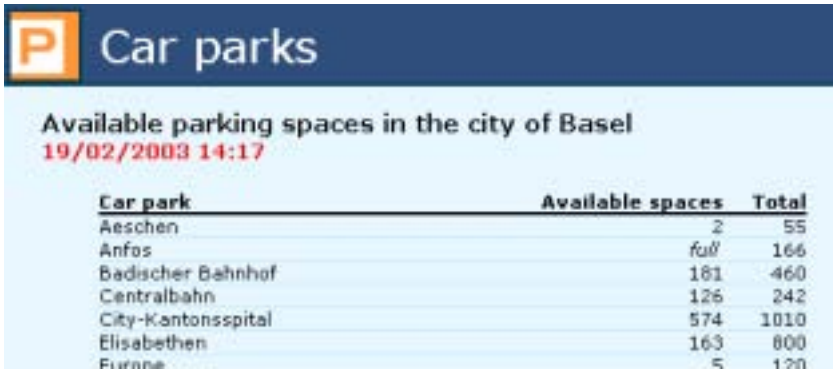

Figure 1.6 TransBasel: real-time parking information

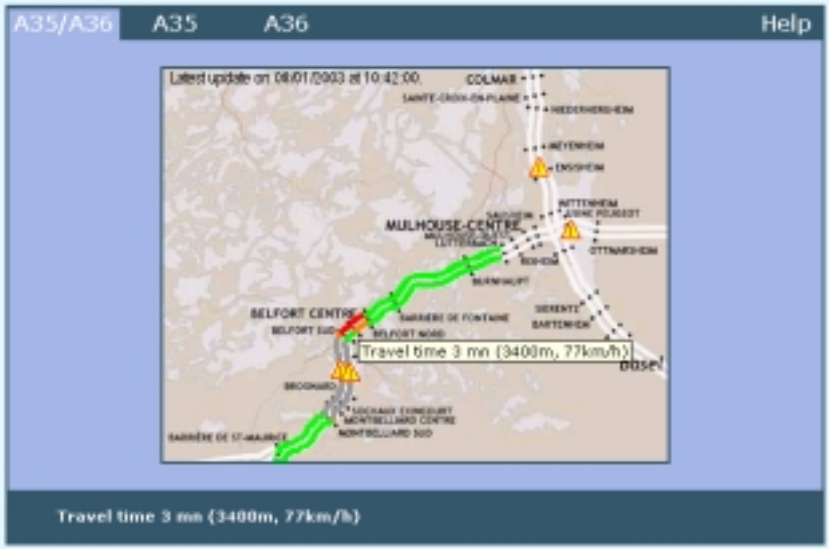

Figure 1.7 TransBasel: map of real-time motorway traffic status

1.4.3 Network

TRANS-3 has adopted a data model based on the ALERT Plus standard. The model is based on a strategic transport planning model, adapted to enable multi-modal journeys to be computed. The basic network is a graphic representation consisting of access points and links. Travel times are associated with the links and public transport and other information is associated with the access points.

The network can be updated regularly as changes occur on the ground, or to correct errors.

1.4.4 Traffic data

TRANS-3 aims to provide complete coverage of the network in the area of the service, because gaps (such as missing public transport routes) reduce the usefulness of the information service.

The network coverage is complete for basic information, but other information is available only on parts of the network. Routes are calculated using the best information available.

To reconcile the aim of complete coverage with the aim of including dynamic data where available, the concept of data layers is used. The basic layers cover the whole network. There are also higher-level layers which cover only those parts of the network for which further information is available. For each link, the route calculation uses the highest layer available.

Figure 1.8 shows the principle of the data layers and **Fehler! Verweisquelle konnte nicht gefunden werden.** gives an overview of the integrated data and the data sources.

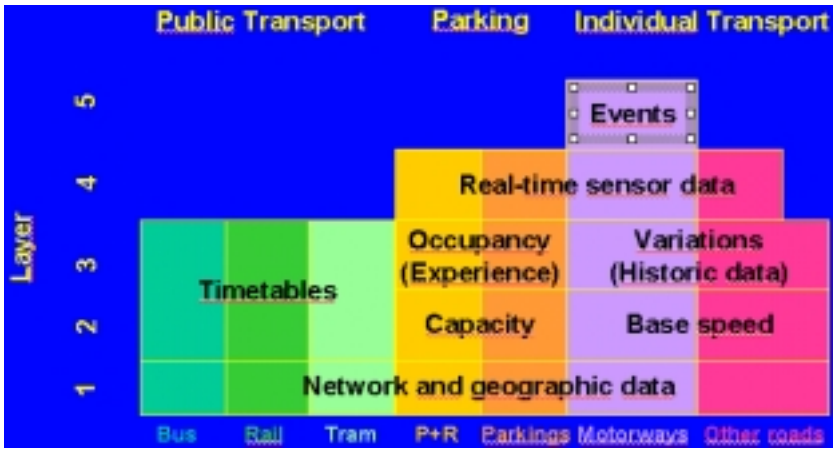

Figure 1.8 TransBasel: principle of data layers

Table 1-1: List of TransBasel data sources

Description	Coverage	Supplier / Origin
Static data layers		
Static network for **car and bicycle** modes Basic speed and variations with daytime	Full coverage. The network density decreases with distance from the centre of the agglomeration.	The data stem from the multimodal transport model GVM for the Basel conurbation
Static network of **public transport stops**	Full coverage for all including public transport routes.	Mixed origin : transport model GVM and coding by TRANS-3
Pedestrian network and interconnections with public transport stops	Density decreases with distance from centre.	Mixed origin : transport model GVM and coding by TRANS-3
Static network of **car parks** and related access links	30 car parks	Coding by TRANS-3
Timetables		
Rail, tram, bus timetables	Full railway networks Tram and bus networks in Swiss sector of agglomeration	SBB supplies integrated data stemming from several operators : BVB, BLT, AAGL, WB, Post, SNCF, DB
Bus timetables	Distribus network	Metro-Cars
Bus timetables	SWEG and SBG networks in German sector of conurbation	Regio-Verkehrsverbund Lörrach
Dynamic data		
Real-time **car park occupancy**	13 central car parks	Parking Guidance System Basel
Real-time **motorway events and sensor data**	French A36	SAPRR
Real-time **road events**	Swiss Alert-C network	Viasuisse supplies data stemming from cantonal polices
Real-time **motorway events**	French A35	CETE Bordeaux (French State agency)

1.4.5 Functional architecture

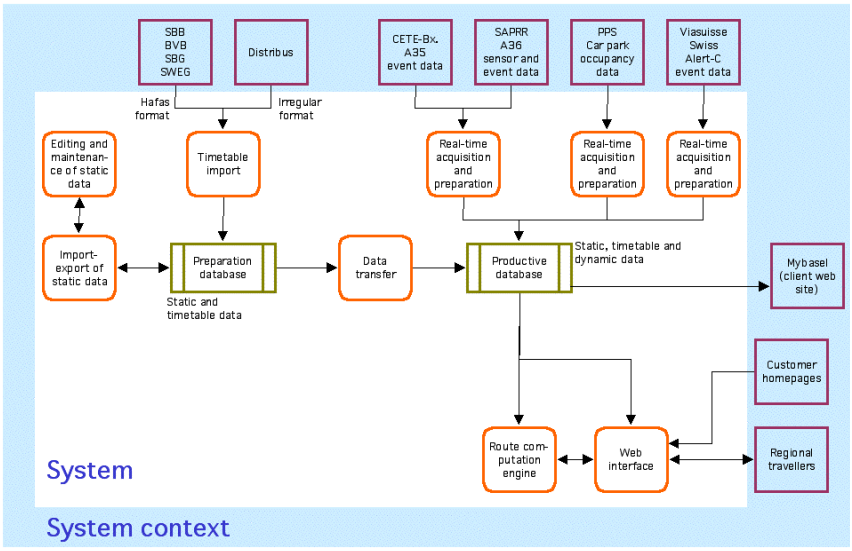

Figure 1.9 TransBasel functional architecture

A ‘preparation database’ was used for making regular updates to the information arising from the introduction of new services, changes in the network, and timetable changes. After consistency checks, this database was uploaded into the ‘productive database’ of the mirror system in Paris, where the changes could be tested in the Internet environment. When these tests were successful, the database could be transferred to the main server located in Basel (see Figure 1.9).

The real-time information is included into the productive database directly. All applications take the data they require from this database.

1.5 Service set-up

There was a recognised need for a traffic and travel information ‘one-stop shop’ to provide real-time and up-to-date information for the city of Basel.

Having identified this need, the TRANS-3 project was formed to develop TransBasel, under the European Commission’s 5th Framework Programme for Research and Development. It was a co-operative effort by all the various agencies involved in planning and operating transport in the region.

The information is free of charge, funded by the project and the consortium. Agreements ensure that the information is used only for TransBasel.

The TransBasel information service is free of charge, and the consortium currently relies on public funding and support from the project team. As a non-commercial operation, the service did not develop any standards or agreements on service quality during its first year of operation. However an agreement for data exchange between data suppliers ensured that the data were used only for the purposes of TransBasel.

1.6 Assessment and lessons learned

The web site has 100 – 150 users each day.

Immediately following a promotion campaign in the local media, more than 600 users per day accessed the TransBasel web site. Since the end of the campaign, the number of users has stabilised at 100 - 150 per day.

The site is well received by users but they are not likely to pay for the service.

The TransBasel web site has been well received by its users. However, it is important to recognise that the Basel region is relatively small, and has significantly less congestion than larger urban areas. Experience has shown that users are unlikely to pay for travel information services, and hence the continued provision of services such as TransBasel is likely to require public sector financial support.

TRANS-3 collected user feedback by means of:

- A paper questionnaire addressed to an **internal user panel** in March 2002,
- A short **on-line questionnaire** placed on the web site,
- A detailed user questionnaire distributed by e-mail to an **extended user panel**,
- A questionnaire distributed to a **panel of experts** and representatives of transport user associations.

The on-line questionnaire found that the majority of the 100 or so respondents approved of the service (see Figure 1.10).

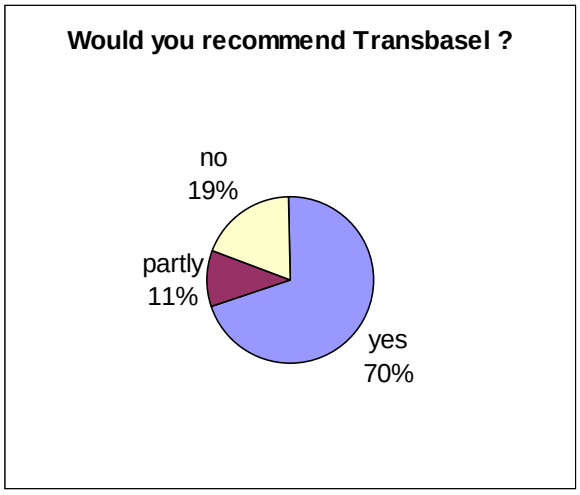

Figure 1.10 TransBasel user recommendation

The information is most useful for planning non-routine journeys but relevant real-time information can be useful for commuting.

The feedback from the extended user panel makes it possible to distinguish the usefulness of the service according to the reason for the trip: work or spare time. Generally the users consider the service more useful for spare time trips than for trips to work. Many users commented that they are familiar with the trip to work, but relevant real-time information can be useful for this type of journey.

Table 1-2 shows users views on usefulness, with information on web-cams having a lower rating than other services. Results for credibility of the information were slightly different, with a high rating for web-cams and lower ratings the more data have been processed.

Table 1-2: Usefulness of TransBasel services

	Route calculation	Traffic	Parking	Web-cam	Links
very useful	54%	53%	58%	45%	44%
useful	27%	29%	31%	30%	44%
useless	8%	8%	4%	17%	2%
don't know	11%	10%	7%	8%	10%

From the authorities' point of view, the web site's usefulness is determined by its impact on the citizens' behaviour, because they aim to use multimodal information as an instrument for optimising the use of the existing transport network and services, and helping to encourage a modal shift to public transport. The question about changing behaviour showed that 17% of users had changed their planned journey on at least one occasion as a result of consulting TransBasel.

17% of users had changed their plans at least once after seeing information on the web site.

Local advertising through radio stations and press releases and articles in newspapers or magazines helps to promote the service and increase the number of users. This has proved an important element of the success of TransBasel.

Advertising and media coverage have increased use of the service.

Providing an efficient and accurate service to the people of Basel, promoting public transport and inter-modal solutions have been important objectives. Meeting them has required the close cooperation of various agencies within Switzerland, France and Germany. The close working relationships between the partners in TransBasel have been the key to achieving the goals and to looking forward to a successful future. Willingness to participate in providing the TransBasel service to the public as well as the kick-starting funding sources (as explained in previous sections) provided a solid basis for a successful service that continues to provide traffic and other data to the travelling public. Maintaining close and efficient cooperation among these agencies will be vital for the continued success of the service in the future.

Close working relations between partners have been a key to the success of the service.

On the basis of the problems and experiences encountered, the following lessons can be learned from TRANS-3 which may be of value for further development and exploitation of multi-modal travel information services[1].

- The original intention was to display maps on the Web site, but the service was not developed because the feasibility

Lessons for the technical develop-ment of web-based multi-modal information services were identified in the R & D project.

[1] See TRANS-3 Deliverable D8 for details

study showed that there were not enough appropriate geographic data sources; urban public transport features are generally absent from geographic sources, transport operators do not have geographic descriptions of their networks, many sources lack continuity across national borders, and multinational editors have high entry prices. The effort for TRANS-3 in terms of manpower as well as monetary costs would have been too high.

- TRANS-3 has used the network of a strategic transport planning model as a starting point, and modified it according to the requirements of multi-modal route calculation. This process has been successful, but has revealed certain difficulties, which relate to abstractions and simplifications which are justified for a planning model (used by specialists) but have unacceptable consequences for travel information (intended to non-specialists). For example the planning model does not include place names; it may code a road with a parallel bicycle lane as a single link, which is misleading for travel information; it may model a single public transport stop when a bus route uses two parallel one-way streets with physically separated stops for each direction; and the planning model can vary the network density, which means omitting public transport stops, which is unacceptable for a travel information service.

Lack of geographic data for the transport network meant that it was too expensive to display maps.

The transport planning model was not detailed enough as a base for trip planning.

TRANS-3 also had to develop a common understanding on how to translate the physical network into the coded network topology because simple conformity to the logical data model does not guarantee homogeneous route calculation results.

The experience shows that to ensure good quality coding of the network requires good local knowledge of the actual network on the part of the individuals concerned.

- For manual coding of network features as well as for subsequent data maintenance, it is desirable to integrate the static database with a graphical user interface as used in Geographical Information Systems is desirable.
- Rights to used data, data formats, and data quality for public transport timetables are problematic. TRANS-3 has adopted a specific provider-defined format (HAFAS), which is widely used in Switzerland and Germany.
- TRANS-3 has successfully used standardised formats for obtaining real-time road traffic data; DATEX for events from SAPRR and CETE Bordeaux, ALERT-C for events from Viasuisse, and MI2 for sensor data from SAPRR.

Public transport timetable information has been difficult to use but standard formats have been successful for obtaining real time road traffic data from road operators.

1.7 Future prospects

At present, the web site is the only method of communicating information to the public. TransBasel is, however, currently

Options for extending the service to provide in-trip services using variable message signs, mobile devices and information kiosks are being consid-

reviewing the potential to use mobile communication technologies (e.g., WAP, SMS) to increase the availability of information and target on-trip users as well. There is also the possibility of extending the service so that it is available through information kiosks. The use of Variable Message Signs to increase information penetration is also being considered as a future option. However, while the local authorities in the area appear willing to continue funding the service, future funding has yet to be arranged.

The TRANS-3 project developed a business case for a future service, based on two revenue sources:

1. Public funding for the public-service component of the system: data acquisition, web site operation, and a "data warehouse" for third-party services.
2. A value-added service intended for business web sites. The added-value consists of coding access details for the client's shop or business premises within the TRANS-3 network, and creating a specific itinerary request form to be integrated in the client's business web site.

The business case for a future service is based on a publicly funded service with a value-added service for businesses.

TRANS-3 also considered options for a future organisation after the end of the project. The local authority partners favour a contractual arrangement, which is compatible as far as possible with their existing contractual relations with the transport operators. The scheme proposed by TRANS-3 is shown in Figure 1.11.

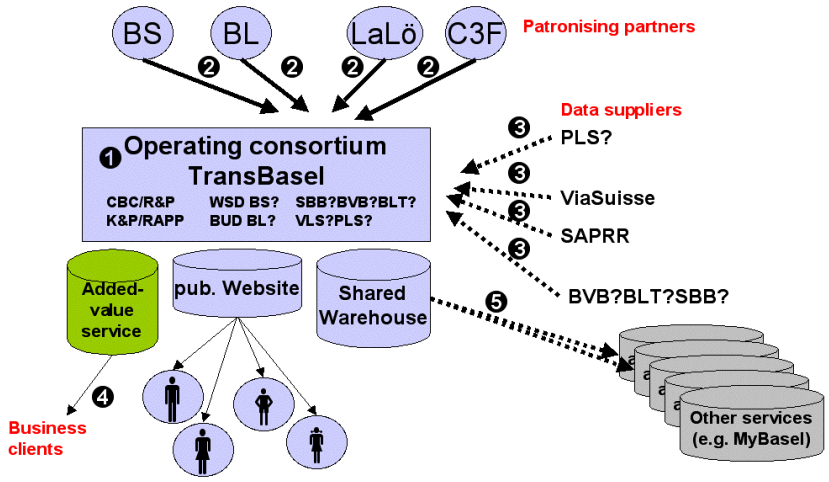

Figure 1.11 Proposed future organisation for TransBasel

TRANS-3 has also analysed the transferability of the service to other conurbations, and has identified software components which have an exploitation potential in other contexts[2].

[2] See the TRANS-3 Technology Implementation Plan, D9, for details.

To set up a system for the same purpose in another conurbation would have the following implications:

- Generic components of the software can be re-implemented without modification; this involves database implementations, route calculation software, and interface software for standard formats (HAFAS, DATEX)
- Further software components would have to be adapted; this includes tools for initial data import and for import of different timetable formats, web site coding (in there is to be a different visual appearance and differences in content), and software tools for map displays
- A third group of building blocks would have to be replaced: hardware, data, and new modules for dynamic data acquisition.

The analysis shows that the effort involved in transferring the service to another area depends essentially on the extent of static and timetable data resources which already exist in the new context.

Transfer of the service to other areas is technically feasible; the amount of effort involved depends on availability of geographic and transport data.

The multimodal route computation software has potential for exploitation in other contexts. It has already been implemented in TRIDENT, a demonstration project in the European Commission's 5th Framework Programme. Other elements which could be exploited in other contexts are the client software for DATEX and MI2, and the software modules for the generation of dynamic maps, which can be used for multi-modal applications as well as for road traffic status mapping.

1.8 References

- TransBasel Web site: http://www.transbasel.com
- TRANS 3 D2 "REPORT ON USER REQUIREMENTS"
- TRANS 3 D8 "REPORT ON EVALUATION RESULTS AND TECHNICAL RECOMMENDATIONS"
- TRANS 3 D10 "FINAL REPORT"

Table 1-3: Synopsis Case Study Trans Basel

Title	Trans Basel
Country, Region, City	Basel, Switzerland
Duration / Status	Web site launched Summer 2001-Currently Operational
Geographical area covered	Tri-national Agglomeration of Basel (Switzerland, France & Germany)
URL	http://www.transbasel.com
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Cantons Basel-Stadt & Basel-Landschaft Landratsamt Lörrach Swiss Federal Roads Authority Swiss Federal Office for Spatial Development
Infrastructure owners and data collection technologies	Above Partners/Relevant Authorities own the data and manage the service with a group of consulting firms Dedicated database (Transmitted info via the internet)
Public sector data owners and providers	Swiss Federal Railways (SBB) Société Nationale des Chemins de Fer (SNCF) Deutsche Bahn
Private sector data owners and providers	S.A.S. Carte Blanche Conseil, Paris R. Keller & Partner Verkehrsingenieure AG, Basel RAPP Trans AG, Basel ***(Project Managers)*** Rosenthaler + Partner AG, Muttenz (CH)
Provide railway timetables	Swiss Federal Railways (SBB) Deutsche Bahn AG (via SBB) SNCF (via SBB)
Provide tram and bus timetables	Basler Verkehrsbetriebe (BVB via SBB) Baselland Transport (BLT via SBB) Swiss Post (via SBB) Métro-Cars / Distribus SüdbadenBus GmbH (SBG) Südwestdeutsche Verkehrs-AG (SWEG)
Transmit data on car parking space availability in real-time	Betreibergesellschaft des Permanenten Parkleitsystems Basel
Transmit real-time traffic data on French motorways A36 & A35	Société des Autoroutes Paris-Rhin-Rhône (SAPRR) DDE du Haut-Rhin Viasuisse SA
Service operator	TRANS 3 Consortium, Basel
Information editors / service database managers	RAPP Trans AG AG, Basel Rosenthaler + Partner AG, Muttenz (CH)

Communications providers	S.A.S. Carte Blanche Conseil, Paris
Service provider to end users	TransBasel Website Administered by: RAPP Trans AG AG, Basel
Market segments & end user groups targeted	General Public (Business & Leisure Travellers)
Nature of public-private partnership	European Commission, Directorate-General Information Society Federal Office of Education and Science (FOES) TransBasel is a result of the project TRANS-3, which is receives funding from the *Information Society Technologies* (IST) Programme of the 5th Framework Programme for Research and Development of the European Commission. Switzerland is associated to this programme through the FOES.
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Pedestrian, bicycle, car, public transport Multi-modality, Inter-modality
Data quality	Real-time & static (historic & fix)
Information contents	e.g. personalised journey planning (preferred mode, speed, etc.), traffic status, points of interest, events, etc.
Distribution stage and transmission media	Pre-trip via Internet
User Interaction	Passive/instructive information; pull (on demand)
Pricing policy and revenue streams	No pricing or revenue, service is available to anyone with Internet access
Development of service use	600 users per day during radio campaign; 100-150 users/day average

Good Practice Case Study 19

YTV - traveller information services as a tool for promoting public transport and reducing car use in the Helsinki region (FIN)

Authors: Richard Harris / Kate Nastys

13 May 2003 / Final version

1 Case Study: Helsinki Metropolitan Area Council (YTV), Finland

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

1.1 Background

YTV organises public transport in the Helsinki region. The company collates transport data and disseminates information through other organisations and their own services.

Before YTV began to manage traveller information in Helsinki, operators were running separate commercial traffic and travel services without communicating with each other, which made it impossible to develop traveller information services. Earlier attempts at establishing TTI services in the area were inadequate.

In 1986 the first arrangements for co-ordinating information were made with bus services being managed by YTV, on an operator licence. This licence allowed operators exclusive ownership of a specific route, while all bus information was supplied to YTV, so that any improvements needed could be made. Before 1986 there was no easy way of planning a route involving using two different bus operators. The first task YTV accomplished was to integrate the bus timetables, enabling users to plan their journey regardless which company operated the bus service.

A new Passenger Transport Act came into operation in 1991, which changed the role of the YTV. It allowed the city municipalities and YTV to tender public transport passenger services for which they were financially responsible. The YTV set up research into competitive tendering and were then able to establish principles for this. By the end of 1992, the YTV arranged for competitive tenders for regional bus services to be set up and be operating by the beginning of 1995.

The first tender was awarded in 1994 and since then all regional bus services have been managed through competitive tendering.

In 2000, bus services operating in the Helsinki metropolitan area covered a total of approximately 83.2 million kilometres, of which 33.3 million kilometres were YTV's regional services.

YTV now use their extensive bus route coverage as a basis for collating traffic and traveller information. YTV has set up a journey planning website which provides advice on the best public transport connections in the Helsinki area. Plans to

expand the use of real time information services are underway for the future.

1.2 Goals

The role of YTV is set out in legislation, which defines the authority's main goal as maintaining public transport. YTV's objectives are:

- to maintain a 40 % model shift towards public transport and to reduce car use;
- to improve and update the real time information services;
- to organise regional public transport and implement regional transport services, and to foster co-operation between the member municipalities in matters relating to public transport;
- to approve the tariff and ticketing arrangements for public transport in the metropolitan area, as well as fares on regional public transport; and
- to draw up plans for the transport system and public transport in the metropolitan area, and to further their implementation.

YTV's public policy goals include promoting public transport and reducing car use. These, rather than commercial goals, have driven the development of its TTI services.

1.3 User and stakeholder requirements

The services managed by YTV produce the majority of the travel information. Operators are responsible for following YTV's schedules. YTV maintains an integrated timetable database.

Users and contracted service providers can gain information from YTV's database free of charge in almost all cases. The only service which YTV charges for is the mobile and telephone service, for which a small fee is charged to cover the administration costs.

Most of the information comes from services managed by YTV.

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

1.4 Technical description

YTV has various roles in the information chain. The authority deals with:

- raw data acquisition and supply (primary content provider);
- data fusion and/or processing (intermediate content provider);
- information supply (service provider); and
- regional data integration and policy development.

YTV does offer access to its data. The authority does this to:

- promote the development of services for new technologies;
- encourage the development of niche markets; and

- promote the development of market segments among customers.

Usually, the data which YTV shares with other organisations consists of static data and fare data from public transport, in both electronic and digital form. Organisations receiving data directly from YTV include partnership organisations aiming to produce end-user services by agreement with the authority. Content providers and software developers also disseminate data commercially, although they do so at their own risk.

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

YTV operates a website (http://pathfinder3.meridian.fi) which includes the public transport journey planner providing users with information on the best route and links between modes of transport in the Helsinki area. Information for the journey planner is obtained from the YTV database of timetables for the region.

The main distribution channels of TTI by YTV are through:

YTV operates a web site which includes a public transport journey planner, in addition to printed information, call centres and displays at stops:

http://pathfinder3.meridian.fi.

- Printed media;
- Call centre services;
- Internet and
- Stop displays (on-trip service).
- In future there is a possibility of a service via digital TV.

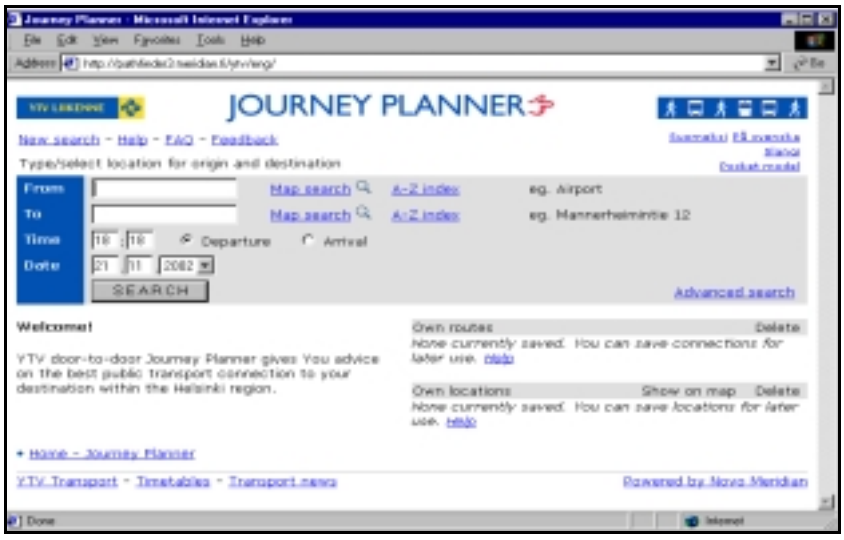

Figure 1.1: Internet home page for YTV's journey planner

1.5 Service set-up

YTV owns general public transport information, such as route and timetable information for those regional bus services organised by YTV. YTV are able to collect operational data from buses in both real time and historic format. YTV also compiles general public transport information for other transport

YTV collects information from all local and regional public transport operators in the area.

services in the region. The authority collects data compiled from four other organising authorities and the various local and regional transport operators. Only the long distance private coach operators are excluded.

YTV has formed a partnership with a service provider for the national transport database, which has been commissioned by the Ministry of Transport and Communication.

1.6 Assessment and lessons learned

YTV have learnt that traveller information services can be used to improve the quality of public transport services. In Finland there is a large amount of development with mobile technology, and the authority recognise that this is due to a strong policy statement. The demand for TTI is not so strong, even though there is high use of mobile technology.

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

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

A concern that YTV express is that a need has developed to establish minimum standards of data quality for TTI services. The authority believe that to be able to promote the use of public transport through availability of TTI information services, there should be a standard which defines a minimum level for the quality of information given to customers. This would result in users receiving the correct information and therefore being more inclined to use public transport, and potentially pay for the information service.

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

Business models have not yet been established in Finland for business development and finance for the next generation technology, real time information system on buses and trains. The telecommunications and software companies expect development, but TTI is not generating large amounts of income, which could be due to the lack of business models. Delays in technological development, especially with software such as geographical information systems, have meant there has been little progress.

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

There are three aspects that are felt to be holding back the development of TTI services in Finland at present:

1. Data suppliers - the necessary standards need to be established;
2. Availability of resources - this area is still very limited; and
3. Money – TTI is not generating enough profit. It is felt that public investment and support needs to be directed to the projects in a more efficient and effective way.

It would be easier to promote TTI if data quality standards could be agreed, guaranteeing the quality of the source data from operators and other suppliers. YTV have also recognised the need for greater awareness about customer needs, for example how much people are willing to pay for services.

1.7 Future prospects

YTV's main focus for the future is to improve their real time information service. They plan to eventually implement a real time information database with an XML interface that will enable users and contractors to have much better access to the real time data. While this is a main goal, YTV recognise that it may not be achievable in the near future, due to lack of funding.

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

1.8 References

- Helsinki Metropolitan Area Transport System Plan 1998
- Competitive Tendering of Bus Services in the Helsinki Metropolitan Area 1994 - 2001
- http://pathfinder3.meridian.fi
- http://www.ytv.fi/english/index.html
- Interview with Kimmo Sinisalo from YTV

Table 1 - Synopsis Case Study: Helsinki Metropolitan Area Council (YTV), Finland

Title	Helsinki Metropolitan Area Council (YTV)
Country, Region, City	Finland, Helsinki, Espoo, Vanta and Kauiainen
Duration / Status	Since 1986
Geographical area covered	Helsinki and its neighbouring towns Espoo, Vanta and Kauiainen
URL	http://www.ytv.fi/english/index.html
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	Publicly owned public transport organising authority owned by municipalities
Infrastructure owners and data collection technologies	Public sector
Public sector data owners and providers	YTV, Ministry of Transport and Communication
Private sector data owners and providers	Partnership organisations, content providers, software developers
Service operator	YTV
Information editors / service database managers	YTV
Communications providers	FTP transfer of packed ASCII files extracted from YTV database
Service provider to end users	Printed form by internet, telephone service, visual displays
Market segments & end user groups targeted	All passengers travelling within the Helsinki region
Nature of public-private partnership	
Strategic marketing partnership	
	Main Characteristics of Service Delivery
Modal coverage and mode integration	Mono-modal, multi-modal and inter-modal
Data quality	Partial real-time system implemented for stop displays. Historic and real time data collection
Information contents	Routes and timetables, intermodal journey plans, estimated arrivals
Distribution stage and transmission media	Internet, call centre, stop displays
Pricing policy and revenue streams	Static pre-trip information freely available on internet, charge for call centre.
Development of service use	

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Traffic and Traveller Information services in Europe

Good Practice Case Studies

date / version

General considerations for the author

In order to understand the specific characteristics of the TTI service studied as an example of Good Practice, an analysis of all available documentation (internet homepage, internet databases, press releases, journals, annual reports, evaluation reports) and the respective context (national frameworks, markets, local conditions, personal contacts) should be carried out. The respective (draft) country reports available on the ATLANTIC web-site represent a key reference here.

Eventually, the 6 sections of each report should provide answers to the following questions and address the related topics:

Background

How did the TTI service evolve factually? Actors, partnerships, funding, phasing, present status, service use, …

Goals

What are the overall objectives of the TTI service? Policy aims, business models and plans, service contents, coverage, target groups …

User and stakeholder requirements

What user needs does the service address? What is the motiviation of the different actors involved to set up this service, and in this particular way?

Technical description

How does the information chain work technically? Data sources, processing, repackaging, dissemination, billing, user interfaces …

Service set-up

What has been important for the service set-up and operation? Conditions in terms of institutional contexts, cooperations, contracts, motivations, role of individuals, market situation and perspectives, unique selling point …

Assessment and lessons learned

What conclusions can be drawn from this service and its development? Policy objectives, framework conditions, business model, partnership and cooperation, information chain

structure, innovation content, evaluation results, problems and obstacles, transferability …

Future prospects

What developments are planned for the service? What are the potentials and risks in the future?

References

All sources and documentation used to prepare the GPC report.

CONTENT

TABLES

This template contains the following short-cuts:

CTRL+F1 :	Text
CTRL+F2 :	Bullet
CTRL+F3 :	Bullet level 2
CTRL+F4 :	Box
CTRL+F5 :	Heading 1
CTRL+F6 :	Heading 2
CTRL+F7 :	Heading 3
CTRL+F8 :	Heading 4
CTRL+F9 :	Standard
CTRL+F10:	Numbering (1., 2., 3., ...)
CTRL+F11:	Numbering (a., b., c., ...)
CTRL+F12:	box bullet
CTRL+H :	Highlights
CTRL+shift+T	Table Text

1 Case Study: …

1.1 Background

1.2 Goals

Highlights (CTRL+H)

1.3 User and stakeholder requirements

1.4 Technical description

1.5 Service set-up

1.6 Assessment and lessons learned

1.7 Future prospects

1.8 References

Table 1 – Synopsis Case Study …

Title	
Country, Region, City	
Duration / Status	
Geographical area covered	
URL	
	Main Information Chain Players and Contractual Arrangements
Relevant authorities	
Infrastructure owners and data collection technologies	
Public sector data owners and providers	
Private sector data owners and providers	
Service operator	
Information editors / service database managers	
Communications providers	
Service provider to end users	
Market segments & end user groups targeted	
Nature of public-private partnership	
Strategic marketing partnership	
	Main Characteristics of Service Delivery
Modal coverage and mode integration	e.g. mono-modal for road, inter-modal for PT (bus, local and regional rail)
Data quality	e.g. static, real-time, resolution, etc.
Information contents	e.g. personalised journey planning (preferred mode, speed, etc.), traffic status, points of interest, events, service integration (re-packaging, VAS), etc.
Distribution stage and transmission media	e.g. pre-trip via internet, on-trip via SMS; collective / individual, ubiquitous / exclusive

User interaction	passive / instructive information; push (as offer) / pull (on demand)
Pricing policy and revenue streams	e.g. monthly subscription, pay-by-call, revenue sharing, etc.
Development of service use	since first operation

3.2 List of GPC report authors

GPC	Authors	
ABA	Paul Riley / Wojciech Suchorzewski	Babtie / University of Warsaw
CHAPS	Paul Riley / Wojciech Suchorzewski	Babtie / University of Warsaw
Cité Futée	Andrew Winder	ISIS
DGT	Marc Wolfram	Rupprecht Consult GmbH
Eurotel	Paul Riley / Wojciech Suchorzewski	Babtie / University of Warsaw
ITIS	Richard Harris / Kate Nastys	Faber Maunsell
Kizoom	John Austin / Lesley Atkinson	ITP / Ankerbold International
Korkonet	Paul Riley / Wojciech Suchorzewski	Babtie / University of Warsaw
Logica CMG	Richard Harris / Kate Nastys	Faber Maunsell
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Trafikinfo	Richard Harris / Kate Nastys	Faber Maunsell
Trans Basel	Christian Egeler	RAPP TRANS AG
Walkie	Richard Harris / Kate Nastys	Faber Maunsell
YTV	Richard Harris / Kate Nastys	Faber Maunsell

ATLANTIC / eEurope 2002
Traffic and Traveller Information services in Europe

Key actor interview guideline - Questionnaire for Data Suppliers

Interviewer:	
Person Interviewed:	
Date of Interview:	
Location:	
Context[1] of the Interview:	
Organisation the person interviewed belongs to:	
Ownership[2] of the organisation:	
Sectoral role[3] of the organisation:	
Role(s) in the information chain[4] of the organisation:	
Spatial scope of the TTI service(s) the organisation is involved in:	

[1] *For example: Visit of the interviewer, visit of the person interviewed, etc.*

[2] *Indicate whether the organisation of the person interviewed is:*
- *privately owned*
- *publicly owned*
- *mix of public and private ownership (please describe the mix)*
-

[3] *Public or Private sector*

[4] *Information chain for TTI service delivery:*
- *raw data acquisition and supply (primary content providers)*
- *data fusion and/or processing (intermediate content providers)*
- *information supply (service provider)*
- *information transmission (broadcaster)*
- *other (please describe)*

General considerations:

- *Prior to the interview, the particular role of the person interviewed in TTI service provision has to be identified. This implies the analysis of all available documentation (internet homepage, internet databases, press releases, journals, annual reports, evaluation reports) and the respective context (national frameworks, markets, local conditions, personal contacts). The respective (draft) country reports available on the ATLANTIC web-site represent a key reference here. If the interview is related to the preparation of a Good Practice Case study, this analysis forms a basic condition for the report.*

- *For some interview partners, the division between guidelines refering to "data suppliers" or "service providers" may not appear adequate. This will be the case for interview partners selected for their broad involvement in TTI service deployment in general and/or over time, but also for those from organisations that exercise both roles. The interviewer is therefore requested to adapt, if necessary, the questionnaire to the identified profile of the interviewed person by using questions from both guidelines. In the case of doubts, please contact for clarifications:*

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Practical Proceeding:

- *The person interviewed has to be provided in advance with the following:*
  - *Brochure on the ATLANTIC thematic network*
  - *Brochure on ATLANTIC & eEurope*
  - *Excerpt from the Commission Recommendation COM(2001) 140 final*

- *"Put yourself in the shoes" of the person interviewed when you prepare for the interview. Take into account the particular perspective and interests of the person interviewed.*

- *Be prepared to "encourage" the person interviewed to provide (more) detailed answers if necessary, in particular regarding obstacles or difficulties encountered in providing TTI services.*

- *Request the interviewed person to have Part B (factual information) filled out after the interview and sent to you within a reasonable period of time.*

- *Start the interview with emphasizing the importance of involving the person. Her/his inside knowledge is crucial for a better understanding of the framework conditions for TTI service deployment. Within ATLANTIC, his/her answers will be used to identify a European TTI benchmark and to help the European Commission develop a common TTI policy.*

- *Explain that you will take notes of the answers given. Emphasize that all data will be treated confidentially and in a non-attributable form.*

- *Mention that the interview will take about 90min. The last four questions of Part A (6-9) are of key importance. Reserve sufficient time for these questions (30min.)*

After the interview:

- *Transfer your write-up into a WORD file by using this guideline as a template (In part B, please use the underline-function to mark multiple-choice selections)*

- *Summarise the principal characteristics of the TTI service(s) the interviewed person is actually involved in, according to the topic list provided below.*

Summary statement of the interviewer

The following topics refer only to the TTI service(s) the interviewed person is actually involved in. Please highlight briefly the principal characteristics:

---

1. Structure of the information chain and technologies employed

[describe]

2. Service funding

[describe]

3. Business model and Unique Selling Point

[describe]

4. Service contents for other agencies and/or end-users

[describe]

5. Relevance for ATLANTIC objectives

[describe]

Questionnaire for Data Suppliers

Part A - Assessment and Opinion

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1 What are the objectives of your institution concerning the provision of TTI services?

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2 What do you think are workable arrangements for cooperation between data suppliers & deliverers in TTI service provision?

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2.1 In what do these arrangements differ?

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3 If value-added TTI services are provided by third parties, what do you think are:

a) Potential benefits?

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.....

b) Potential risks?

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.....

3.1 If there are risks, how can these be controlled in your view?

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4 In your opinion, what should be the minimum standards of free public TTI service provision in terms of:

a) Service availability? - e.g. pre-/ on-trip, static/ dynamic, local/ national, etc.

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.....

b) Information contents? - e.g. congestion status, travel time estimates, incidents, schedules, etc.

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5 If your organisation is related to 3G communications: *(otherwise go to 6)*

5.1 What is the role of your organisation, and what is your own role?

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5.2 Regarding the deployment of 3G communications, what do you expect to be

a) the most popular 3G functions? *– infotainment, messaging, internet, intranet, location-based services, etc.*

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……
……

b) the most popular types of 3G location-based TTI services? *– navigation, tracking, journey planning, public transport information, emergency services, etc.*

……
……
……

c) the importance of 3G for TTI dissemination as opposed to other delivery technologies? *– DAB, RDS-TMC, etc.*

……
……
……

d) the likely timescale for the availability of TTI services delivered via 3G? What type of services? In which countries?

……
……
……

6 What do you think are the principal driving forces of TTI service deployment:

a) At the institutional level?

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.....

b) In terms of business development and finance?

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c) At the technological level?

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7 What do you think are the principal obstacles for TTI service deployment:

a) At the institutional level?

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b) In terms of business development and finance?

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c) At the technological level?

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8 In your opinion, what are crucial measures for enhancement and promotion of TTI service provision:

a) At the institutional level?

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b) In terms of business development and finance?

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c) At the technological level?

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9 What do you think should be the features of an enabling policy framework for TTI service deployment?

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9.1 What do you think are the deficits of the Commission Recommendation in respect of these requirements?

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Thank you for your participation & contribution!

Questionnaire for Data Suppliers

Part B - Factual Information

Please use the underline-function to mark multiple-choice selections

---

10 What traffic data does your organisation own?

.....
.....
.....

10.1 What traffic data does your organisation compile and process? What are the respective sources?

.....
.....
.....

11 Does your organisation offer access to its data?

☐ No - *go to 21* ☐ Yes - *In this case continue:*

11.1 Is the data sharing practice intended to:

☐ Maximize the return to the organisation for use of the data?
☐ Minimize the burden on the organisation by creating a broker or distribution channel for the data?
☐ Any other motives? - *please specify*:
.....

11.2 Does your organisation fund or subsidize entities for disseminating data?

☐ No ☐ Yes

12 What types of organisations are receiving data directly from you?

.....
.....
.....
.....

13 What type of data do you share with other organisations? - *(please mark the boxes below with X)*

	Electronic/digital		Verbal		Video	
	public	private	public	private	public	private
Urban road/ real-time						
Urban road/ static						
Motorway/ real-time						
Motorway/ static						
Public transp./ real-time						
Public transp./ static						
Public transp./ fares						

14 When you share data with other entities: Is a written agreement required?

☐ All the time ☐ Never ☐ Sometimes *- In this case continue:*

14.1 What are the circumstances that require a written agreement?

.....
.....
.....
.....

15 Which, if any, of the following arrangements regarding data sharing apply?

☐ The user reimburses the organisation for its costs to provide data
☐ The user pays for its own hardware, communications, or software costs for accessing the data
☐ The user is required to share a portion of the revenue generated from its business
☐ The user makes in-kind contribution (e.g. sharing part of a communications fibre)
☐ The user makes its "value added" information available to the organisation for internal use.
☐ Any other arrangements? *- please specify*:
.....
.....

16 When you share data with other entities, are there conditions that you place on accessing data?

☐ Technical specifications (e.g. hardware or software required)
☐ Restriction on use (e.g. depiction identity on video images)
☐ Acknowledgement of the source (e.g., use of logo, verbal mention)
☐ Any other conditions? *- please specify:*
.....
.....

17 Have you sought to gain revenue from the use of your data beyond covering costs?

☐ No ☐ Yes *- In this case continue:*

17.1 Have such approaches been successful?

☐ No ☐ Yes

17.2 Would you recommend a revenue raising approach to other agencies?

☐ No ☐ Yes

18 Apart from the above mentioned, is your organisation involved in any form of partnership for the exchange of data?

☐ No ☐ Yes *- In this case continue:*

18.1 Who are the partners?

.....
.....
.....
.....
.....

18.2 What type of arrangement has been agreed (contract form, responsibilities, sanctions)?

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.....

18.3 What types of data exchange are concerned by the partnership?

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19 How do entities (public and private) retrieve the data from your system technically? *- e.g., via e-mail, cable connection, over the Internet, fax, etc.*

.....
.....

20 Is there a limit to the number of entities that can access your system simultaneously for data?

☐ No ☐ Yes *- In this case continue:*

20.1 What is the limit and what causes it?

.....
.....

21 Do you have a common format for the distribution of data?

☐ No ☐ Yes *- In this case continue:*

21.1 What formats do you use?

.....
.....
.....

22 Does your organisation have a formal policy about sharing of data?

☐ No ☐ Yes *- In this case continue:*

22.1 When was the policy issued?

.....

22.2 Why was the policy developed?

.....
.....
.....

23 Does your agency currently (or have plans to) deliver traveller information directly to the public?

☐ No ☐ Yes *- In this case continue:*

23.1 What distribution channels are/ will be used? *- e.g. VMS, DAB, SMS, 3G, etc.*

.....
.....
.....

23.2 Which transport modes are/ will be covered by the information?

a) mono-modal *- please specify*: .....
b) multi-modal (parallel information) *- please specify*: .....
c) inter-modal (integrated information) *- please specify*: .....

23.3 What traveller information is/ will be made available to the public? *- e.g. mode comparison, congestion status, travel time estimates, incidents, schedules, etc.*

.....
.....
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.....
.....

23.4 What are/ will be the characteristics of the TTI service(s) regarding:

a) Service availability? *- e.g. pre-/ on-trip, static/ dynamic, free/ commercial, payment procedures, local/ national, etc.*

.....
.....
.....

b) User profiles? *- e.g. business or leisure traveller, commuter, long/ short distance, etc.*

.....
.....
.....

24 Does your agency currently (or have plans to) provide data to other actors that deliver traveller information to the public?

☐ No ☐ Yes *- In this case continue:*

24.1 What distribution channels are/ will be used by these actors? *- e.g. VMS, DAB, SMS, 3G, etc.*

.....
.....
.....

24.2 Which transport modes are covered by the information?

a) mono-modal *- please specify*: .....
b) multi-modal (parallel information) *- please specify*: .....
c) inter-modal (integrated information) *- please specify*: .....

24.3 What traveller information is/ will be made available to the public? *- e.g. congestion status, travel time estimates, incidents, schedules, etc.*

.....
.....
.....
.....
.....

24.4 What are the characteristics of the TTI service(s) regarding:

a) Service availability*? - e.g. pre-/ on-trip, static/ dynamic, free/ commercial, payment procedures, local/ national, etc.*

.....
.....
.....
.....

b) User profiles? *- e.g. business or leisure traveller, commuter, long/ short distance, etc.*

.....
.....
.....

25 How many users do(es) the service(s) have per day?

.....
.....

25.1 How did the number of users develop since the introduction of the service?

.....
.....

Thank you for your participation & contribution!
Please send this questionnaire back to:

ATLANTIC / eEurope 2002
Traffic and Traveller Information services in Europe

Key actor interview guideline - Questions for Service Providers

Interviewer:	
Person Interviewed:	
Date of Interview:	
Location:	
Context[1] of the Interview:	
Organisation the person interviewed belongs to:	
Ownership[2] of the organisation:	
Sectoral role[3] of the organisation:	
Role(s) in the information chain[4] of the organisation:	
Spatial scope of the TTI service(s) the organisation is involved in:	

[1] *For example: Visit of the interviewer, visit of the person interviewed, etc.*

[2] *Indicate whether the organisation of the person interviewed is:*
- *privately owned*
- *publicly owned*
- *mix of public and private ownership (please describe the mix)*
-

[3] *Public or Private sector*

[4] *Information chain for TTI service delivery:*
- *raw data acquisition and supply (primary content providers)*
- *data fusion and/or processing (intermediate content providers)*
- *information supply (service provider)*
- *information transmission (broadcaster)*
- *other (please describe)*

General considerations for the interviewer:

- *Prior to the interview, the particular role of the person interviewed in TTI service provision has to be identified. This implies the analysis of all available documentation (internet homepage, internet databases, press releases, journals, annual reports, evaluation reports) and the respective context (national frameworks, markets, local conditions, personal contacts). The respective (draft) country reports available on the ATLANTIC web-site represent a key reference here. If the interview is related to the preparation of a Good Practice Case study, this analysis forms a basic condition for the report.*

- *For some interview partners, the division between guidelines refering to "data suppliers" or "service providers" may not appear adequate. This will be the case for interview partners selected for their broad involvement in TTI service deployment in general and/or over time, but also for those from organisations that exercise both roles. The interviewer is therefore requested to adapt, if necessary, the questionnaire to the identified profile of the interviewed person by using questions from both guidelines. In the case of doubts, please contact for clarifications:*

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  m.wolfram@rupprecht-consult.de
  Tel. +49.221.968.13 - 16
  Fax +49.221.968.13 - 29

Practical Proceeding:

- *The person interviewed has to be provided in advance with the following:*
  - *Brochure on the ATLANTIC thematic network*
  - *Brochure on ATLANTIC & eEurope*
  - *Excerpt from the Commission Recommendation COM(2001) 140 final*

- *"Put yourself in the shoes" of the person interviewed when you prepare for the interview. Take into account the particular perspective and interests of the person interviewed.*

- *Be prepared to "encourage" the person interviewed to provide (more) detailed answers if necessary, in particular regarding obstacles or difficulties encountered in providing TTI services.*

- *Request the interviewed person to have Part B (factual information) filled out after the interview and sent to you within a reasonable period of time.*

- *Start the interview with emphasizing the importance of involving the person. Her/his inside knowledge is crucial for a better understanding of the framework conditions for TTI service deployment. Within ATLANTIC, his/her answers will be used to identify a European TTI benchmark and to help the European Commission develop a common TTI policy.*

- *Explain that you will take notes of the answers given. Emphasize that all data will be treated confidentially and in a non-attributable form.*

- *Mention that the interview will take about 90min. The last four questions of Part A (6-9) are of key importance. Reserve sufficient time for these questions (30min.)*

After the interview:

- *Transfer your write-up into a WORD file by using this guideline as a template (In part B, please use the underline-function to mark multiple-choice selections)*

- *Summarise the principal characteristics of the TTI service(s) the interviewed person is actually involved in, according to the topic list provided below.*

Summary statement of the interviewer

The following topics refer only to the TTI service(s) the interviewed person is actually involved in. Please highlight briefly the principal characteristics:

---

1. Structure of the information chain and technologies employed

[describe]

2. Service funding

[describe]

3. Business model and Unique Selling Point

[describe]

4. Service contents for other agencies and/or end-users

[describe]

5. Relevance for ATLANTIC objectives

[describe]

Questionnaire for Service Providers

Part A – Assessment and Opinion

---

1 What are success criteria for the development of value-added TTI services:

a) In terms of context? *– e.g. legal frame, institutional cooperation, market size, geography, infrastructures, socio-economic structure, etc.*

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b) In terms of markets and demand? *- e.g. user expectations and acceptance, willingness to pay, cost/ benefit, etc.*

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c) In terms of service contents? *– e.g. intermodality, travel time estimates, urban-regional scope, freight, etc.*

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d) In terms of technologies? *– e.g. end-user device integration, billing procedures, seamless availability, open data exchange standards, low-cost technology, etc.*

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2 In your opinion, either based on your own experience or observing that of other organisations, is the practice of revenue sharing in return for receiving data a successful approach? Why or why not?

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3 What do you think are workable arrangements for cooperation between data suppliers & TTI service providers?

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3.1 In what do these arrangements differ?

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……
……
……

4 Regarding your own business development today, how would you have done things differently?

……
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……

5 If your organisation is related to 3G communications: *(otherwise go to 6)*

5.1 What is the role of your organisation, and what is your own role?

……
……
……
……
……

5.2 Regarding the deployment of 3G communications, what do you expect to be

a) the most popular 3G functions? *– infotainment, messaging, internet, intranet, location-based services, etc.*

……
……
……

b) the most popular types of 3G location-based TTI services? *– navigation, tracking, journey planning, public transport information, emergency services, etc.*

……
……
……

c) the importance of 3G for TTI dissemination as opposed to other delivery technologies? *– DAB, RDS-TMC, etc.*

……
……
……

d) the likely timescale for the availability of TTI services delivered via 3G? What type of services? In which countries?

……
……
……

6 What do you think are the principal driving forces of TTI service deployment:

a) At the institutional level?

……
……
……
……

b) In terms of business development and finance?

……
……
……
……

c) At the technological level?

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……
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……

7 What do you think are the principal obstacles for TTI service deployment:

a) At the institutional level?

……
……
……
……

b) In terms of business development and finance?

……
……
……
……

c) At the technological level?

……
……
……
……

8 In your opinion, what are crucial measures for enhancement and promotion of TTI service provision:

a) At the institutional level?

……
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……
……

b) In terms of business development and finance?

……
……
……
……

c) At the technological level?

……
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……
……

9 What do you think should be the features of an enabling policy framework for TTI service deployment?

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……

9.1 What do you think are the deficits of the Commission Recommendation in respect of these requirements?

……
……
……

Thank you for your participation & contribution!

Questionnaire for Service Providers

Part B - factual information

Please use the underline-function to mark multiple-choice selections

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10 What type of data do you receive typically (typ), occasionally (occ) or never (nev) from public agencies - *(please mark the boxes below with X)*

	Electronic/digital			Verbal			Video		
	typ	occ	nev	typ	occ	nev	typ	occ	nev
Urban road/ real-time									
Urban road/ static									
Motorway/ real-time									
Motorway/ static									
Public transp./ real-time									
Public transp./ static									
Public transp./ fares									

11 When you receive data from public agencies, are there conditions that they place on accessing data?

☐ Technical specifications (e.g. hardware or software required)
☐ Restriction on use (e.g. depiction of injury or identity on video images)
☐ Acknowledgement of the source (e.g., use of logo, verbal mention)
☐ Any other conditions? – *please specify:*
……
……

12 What type of data do you receive from private agencies? On what basis? – *please specify:*
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13 What is your business model regarding ownership and sharing of real-time and archived TTI data?
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……

13.1 If there are several phases in your business model: What are the phases and which phase are you in now?
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……
……

14 Have important (positive or negative) deviations taken place from your initial business plan and expectations?

☐ No ☐ Yes - *In this case continue:*

14.1 What kind of deviations and for what reasons?

……
……
……

15 How do you protect the value of your TTI data?

……
……
……

16 Which, if any, of the following arrangements regarding cost of data sharing apply to your organisation? Please indicate if these arrangements are typical (typ), occasional (occ), or never apply (nev). *(please mark the boxes below with X)*

typ	occ	nev	cost/ revenue sharing arrangement
			You reimburse an agency for its costs to provide data
			You pay for your own hardware, communications, or software costs for accessing the data
			You are required to share a portion of the revenue generated from your business
			You make in-kind contributions (e.g. sharing part of a communications fibre)
			You make "value added" information available to the agency for internal use

Any other forms? – *please specify:*
……
……

17 What distribution channels are used to deliver traveller information to the public? - *e.g. VMS, DAB, SMS, 3G, etc.*

……
……
……

18 Which transport modes are covered by the information?

a) mono-modal *– please specify:* ……..
b) multi-modal (parallel information) *– please specify:* ……..
c) inter-modal (integrated information) *– please specify: …*……..

19 What traffic and traveller information is made available to the public? *- e.g. mode comparison, congestion status, travel time estimates, incidents, waiting times, schedules, etc*.

……
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……
……
……
……

19.1 If other information is made available (non-traffic): What type of information is it? *– e.g.hotel or restaurant locations, city information, events, etc*.

……
……
……

20 What are the characteristics of the TTI service(s) your organisation participates in regarding:

a) Service availability? *- e.g. pre-/ on-trip, static/ dynamic, free/ commercial, payment procedures, local/ national, etc.*

……
……
……

b) User profiles? *- e.g. business or leisure traveller, commuter, long/ short distance, etc.*

……
……
……
……

21 How many users do(es) the service(s) have per day?

……
……

21.1 How did the number of users develop since the introduction of the service?

……
……

Thank you for your participation & contribution!
Please send this questionnaire to:

Good Practice Case Studies
Summaries

by

Jean Hopkin

May 2003

Modified by John Austin, May 2003

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

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

1.1 Abstract

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

1.2 Background

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

1.3 Objectives

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

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

1.4 Implementation

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

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

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

1.5 Evaluation

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

1.6 Conclusions

Use of data from other sources is difficult for a commercial organisation. Public sector support is needed to ensure that data is comprehensive. In Central and Eastern Europe, a private sector

initiative can be the most effective way of starting a ‘public interest’ service, avoiding the inertia involved in state funding. State funding can come later, once success has been proven.

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

CHAPS National Schedule Database (CIS) in the Czech Republic

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

2.1 Abstract

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

2.2 Background

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

2.3 Objectives

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

2.4 Implementation

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

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

2.5 Evaluation

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

2.6 Conclusions

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

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

Cite Futee, Paris

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

3.1 Abstract

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

3.2 Background

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

3.3 Objectives

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

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

3.4 Implementation

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

3.5 Evaluation

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

3.6 Conclusions

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

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

DGT, Spain

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

4.1 Abstract

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

4.2 Background

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

4.3 Objectives

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

4.4 Implementation

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

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

4.5 Evaluation

The varying success of the different information channels reflects the needs of the users and penetration of technologies. The phone, SMS and Internet services have grown dramatically (there was a 64% growth in Internet use between 2000 and 2001). In 2001 there were 2.2. million SMS messages and 12 million web page accesses. At the same time, the demand for

WAP, DAB and RDS-TMC has been slow to develop because the number of users with the necessary equipment remains small (800 DAB receivers in 2001).

4.6 Conclusions

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

Eurotel 'Mobile Guide' in the Czech Republic

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

5.1 Abstract

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

5.2 Background

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

5.3 Objectives

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

5.4 Implementation

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

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

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

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

5.5 Evaluation

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

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

5.6 Conclusions

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

ITIS Holdings plc, UK

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

6.1 Abstract

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

6.2 Background

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

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

6.3 Objectives

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

6.4 Implementation

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

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

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

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

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

6.5 Evaluation

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

6.6 Conclusions

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

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

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

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

7.1 Abstract

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

7.2 Background

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

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

7.3 Objectives

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

7.4 Implementation

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

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

7.5 Evaluation

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

Kizoom was a technology start-up company formed to exploit a potential business opportunity arising from the growth in the number of mobile telecoms devices. It took advantage of rapid software programming development techniques developed by the company's founder. The company developed a family of mobile, personalised public transport TTI applications in a short time. A key event was agreeing a partnership with Railtrack (responsible for national rail information) in 2000.

7.6 Conclusions

The current business model depends heavily on government funding and leadership, to create a business climate where all parts of the delivery chain can survive. The government needs to act

as the driving force for infrastructure development, and for creating TTI systems and processes. The need to find a sustainable long-term business model and a mass market are crucial. More insight into user needs is also important.

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

Korkonet, Poland

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

8.1 Abstract

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

8.2 Background

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

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

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

8.3 Objectives

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

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

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

8.4 Implementation

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

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

8.5 Evaluation

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

8.6 Conclusions

Initially the company experienced severe difficulties because their financial resources were very limited. One of the obstacles to development was that there was only limited interest in the

project from the local authorities, so that the company had to set up equipment and infrastructure independently. Despite this, the first phase was sufficiently successful to demonstrate the potential for such services, which attracted the interest of the investment company which now owns Korkonet.

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

9 LogicaCMG plc, The Netherlands

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

9.1 Abstract

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

9.2 Background

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

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

9.3 Objectives

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

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

9.4 Implementation

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

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

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

9.5 Evaluation

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

9.6 Conclusions

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

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

Mappy, Western Europe

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

10.1 Abstract

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

10.2 Background

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

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

10.3 Objectives

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

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

10.4 Implementation

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

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

10.5 Evaluation

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

10.6 Conclusions

Access to good quality data and response to users' needs have been key to the success of the service. However Mappy has been unable to expand into an inter-modal information service

because it has not been possible to acquire the necessary information from transport operators. As a commercial service, it has proved difficult to rely on data held by public authorities. Support from a large organisation has been essential to run the service until it is profitable.

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

Mattisse, UK

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

11.1 Abstract

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

11.2 Background

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

11.3 Objectives

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

11.4 Implementation

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

The innovative Public-Private Partnership has a clear management structure, with a neutral leader. Partners bring particular skills with mutual benefits. Private sector partners are able to develop added value services. The public sector offloads risk but achieves services to meet policy objectives. Local Authority payments are focussed on achievement of Public Service Criteria. Initially the service relied on mutual co-operation, but more formal arrangements are now needed for sharing data.

11.5 Evaluation

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

11.6 Conclusions

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

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

Mizar Mediaservice, Italy

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

12.1 Abstract

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

12.2 Background

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

12.3 Objectives

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

12.4 Implementation

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

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

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

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

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

12.5 Evaluation

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

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

12.6 Conclusions

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

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

OVR (Openbaar Vervoer Reisinformatie), Netherlands

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

13.1 Abstract

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

13.2 Background

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

13.3 Objectives

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

13.4 Implementation

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

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

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

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

13.5 Evaluation

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

13.6 Conclusions

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

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

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

P4 (Dynamic TTI Messages), Norway

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

14.1 Abstract

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

14.2 Background

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

14.3 Objectives

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

14.4 Implementation

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

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

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

14.5 Evaluation

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

14.6 Conclusions

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

"stadtinfoköln", Germany

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

15.1 Abstract

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

15.2 Background

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

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

15.3 Objectives

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

15.4 Implementation

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

The project consortium has established a TIC with an open system architecture that makes it possible to integrate all of the traffic data collected, and to deliver multimodal information to travellers in real-time via VMS, radio, videotext, TV, printed media, internet, PDA, info-kiosks and in-car systems. All information on traffic flows and incidents affecting traffic and public transport, as well as on parking, weather and events is also offered to private service providers on a commercial basis. The partnership is defining a final operating model for the running the TIC from May 2003.

15.5 Evaluation

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

15.6 Conclusions

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

Trafikanten, Oslo

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

16.1 Abstract

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

16.2 Background

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

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

16.3 Objectives

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

16.4 Implementation

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

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

16.5 Evaluation

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

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

16.6 Conclusions

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

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

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

Trafikinfo, Copenhagen

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

17.1 Abstract

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

17.2 Background

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

17.3 Objectives

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

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

17.4 Implementation

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

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

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

17.5 Evaluation

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

17.6 Conclusions

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

Trans Basel, the Basel region

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

18.1 Abstract

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

18.2 Background

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

18.3 Objectives

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

18.4 Implementation

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

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

18.5 Evaluation

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

18.6 Conclusions

Close working relations between partners have been a key to the success of the service. There were a number of lessons for the technical development of web-based multi-modal information services. Standard formats were successful for obtaining real time road traffic data from road

operators, while public transport timetable information was difficult to use. Lack of geographic data for the transport network meant that it was too expensive to display maps.

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

YTV, Helsinki Metropolitan Area, Finland

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

19.1 Abstract

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

19.2 Background

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

19.3 Objectives

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

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

19.4 Implementation

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

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

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

19.5 Evaluation

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

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

19.6 Conclusions

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

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

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

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