

ETTIN Quick Scan

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Executive Summary

The current report describes the results of a Quick Scan on the feasibility of a pan-European Traffic and Traveller Information Number (ETTIN).

The Long Distance Corridor demonstration project initiated this Quick Scan to consider whether or not a service comparable to the 511 traffic information number in the USA is feasible in Europe. And if so, to give recommendations on what kind of service this should be and what would be the best way to introduce it. Many different stakeholders are involved in such a development: end-users, service providers, telecom operators, standardisation bodies, road operators, public transport bodies, etc. The road operators (authorities and concessionaires) especially want to consider their involvement in the development and operational phase of the service. Therefore the focus of the Quick Scan is on the role of the road operators.

Information about existing road telematics services was collected from available studies. This offered insight in services that can become an ETTIN service. A number of services, like Interactive Voice Response systems and Call Centres, can be included in the ETTIN services more or less as they are. In addition, a larger number of services can become an ETTIN service after modification of the presentation to the end-user. These are mainly the RDS-TMC and the Internet services, which can be made available easily via speech in an Interactive Voice Response system.

Nine comparable developments of techniques for the distribution of transport telematics were studied. Experiences gained and lessons learned from those developments are relevant to the development of ETTIN. The 511 developments in the USA and the 116xyz initiative in Europe include the most interesting relevant experiences. In addition several interviews were held with representatives of the European Commission and the Dutch Ministry of Economical Affairs. It became clear that a 116xyz telephone number is a suitable and currently the only realistic candidate for ETTIN. Definitions of the 116xyz numbers and the corresponding rules are under discussion until the end of 2006. Urgent actions are needed if road operators want to influence those developments.

Two extensive questionnaires were sent to road operators, service providers, the European Commission, chairmen of the Euro-regional projects and chairmen of the Euro-regional experts groups. These ETTIN stakeholders were asked to give their formal response on questions related to ETTIN. The input from those organisations was analysed and led to the main conclusions:

The ETTIN initiative is generally regarded as a good way to improve the accessibility of traffic information services across Europe. Work on ETTIN should continue. A roadmap is made for the steps in the next years. The road operators need to be involved in both the introduction and the operational phase of ETTIN. They should be a leading party in the introduction phase, but not in the operational phase.

To summarize the recommendations for further actions:

- The many, diverse commercial interests of service providers make it unlikely that the private sector will be able to introduce ETTIN successfully within the next few years. Therefore the road operators have to take the lead in the beginning and they should carefully consider if and when this can be handed over to others.
- It is recommended that a number of road operators with a strong interest in ETTIN ("champions") form an ETTIN working group in order to coordinate the first actions.
- The initiative for 116xyz is in a final stage and can still be influenced. 116xyz is set up for services with a public interest and for free or low-cost services. For a solid business case for traffic information services additional paid services are crucial. It is therefore recommended that the ETTIN working group establishes contact with the organisations responsible, COCOM-EC and ECC-CEPT, as soon as possible.
- If the discussions with COCOM-EC and ECC-CEPT are successful, the dialogue with service providers should start. The road operators should keep in mind the interest of the (international) travellers as well as the commercial interests of service providers.

1. Introduction

In the USA the telephone number 511 is successfully used nation-wide to provide access to voice services for traffic and traveller information. A general, European-wide number will ease the access to traffic and traveller information, in particular for international travellers. A number of countries (UK, NL, D) support this idea. Introduction of such a European-wide number) needs support and a pan-European approach from the start.

This report describes the results of a Quick Scan on the feasibility of a pan-European Traffic and Traveller Information Number (ETTIN) with a focus on the role of the road authorities.

The Long Distance Corridor demonstration project has initiated the current Quick Scan to consider if a service comparable to the 511 services in the USA is feasible in Europe and if so what kind of service can be expected and how it should be introduced. A variety of stakeholders are involved in such a development (end-users, service providers, telecom operators, standardisation bodies, road operators, public transport bodies, etc.). The road operators (authorities and concessionaires) especially want to consider what their role can be (or should be) during the development and during the operational phase of this service.

2. Quick Scan assignment

The following requirements were formulated by the LDC project management at the start of the Quick Scan [ref. 1] .

"The idea of a pan-European traffic and traveller information number (ETTIN) emerged only recently. It is as yet unclear how this can best be achieved and what role the road operators will play in its development. The deployment of such a number is clearly in the interest of the road operators, but it is - especially for some authorities - generally not within their mandate or responsibility to organise such a pan-European number and/or to set up voice traffic information services. Therefore the road operators need more insight in their options to participate.

To that effect a Quick Scan is required to provide insight in what services could be made accessible via ETTIN, how ETTIN could be introduced and most importantly, what role the road operators (authorities and concessionaires) could play in this development.

The Quick Scan needs to give answers to the following questions:

- *Which existing services could be made accessible via ETTIN?*
- *What kind of services, to which ETTIN gives access, could be available in the future? I.e. a first impression of what services could be behind ETTIN, with which languages, business cases, competing services, etc.*
- *What is the best road map to introduce ETTIN?*
- *What role need the road operators play in this?*
- *Which other organisations (regulators, authorities, operators) should be involved?*

The Quick Scan needs to provide a clear, high-level overview of the relevant issues for an introduction of ETTIN and the role of the road operators.

The outcome of the Quick Scan will be used among others in the definition of future work items in the LDC project and in the MIP II phase."

The current ETTIN Quick Scan Final report describes the approach used and the answers to the questions above.

3. Quick Scan approach

3.1. Main topics

ETTIN is, at this moment, just an idea based on the example of 511 in the USA. Many questions are still unanswered and nothing is decided yet. The questions can be grouped under three main topics: **Content**, **Introduction** and **Organisation**. During the Quick Scan these topics were investigated and analysed separately.

The questions related to the **Content** of the ETTIN service deal with which kind of services ETTIN might provide or enable or not.

The **Introduction** deals with questions related to the introduction phase (the period until ETTIN services will become operational), such as: how this should be organised; which steps need to be made; how can a unique European-wide number be claimed; and who can do that.

The **Organisation** of ETTIN deals with questions related to the operational phase after the introduction of ETTIN, such as: who is involved; what are the different roles of the various parties (including public authorities and private sector); who are responsible for what; what is the business model, etc. This includes also legal and commercial issues.

3.2. Sources of information

The goal of the Quick Scan is to give insight in the feasibility of ETTIN and to recommend further actions. The results are based on the input from different sources, which are:

1. *Existing material*
Reports from previous studies within the Euro-Regional projects as well as information found on the Internet were used to make a survey of existing telematics services that could be of relevance for ETTIN services.
2. *Expert opinions*
Input on the experiences from other, comparable developments in order to learn as much as possible from these examples was used. This input is based on the knowledge of the authors and for some special topics additional interviews were held (especially on 511 in the USA and 116xyz in Europe)
3. *Two Questionnaires*
Two questionnaires were made and road operators and service providers have been asked to provide the formal answers from their organisations on the questions. In this way formal opinions were received from most countries involved in LDC. In addition a number of experts were asked to express their personal opinions.
4. *The LDC Project Management*
Approach and results of the Quick Scan was discussed several times with the LDC project management. Their comments and suggestions were taken into account.

3.3. Approach

The approach of the Quick Scan is graphically represented in figure 1.

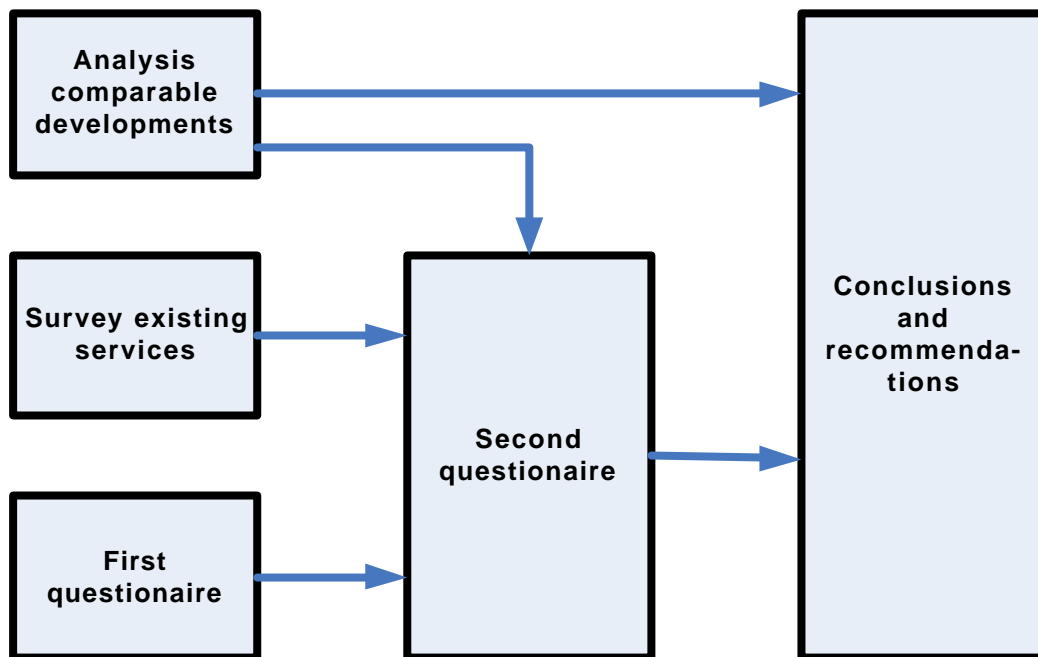


Fig. 1 Schematic overview of the approach of the Quick Scan

The Quick Scan starts with a brief survey of existing telematics services. As mentioned, information was taken from the results of other studies (see chapter 4). In parallel a number of comparable developments were analysed (see chapter 5). These developments provide experiences, lessons learned and warnings for the ETTIN development during the introduction phase.

Next a first questionnaire with mainly open questions was formulated and sent to among others road operators and service providers in the LDC area. The aim was to get their initial attitude towards something like ETTIN and their suggestions for content, organisation and the introduction of ETTIN. Open questions gave the recipients the possibility to mention any information they regard as relevant for the development of ETTIN. The analysis of the responses resulted in a number of initial conclusions (chapter 6.1).

Based on the results of those three activities (Existing services, comparable developments and first questionnaire), a second, much more detailed questionnaire was set up. This questionnaire describes a detailed proposal for an ETTIN system addressing all aspects like reference model, organisation, content, risks and more. This proposal and an additional 50 questions were written to stimulate discussions.

Respondents could answer the questions using a scale ranging from “fully disagree” to “fully agree”, or “no opinion”. This format allowed for a numerical analysis of the results (see chapter 6.2). A specific analysis was done to investigate if the responses of the road operators deviate from the responses of the service providers.

The questionnaires were sent to large number of road operators in the LDC area and to a smaller number of service providers. One of the main questions of the Quick Scan concerns the role of the road operators; therefore the focus is on their opinions. So only a few service providers were approached to get a first impression of their views. Further investigations are needed for a more detailed analysis of the opinions of service providers.

The results of the second questionnaire together with the lessons learned from comparable developments formed the basis for the conclusions and recommendations (Chapter Fig. 20).

All collected information (interviews, reports and answers to the questionnaires) can be found in a separate Annex. The Annex includes the following documents and overviews:

- A1 Executive Summary LDC WP2 report
- A2 Report Interview ANWB
- A3 Report interview Dutch Ministry of Economic Affairs

- A4 Report interview DG InfSo
- A5 Report interview DG InfSo - ICT
- A6 COCOM06-04
- A7 Questionnaire formal distribution list
- A8 Questionnaire I including results
- A9.1 Questionnaire
- A9.2 List of respondents to questionnaire I
- A9.3 Results questionnaire I
- A9 Questionnaire II including results
- A10.1 ETTIN System Description , first version for discussions
- A10.2 List of respondents to questionnaire II
- A10.3 Results questionnaire II
- A11 Com(88) 312 final
- A12 List of 511 services in operation
- A13 Comparison of responses from road operators and service providers.

4. Survey of existing telematics services in the LDC countries

It is not the intention of the ETTIN organisation to develop and operate telematics services itself. That would be a duplication of the work done already by service providers. It would also lead to competition with those service providers. The objective of ETTIN is to improve the accessibility of existing services by providing easy access to them, especially for the international traveller. It is expected that - if successful - service providers will extend their services and create new services. ETTIN services are services provided via and not by ETTIN, ETTIN functions as a portal not as a service provider.

At the start of the Quick Scan the intention was to do a survey about existing telematics services that could become an ETTIN service. It became clear that both the Long Distance Corridor (LDC) project and the Traffic Information Services Expert group have done extensive surveys. The results of these surveys were used as input for the Quick Scan:

- LDC workpackage 2 report v 0.2 [ref. 2].
- Turning LDC ideas into projects 1.0 [ref. 3].
- Traffic information services overview paper v2.2 [ref. 4].

The current study uses information from these reports. All three reports show a large amount of available services via different media. Internet and radio services are dominant in most countries.

The LDC workpackage 2 report lists almost 70 services providing details about traffic conditions on the road network that are good candidates for an ETTIN service. This list is not exhaustive. It is based on the input received from the project partners. Annex A1 gives the executive summary of the LDC WP2 report.

In general the existing Interactive Voice Response services (IVR -see also paragraph 5.5) and Call Centres can become an ETTIN service without large modifications. Radio bulletins and services based on RDS-TMC can be converted into services accessible via an Interactive Voice Response system. This makes them suitable for ETTIN services too. Free text information available on e.g. websites can be disseminated via ETTIN with the help of text-to-speech algorithms.

In every LDC country there is at least one Interactive Voice Response telephone service to get information about traffic flow, congestion, etc. LDC identified about 18 of those services in total. Unfortunately most of these services are offered in one language only. These existing telephone services are potential candidates for ETTIN. They are listed in Table. 1 on the next page.

Other existing services can be transformed into an Interactive Voice Response service:

- Radio bulletins can be provided on demand via an Interactive Voice Response system, making the information accessible via telephone. This method has been applied successfully in a pilot.
- RDS-TMC messages can be converted into speech messages that are provided via an interactive voice response system. This can be done in many different languages, although it is now mainly done in one language.
- Text on web pages can be converted to speech and made accessible via an IVR system.

In most countries radio bulletins, RDS-TMC services and web services providing traffic information exist.

Summarizing, there are many different services in Europe that could become an ETTIN service. The traffic and traveller information is available in many countries. But effort is required to make those services accessible via ETTIN.

Different languages are a major problem. Only very few current services are available in more than one language. An important reason for the ETTIN initiative is to support the international traveller abroad to get traffic information. Therefore the ETTIN organisation needs to stimulate existing services to extend their scope. This can either be done by extending the coverage area or by extending the languages. Two examples:

- A service operator providing traffic information about France in French, extends its service to provide traffic information about Germany, etc. also in French.
- A service operator providing traffic information about France in French, extends its services by providing the same information in other languages.

Initiatives like OTAP and LDC are already actively supporting these extensions. OTAP by providing easy access to traffic information in different countries. LDC by demonstrating the needs for European-wide services. In addition ETTIN can support the distribution of services and ease the access to those services for the end-users.

However, it should be recognized that it is still difficult for the service provider to define a good business case for providing traffic information to foreigners. Generally the costs and efforts are much larger than the expected extra income. The ETTIN organisation could play an important role here. Common marketing activities could lead to much more international travellers that make use of the services. And this while the cost for setting up, operating and marketing of a specific service could decrease by a common approach.

Country	Service name	Telephone number	Language
Northern Ireland	Roads service	+ 44 (0) 8457 123321	English
Republic of Ireland	The AA	+ 353 (0) 155 131 811	English
Wales	Traffic Wales	+ 44 (0) 845 6026020	English, Welsh
England	Higways agency	+ 44 (0) 8457 50 40 30	English
United Kingdom	The AA	+ 44 (0) 9003 401 100	English
England, Scotland, Wales	RAC by Trafficmaster	+ 44 (0) 906 470 1740	English
France	Foninfo	+ 33 (0) 892 00 1234	French
France	Bison Futé	+ 33 (0) 826 02 2022	French
The Netherlands	ANWB	+ 31 (0) 900-9622	Dutch
The Netherlands	VID	+ 31 (0) 900-8855	Dutch
Belgium	Touring	+ 32 (0) 900/10.280	Dutch, French
Switzerland	Viasuisse	+ 41 1163 - key path selection + 41 (0) 900 400500 - voice prompts	German, Italian, French
Germany	ADAC	+49 (0) 900 1122499	German
Italy	Autostrada	+ 39 (0) 800 609960	Italian

Table. 1 Overview of existing telephone services in the LDC area(not exhaustive)

5. Analyses of comparable developments

The following paragraphs describe in short the history of the development of services/techniques comparable to the plans for ETTIN. At the end of each paragraph the relevant learning points from that development are highlighted.

5.1. USA 511

The 511 services in the USA serve as an example for ETTIN. Within the framework of LDC a paper was produced called "The Potential for a European 511-style service" [ref.5], stating among others:

"The vision for 511 in the United States in 1999 was to have an easy to remember short dial telephone number to disseminate multi-model travel information to the public. There were various sources of information for the traveller; each with different phone numbers, and this short dial was seen as a way to provide one source of information for travel across different modes, regions and jurisdictions. 511 in North America includes ITS, traffic and incident management, public transport and weather information.

In July 2000, the Federal Communication Commission in the US designated 511 as the US national travel information number. A 511 Deployment Coalition was set up, led by the American Association of State Highway Transportation Officials, in close cooperation with the American Public Transit Association, the Intelligent Transportation Society of America (ITS America), and the US Department of Transportation. The Coalition includes representatives of over 30 public agencies, industry groups, industry associations, and private companies, all with an interest and intention to implement 511 nationally across the US."



Fig. 2 Logo 511

"Lessons learnt from the North American Experience:

- *The North American experience learns that converting existing systems to 511 systems significantly increases usage of the system, thereby demonstrating its value to the travelling public;*
- *For some 511 systems, major events (weather, incidents, etc.) especially in conjunction with real travel times, can cause call volumes in 1 single day to exceed the call volume of an average month;*
- *An early determination of the telecommunications and regulatory issues is critical;*
- *Services should compliment and not compete with the Private sector, who have a key role to play in the delivery of services; and*
- *The funding methods must be identified."*

An interview with the CEO of ITS America gave insight on the start up and the current status of 511. ITS America is a public-private partnership for the development and deployment of intelligent transportation systems in the US. It includes both private partners as well as public partners at all levels.

The central organisation of 511 is the Deployment Coalition. This is not a large organisation, but in fact a group of people from other organisations working together to coordinate 511. The Deployment Coalition does not operate any systems or services; it only encourages others to set up a 511 system. It also creates political awareness for funding and is responsible for national media coverage.

General guidelines for implementation of a 511 system and requirements for 511 services are provided by the Deployment Coalition. These guidelines are not very detailed; this is impossible due to the many different needs and legislation of the states and regions. 511 operators are not obliged to meet the proposed requirements. It is believed competition will stimulate the provision of high quality services. And different approaches make it possible to compare different techniques.

One of the guidelines is that the menu structures of different services are comparable at the highest levels, such that users more or less recognize the structure when using a new service.

Anyone can set up a telephone service for 511, states, cities, regions and private companies like service providers. The objective of 511 is to provide both free and paid services. However, at the moment all 30 active 511 services are public and free of charge, no value added services exist. Currently no private companies have come up with a business case for a 511 service. In Annex A10 an overview of the current and planned 511 services can be found.

Since the first introduction of 511 services, the rate of joining services has slowed down due to lack of available data. Collecting traffic information and implementing a 511 service proves to be expensive. Private companies already applied for more funding at Congress. However Congress is not sure it is her financial responsibility.

It was expected a major telecom operator would come up with a plan to provide a 511 system in every state. They already have the know-how and the existing infrastructure and they could offer it for a small fee and split revenues.

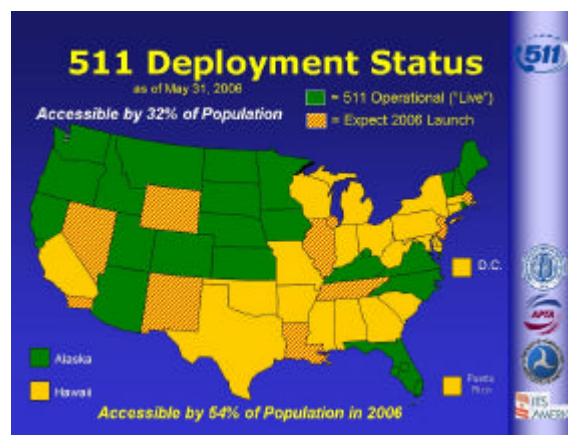


Fig. 3 Overview of the current status of 511 deployment

Most available services under 511 are straightforward and similar:

- Traffic information
- Road Works
- Weather information
- Public transportation information

The public transportation system had an existing information system over a fixed telephone network, which was easily transferred to a 511 system. They learned it was difficult to use interactive voice response systems, because of the wide variety of accents (foreign, regional).

Every 511 operator is responsible for his or her own marketing. This aspect of 511 was underestimated in the beginning. A great deal of the 511 operators concerns local governments and marketing is not their expertise. So at first the 511 services did not get enough exposure. They recently started to invest more in marketing programmes. This proves to be very successful. However when marketing efforts ceased, the positive influence also ceased. So there is a constant need for marketing.

Lessons learnt from 511 relevant for ETTIN:

- The decision to designate 511 was taken in a rather short time frame (less than one year).
- 511 was a joint initiative of public and private organisations (via ITS America).
- Services under 511 can be as broad as multi-modal travel services, including weather information and incident management.
- There are minimum requirements on the services provided via 511 although they are recommended and not enforced.
- Different services use comparable menu structures at the highest levels.
- Extensive marketing is needed continuously.

5.2. Europe 112

In 1988 the European Commission proposed via “A Communication of the Commission” [ref. 6] the introduction of a European-wide three-digit number for emergency situations to be attained by 1992. The main reason was the increased mobility through the different member states; the number should “help European citizens facing emergency situations while in other Member states”. In 1988 the existing idea for such a number was triggered by the following: The fixed line network was rapidly changing into a digital network and the introduction of a digital European-wide mobile telephony system (GSM).

The 112 number is now - almost - European-wide available. The EENA, European Emergency Number Agency, was set up to coordinate activities around 112.

A copy of the Communication of the Commission from 1988 is included in the Annex (A9).

Lessons learnt from 112 relevant to ETTIN:

- The main reason for the introduction of 112 was the international traveller (“Increased mobility between member states”).
- 112 was initiated by the European Commission. This increased the acceptance by the member states and eased the process to come to a harmonised solution.
- 112 was strongly supported by the European Commission. This shortened significantly the introduction period.
- 112 made use of the available opportunity (the introduction of digital fixed line and mobile telephony) and recognised that missing this opportunity would mean a large delay.
- The European Conference of Postal and Telecommunications Administrations, CEPT, is the relevant standardisation body in this case.

5.3. RDS-TMC

The idea of RDS-TMC was introduced around 1982. The RDS-technology (providing digital information in side-bands of the FM-radio) was then available and the idea was born to provide traffic information via this channel. The first initiative came from Philips and Bosch, who also proposed the first specifications of a protocol and applications. The next ten years many research and pilot projects took place, often within European framework programmes. In these projects there was a close cooperation between public and private organisations. Public organisations funded part of the work regularly. Public organisations were also involved in the standardisation process. In 1994 at the European Conference of the Ministers of Transport (ECMT) it was decided all European countries would ensure an RDS-TMC service would become available. Since then most (but not yet all) European countries have implemented an RDS-TMC service.

Many RDS-TMC services are still supported by the authorities (either funded or paid for). But in general the role of the public organisations is decreasing and the RDS-TMC service is seen more and more as a responsibility of private organisations.



Fig. 4 Example of an RDS-TMC receiver

Lessons learnt from RDS-TMC relevant for ETTIN:

- Development and introduction of a new service can take more than 10 years.
- Involvement of public organisations is needed (or at least desirable) for standardisation, to fund research and pilots and to support the operational period (at least in the first years).
- Decisions at a high political level (the ECMT) boosted the development and introduction of RDS-TMC in Europe.
- There are successful business cases for services via RDS-TMC.

5.4. Call centres

Call centres to handle customer contacts are increasingly popular in large organisations. There have been (and still are) some call centres providing traffic information. However, generally the cost-

benefit ratio is too high. On the one hand users like the high quality of service, very direct and individual. On the other hand they are not prepared to pay the high price, several euros per call.

Lessons learnt from call centres relevant for ETTIN:

- Users like individual services offered by call centres.
- Most users are not prepared to pay a high price for traffic information.
- Users like to have one source for many different types of information.

5.5. Interactive Voice Response systems

In the nineties Interactive Voice Response (IVR) systems started being used for phone services. A user calling a service with IVR can navigate through a menu-structure via the number keys on his phone. IVR systems are not (yet) widely available, but those that exist are generally commercially successful. The user pays per minute or per call and billing is often done by a telecom operator on a shared revenue basis.

Lessons learnt from voice response systems relevant for ETTIN:

- It is possible to automatically convert RDS-TMC or DATEX type of messages into speech in any language.
- It is possible to create commercially successful traffic information services with IVR.
- IVR services that could become an ETTIN service already exist.

5.6. SMS-services

SMS (Short Message Service) technology has been part of GSM from the start. SMS efficiently uses the rest capacity of the normal speech calls. During the years, SMS has become a big success for the telecom providers. Some traffic information services via SMS exist, but the success of this kind of services has been limited. Via SMS users request information from the service provider, or the service provider alerts the mobile phone users. The business case for telematics services has always been determined by the price of SMS messages set by the telecom operators. Billing is often done by telecom operators for the service providers in a revenue sharing model.

Lessons learnt from SMS services relevant for ETTIN:

- A revenue sharing model for billing is a possibility.
- It is difficult to provide many traffic messages via a simple interface, such as SMS.
- Reading or writing an SMS while driving is distracting and therefore unsafe.
- There is a possibility for paid traffic information services via SMS.

5.7. GPRS

In 1991 the GSM mobile telephones were introduced for commercial use, including the SMS-service. Ideas of creating a packet radio via GSM already existed, but these ideas were not very concrete. In 1991 Philips took the initiative to request ETSI-GSM (the standardisation body for GSM) for a packet radio service under GSM, called GPRS (General Packet Radio Service). According to Philips, GPRS would allow telematics services for traffic and traveller information. Philips demonstrated traffic telematics applications that could make use of GPRS and defined a business case. Other companies followed. After a few years, in which a standard was developed, the idea was formally adopted. GPRS services were introduced two years later. It still took a number of years before sufficient GPRS mobile phones and sufficient GPRS services became available. Still the number of traffic information services via GPRS is limited. But currently it is widely used for applications like tracking and tracing. There have been spin-offs of the GPRS technology; both WAP and I-mode use the GPRS technology for their services. There has been some but limited success for those services.

Lessons learnt from GPRS relevant for ETTIN:

- The GPRS technology was accepted and implemented rather quickly, but still it took about 5 years before it really took off.
- There was no large involvement of the public sector in the development of GPRS (note: GPRS is a data transmission technology, not an application such as RDS-TMC).

- The original business cases by Philips failed almost completely; up to now, hardly any commercial traffic information services exist via GPRS.
- Other unanticipated GPRS services were much more successful than expected.

5.8. Cell broadcast

A recent development is cell broadcast. Information is broadcasted to the mobile users that happen to be in range of one or a set of base stations in the GSM-cells (i.e. via SMS-like messages). For many years telecom operators have investigated this idea, but due to the lack of a sound business case it has not yet been implemented as an operational service, only as pilot projects.

Users receive the information in parallel and do not need to have an active speech or data connection. Since all mobile phones receive the same information at the same time, charging is complicated and hence the business case is difficult.

At the moment, due to initiatives from authorities, several pilot implementations of cell broadcast started in Europe. One application is to warn the public in case of severe danger (terrorist attacks, earthquake, major forest fire, extreme weather, etc.), but it can be used for traffic conditions and proposals for alternative routes. It is dangerous to read SMS-messages while driving; therefore these pilots include text-to-speech applications, such that the messages are read aloud to the user.

Lessons learnt from cell broadcast relevant for ETTIN:

- Initiatives from the authorities to set up cell broadcast are needed because a sound commercial business is lacking.
- To avoid dangerous situations while driving text-to-speech applications can be used.

5.9. 116xyz

Telecom operators, corresponding Ministries and the European Commission are working for several years to introduce a set of telephone numbers that can be used European wide. The latest proposals are to reserve a range of numbers (from 116000 to 116999, shortly called 116xyz) for this purpose. The use of those numbers is mainly intended for services of public interest.

The COCOM (Communications Committee of the EC) has prepared a Commission Decision [ref. 6] on reserving the telephone number range 116xyz for European services (see Annex A6). To collect more information on this subject the Dutch Ministry of Economic Affairs and the European Commission, directorate-general Information Society and Media were visited and interviewed. The focus of these interviews was on the procedure. Short reports of the interviews are given in the Annex (A3, A4 and A5).

Approval of the Commission Decision is expected in the 2nd half of 2006. For ETTIN it is advisable to submit an application soon, in which case a 116xyz telephone number for traffic information service can be included in the EC Decision. DG INFSO appreciates and will support an ETTIN application if many European countries participate.

Implementation guidelines still have to be developed for the 116xyz numbers. They are in principle reserved for services with of public interest, basic services should be free or according to local tariffs. Additional premium paid services might be accepted, but this is still to be discussed with the Commission.

ECC-CEPT has prepared a draft report "Services based on HESC (Harmonised European Short Codes) [ref.7]. The aim of HESC is to harmonise similar national telecommunications services in Europe behind the national numbering range beginning with 116, but it has no legal binding.

Lessons learnt from 116xyz initiative relevant for ETTIN:

- The European Commission and the Ministries responsible for telecommunication are in the process of reserving a 116xyz number range.
- This process can still be influenced, but a quick reaction is needed.

5.10. Conclusions comparable developments

In Table. 2 the lessons learned from other developments are summarised and the conclusions with respect to ETTIN are given. As can be seen, much can (and should!!) be learned from these previous experiences.

Lessons from previous experiences	Conclusions with regards to ETTIN
511	
The decision to designate 511 was taken in a rather short time frame (less than one year).	A short decision process could be possible for ETTIN. To realise this some organisations need to take the lead, like the Deployment Coalition of 511.
511 was a joint initiative of public and private organisations (via ITS America).	The current initiative comes from the road operators, service providers need to be involved asap.
Services under 511 can be as broad as multi-modal travel services, including weather information and incident management.	ETTIN service should start with traffic-related services, but can be extended later on to multi-modal services as well.
There are minimum requirements on the services provided via 511 although they are recommended and not enforced.	The ETTIN organisation should define minimum requirements, but as in 511 only general requirements.
Different services use comparable menu structures at the highest levels.	It is recommended for ETTIN to use comparable menu structures, at the highest levels, for all services.
Extensive marketing is needed continuously.	In the ETTIN operational phase significant marketing efforts will be necessary.
112	
The main reason for the introduction of 112 was the international traveller ("Increased mobility between member states").	The main reason for the introduction of ETTIN is the international traveller.
112 was initiated by the European Commission. This increased the acceptance by the member states and eased the process to come to a harmonised solution.	ETTIN also needs strong support from the European Commission. The participating Member States must actively lobby for this support. Broad acceptance and harmonisation are very important for ETTIN also.
112 was strongly supported by the Commission. This shortened significantly the introduction period.	Strong EU support will also reduce the introduction period for ETTIN.
112 made use of the available opportunity (the introduction of digital fixed line and mobile telephony) and recognised that missing this opportunity would mean a large delay.	ETTIN "champions" should make use of the current plans for the introduction of 116xyz numbers in Europe.
The European Conference of Postal and Telecommunications Administrations, CEPT, is the relevant standardisation body in this case.	Like for 112 CEPT is the relevant standardisation body for ETTIN.
RDS-TMC	
Development and introduction of a new service can take more than 10 years.	Care should be taken that the introduction of ETTIN will not take 10 years or more. But one can expect a long road to go.

Lessons from previous experiences	Conclusions with regards to ETTIN
Involvement of public organisations is needed (or at least desirable) for standardisation, to fund research and pilots and to support the operational period (at least in the first years).	ETTIN needs the involvement of public organisations for standardisation and funding.
Decisions at a high political level (the ECMT) boosted the development and introduction of RDS-TMC in Europe.	A political decision at a higher level will boost the development of ETTIN, as it did for RDS-TMC.
There are successful business cases for services via RDS-TMC.	RDS-TMC shows a successful business case for the ETTIN services could be possible.

Call centres	
Users like individual services offered by call centres.	Call Centre services should be part of the ETTIN services.
Most users are not prepared to pay a high price for traffic information.	Reluctance of end-users to pay for traffic information makes the business case for ETTIN (and its services) difficult.
Users like to have one source for many different types of information.	The One stop shop approach of ETTIN should be appealing for end-users.

Interactive Voice Response systems	
It is possible to automatically convert RDS-TMC or DATEX type of messages into speech in any language.	Existing services such as RDS-TMC can be converted to ETTIN services.
It is possible to create commercially successful traffic information services with IVR.	Defining a business case for ETTIN will be difficult, but IVR shows that it is not impossible.
IVR services that could become an ETTIN service already exist.	A quick start of ETTIN is possible, based on existing IVR services.

SMS	
Revenue sharing model for billing is a possibility.	Revenue sharing models for billing need to be considered for ETTIN.
It is difficult to provide many traffic messages via a simple interface, such as SMS.	The telephone is also a simple interface; clear menu structures are important, preferable with as much commonality as possible.
Reading or writing an SMS while driving is distracting and therefore unsafe.	The safety of road users needs to be considered. Listening to traffic information, even if hands-free, can be dangerous.
There is a possibility for paid traffic information services via SMS.	It is possible to create a solid business case with paid traffic information services.

GPRS	
The GPRS technology was accepted and implemented rather quickly, but still it took about 5 years before it really took off.	A quick introduction and then a slow further development is a possible scenario for ETTIN. To prevent this from happening significant efforts are needed after the introduction phase.
There was no large involvement of the public sector in the development of GPRS (note: GPRS is a data transmission technology, not an application such as RDS-TMC).	For ETTIN public involvement is needed. GPRS is not an application but a technology.

Lessons from previous experiences	Conclusions with regards to ETTIN
The original business cases by Philips failed almost completely; Up to now, hardly any commercial traffic information services exist via GPRS.	Care should be taken that situations change during the development of a system/concept. A flexible approach for the ETTIN requirements and system is therefore needed.
Other unanticipated GPRS services were much more successful than expected.	It is likely that unexpected services or technologies will become relevant for ETTIN. So the technical and organisational system of ETTIN should be flexible.
Cell broadcast	
Initiatives from the authorities to set up cell broadcast are needed because a sound commercial business is lacking.	The involvement of the public sector is needed for ETTIN, since a sound business case is not yet clear.
Text-to-speech of free text, to avoid dangerous situations while driving, is possible with a reasonable quality.	Listening to text is safer than reading e.g. SMS, but audio messages can be dangerous as well.
116xyz initiative	
The European Commission and the Ministries responsible for telecommunication are in the process of reserving the 116xyz number range. This process can still be influenced, but a quick reaction is needed.	Quick actions are needed to start up the ETTIN developments. A group of "Champions" should take the opportunity to influence this process.

Table. 2 Lessons learned and conclusions from previous initiatives

6. Results of the questionnaires

One of the main objectives of the current Quick Scan is to determine whether or not there is enough support from road operators and service providers for the ETTIN ideas. The feasibility of ETTIN hardly depends on technical possibilities, the two main items are: "is it likely that a European-wide telephone number for traffic information can be reserved" (the 116xyz developments indicates that this is the case) and "do road operators and service providers support the ETTIN idea sufficiently?".

Two questionnaires have been set up and main stakeholders are asked to provide the formal opinions of their organisations. It is important to note that most are formal opinions of the organisations they represent and not the personal views of those approached.

The first questionnaire contained very general, open questions related to ETTIN, to allow the recipients to describe their opinions in their own words and to provide any information they consider relevant for ETTIN. The second questionnaire was the opposite; it contained very specific questions each with only six possible answers in the range from "fully disagree" to "fully agree" or "no opinion".

To get a first impression on the opinions with respect to the introduction of a pan-European traffic and transport telephone number, a first questionnaire was sent to road operators, service providers, the European Commission, chairmen of the Euro-regional projects and experts groups and individuals. The analysis of the response to this action is presented in paragraph 6.1.

Based on among others the reactions on the first questionnaire a concept of an ETTIN system was described. This description deducts the most relevant topics and gives people an impression of the actual content, organisation and introduction of ETTIN. The main stakeholders were again asked to express their opinions on those topics. The results and analysis of this second questionnaire can be found in paragraph 6.2.

The reactions on both questionnaires were analysed and used in the current report to formulate conclusions and recommendations. All reactions to both questionnaires can be found in annexes A7 and A8.

6.1. Questionnaire I

More than 70% of the invited partners responded to the first questionnaire, providing a good basis for the next step in the project. The questionnaire had 5 general questions and 21 open questions on the main issues (content, organisation in the operational phase and the introduction phase, see also chapter 3.1). In Annex A7 an example of the questionnaire can be found with an overview of all answers. In this paragraph the conclusions derived from the collected answers to the first questionnaire are summarised.

The received input consisted of 17 formal responses and 8 informal/individual responses. From all 25 respondents 7 are (partly) service providers and 21 road authorities or concessionaries.

A first visual impression of the general attitude of all respondents towards ETTIN is depicted in Fig. 5. This is a rough impression. In some countries several parties were addressed, the picture shows an average of their opinions.

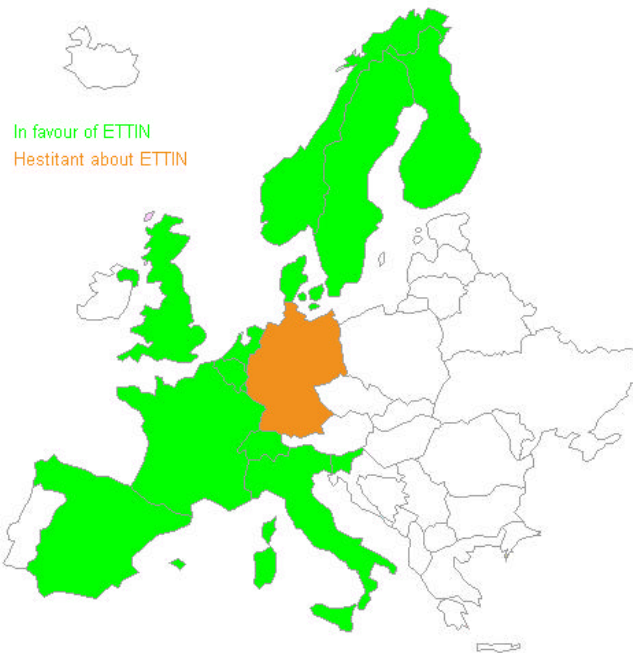


Fig. 5 Map with (average)views on ETTIN based on Questionnaire 1.

General conclusions

- 95 percent of all respondents consider ETTIN a good initiative.
- Seven examples are given of traffic information telephone services on national level with a short digit number or cooperation of several parties to provide traffic information. (See Fig. 6 and Table. 3)
- The respondents feel the road authorities should definitely play a role in the ETTIN organisation, but the actual outline of this role cannot be defined yet.
- Organisational issues are considered to be the largest bottlenecks of ETTIN. Other bottlenecks are the business case, quality control and heterogeneity in services.



Fig. 6 Map of countries with a national initiative similar to ETTIN

Country	Organisation	Phone number
Denmark	Danish Road Directorate	1888
Italy	SATAP	-
Norway	NPRA	175
Slovenia	Ministry of transport for the Republic of Slovenia	01- 518 8 518
Spain	DGT	900 123 505
Switzerland	ViaSuisse	163
France	Foninfo	0892 00 1234

Table. 3 General traffic information phone numbers already available

ETTIN Content

- From the start the services should at least consist of traffic information or traffic related information. At a later stage other services like multi modal information or personalised services can be added.

- The first focus of the services should be to offer them via telephone (mobile and fixed lines). Later on Internet and other media can be added.
- A definition of minimal requirements is necessary, this results in the need for an independent party to supervise the content of the services.
- A pragmatic approach is needed for language choices offered by the services, depending on the possibilities and the needs of the road user.
- Some basic traffic information should be offered for free (or normal telephone rate) value added services could be paid for. Charging could be a necessity to make the service feasible for most service providers.

ETTIN Organisation (operational phase)

- The ETTIN organisation should be an independent party, responsible for coordination and quality control. The organisation should not be the "ETTIN" service provider.
- Half of the respondents is in favour of a coordinating role for the road authorities or road operators within the organisation. The other half is more in favour of a limited role: just content provision and quality control. However the response clearly shows road authorities need to be involved in the organisation.
- ETTIN should be a self-supporting service in its operational phase.

ETTIN introduction phase

- The main risks foreseen are organisational and financial.
- Customer confusion must be prevented, i.e. it must be clear to the end-user what ETTIN is and what it is not, also in relation to other existing services.
- Much can and should be learned from experiences derived from similar developments.

6.2. Questionnaire II

Fifty percent of the formal questionnaires were completed in the second round. The received input consisted of 13 formal responses and 5 informal/individual responses. From all 18 respondents 6 were (partly) service providers and 13 road authorities or concessionaries.

The questionnaire describes a possible set up of the ETTIN system with the following topics:

1. Reference model
2. System architecture
3. Technical architecture
4. Information architecture
5. Organisational structure
6. Business model
7. Promotion and marketing
8. Role of the road authorities
9. Risk management

The sole purpose of this description is to provide readers with concrete ideas how ETTIN could be implemented in order to stimulate reactions and discussion. For each topic in the description a list of assumptions/issues for discussion were deducted and given in a table. Respondents were asked to give their formal views on those topics by indicating their opinion from disagreement to agreement in six levels (disagree fully, partly disagree, neutral, agree partly, agree fully and no opinion).

In general the proposed ETTIN system is well received. This becomes clear in Fig. 7 and Fig. 8 based on the total of all answers, the larger part of the responses is "Agree fully" or "Agree partly". Again, this is a rough impression. In some countries several parties were addressed, the picture shows an average of their opinions.



Fig. 7 Map with views on ETTIN based on Questionnaires II

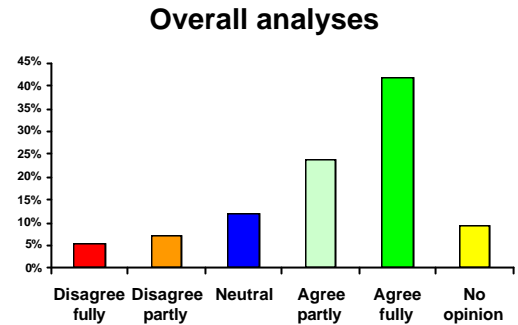


Fig. 8 Summary of the answers to questionnaire II

Every topic mentioned in the ETTIN system description was separately analysed. The answers show agreement on most issues for the reference model, system architecture and organisational structure. They show more differences in opinion on the role of the road operator, technical architecture and risk management. The next paragraphs present a summary of the answers per topic with a short introduction on the suggested approach and assumptions as proposed in the questionnaire. Diagrams concerning the discussed assumptions visualise the general opinion. These diagrams depict the percentage of the answers per level.

6.2.1. Reference model

A reference model identifies and describes the main roles of a system and its environment in which it operates, without any prejudices on the technical implementation or on which organisation plays which role. Fig. 9 shows the proposed reference model for the ETTIN system.

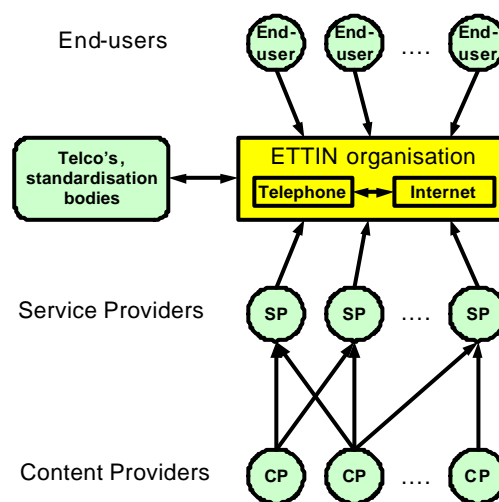


Fig. 9 Schematic representation of the proposed ETTIN system reference model

Assumptions for the reference model

The ETTIN organisation

- is responsible for the coordination and monitoring of the ETTIN system;
- does not develop end-user services;
- is responsible for marketing.

End-users

- have access to ETTIN at least via telephone (fixed and mobile) and the Internet;
- can have a direct relation with certain service providers and get access to those services via ETTIN;
- do not have a formal relation with the ETTIN organisation.

Service providers

- are free to offer their services to end-users directly and/or via the ETTIN portal.

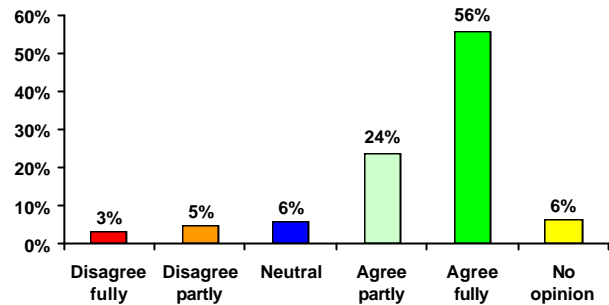


Fig. 10 Reaction to the reference model

Analysis of the responses to the reference model

Most respondents agree with the proposed reference model, missing is the already existing link between service providers and the end user. How exactly the service providers will take part in ETTIN, is to be defined by the ETTIN organisation in cooperation with the service providers.

Many agree the ETTIN organisation should be responsible for the coordination and monitoring of the ETTIN system. Only a few respondents think the ETTIN organisation could develop end-user services itself. These services should then either fill in gaps not covered by service providers or it should concern pan-European services.

Marketing should be left to service providers and is not considered a task of the ETTIN organisation. For access to the ETTIN portal one should focus on telephone (fixed and mobile), not necessarily the Internet. Web services are considered well developed and easily accessible.

6.2.2. System architecture

System architecture describes the relation and communication methods between the different stakeholders in a system.

The ETTIN system is operated by and under the responsibility of the ETTIN organisation. This system enables end-users to access e.g. voice response services and websites of service providers. Fig. 11 shows the system architecture for ETTIN as proposed in the questionnaire.

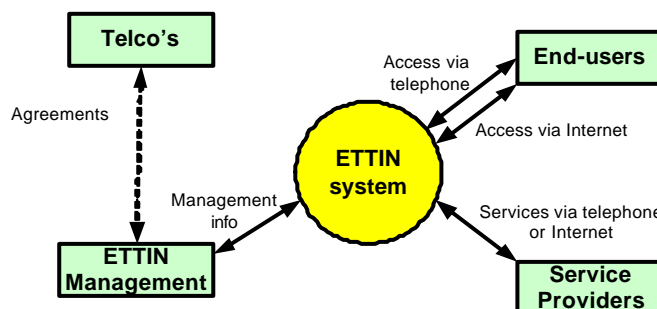


Fig. 11 Schematic representation of the ETTIN system architecture

Assumptions for the system architecture

The ETTIN organisation

- is responsible for setting up and maintaining an Interactive Voice Response system;
- provides a website to create more awareness of ETTIN;
- protects the privacy of the end-users.

End-users

- are able to define personal profiles on the website, among others to get an individual menu on the telephone menu;
- are able to command the Interactive Voice Response system by pressing buttons and (later) by voice recognition.

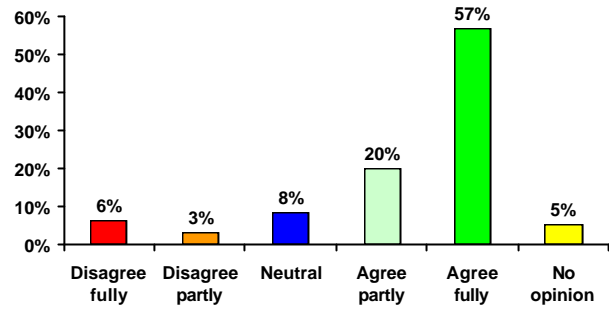


Fig. 12 Reactions to the system architecture

Analysis of the responses to the system architecture

Again a system architecture involving access via telephone is accepted. The use of the Internet is not necessary for some. But it is considered useful for a general introduction and to create more awareness of ETTIN.

Many agree the ETTIN organisation should set up and maintain an Interactive Voice Response system. However it does not require the option to define personal profiles on the website yet. For now the focus should be on setting up a pan-European number, system requirements can be elaborated later. It could be an option to leave these choices up to the service providers.

The ETTIN organisation is expected to protect the privacy of the end-users.

6.2.3. Technical architecture

A technical architecture defines and describes the interfaces, parameters and protocols used for a technical system. The proposed ETTIN technical architecture contains a voice response system, a web server, a database to store user profiles and a server to monitor the use and quality of the services.

Assumptions for the technical architecture

- A specification of a technical architecture is not needed at this moment.
- Personal profiles are stored, if privacy is protected sufficiently.
- VOIP can overcome the long term, but not the short term technical problems.
- International calls are prevented as much as possible.
- The technical architecture is decentralised.

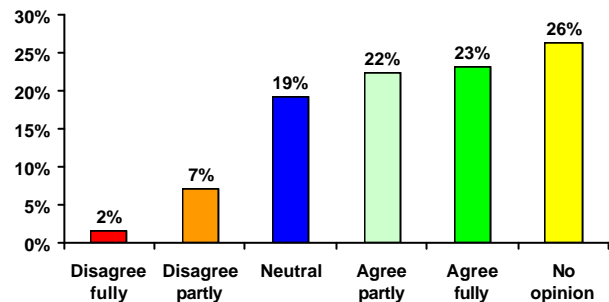


Fig. 13 Reactions to the technical architecture

Analysis of the responses to the technical architecture

A large part of the respondents filled in "neutral" or "no opinion". Most agree a technical architecture is currently not relevant for a decision on ETTIN.

6.2.4. Information architecture

The information architecture defines the information flows of a system, internal and external. It also deals with the content of the services.

Assumptions for the information architecture

Service providers

- can provide additional services via ETTIN, if approved by the ETTIN organisation;
- have an equal opportunity to become an ETTIN service provider;
- can provide the same services related to the same geographical area as other ETTIN service providers.

Core ETTIN services

- include traffic information and traffic-related information, such as info on major events, public transport, weather and parking;
- have a minimum level of quality;
- are in the native language. Additional multi lingual services are encouraged, but not required;
- are national services as well as international services.

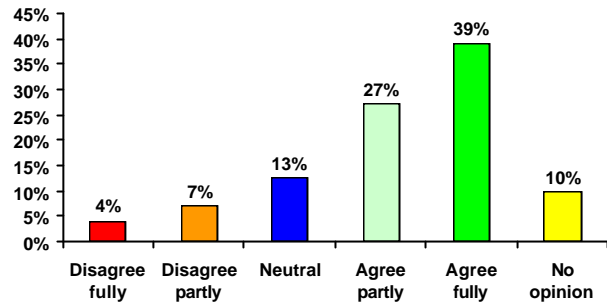


Fig. 14 Reactions to the information architecture

ETTIN services can include

- parking information;
- detailed public transport information;
- emergency services;
- breakdown services;
- call centre services;
- yellow pages services;
- general travel info;

Analysis of the responses to the information architecture

All agree ETTIN services can be national as well as international services.

Although many think quality management with a minimum level of quality is necessary, proposed requirements in the information architecture are not all agreed upon. Mainly because every partner/country would like to determine for themselves what is useful; or let the users or service providers determine this.

Some services like emergency and breakdown services and the yellow pages are not considered suitable for ETTIN.

Opinions on the language of the offered services are divided from “All services regarded by ETTIN users as useful should be able to participate” to “Service providers must offer their service in at least two European languages”. However many agree the main focus should be on availability rather than content at this moment.

Different service providers can provide the same services related to the same geographical area.

A platform for ETTIN should be developed to take into account future service “plug-in” strategies. ETTIN should work with eCALL on issues associated with emergency response.

6.2.5. Organisational structure

An organisational structure is required to coordinate and monitor a system and its further developments.

Assumptions for the organisational structure

The road operators (authorities and concessionaires)

- play a leading role in the introduction/implementation of ETTIN;
- play a role in the ETTIN organisation after the introduction. Whether or not this is a leading role is to be determined later.

The ETTIN organisation

- coordinates the cooperation with the service providers;
- coordinates the cooperation with telecom operators;
- markets the ETTIN number and website;
- operates and runs the ETTIN systems;
- monitors the use, the quality and the content of the provided services;
- controls the budget (income and expenditures of ETTIN);
- is small and effective.

An ETTIN Working Group

- needs to be set up for the implementation phase;
- needs to start discussions with the EC and the national bodies ASAP.

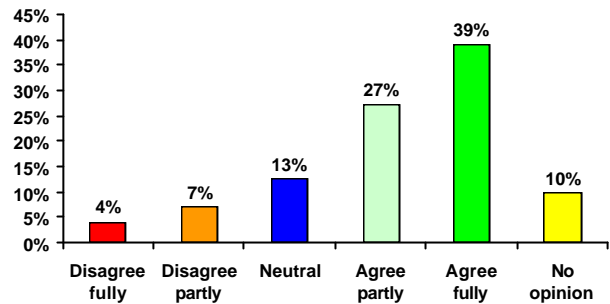


Fig. 15 Reactions to the organisational structure

Analysis of the responses to the organisational structure

The opinions on the organisational structure are varied; a European political will is needed to let road operators play a leading role. Several respondents propose a decentralised approach for the ETTIN organisation. The ETTIN organisation should have a coordinating role with the telecom operators, service providers and other stakeholders.

It is also suggested the operation of an ETTIN system could be outsourced. However quality control should be left to the ETTIN organisation.

Before starting up an ETTIN working group it is proposed to organise a discussion and prepare decision making within the involved organisations.

The UK Directory Enquire numbering process (118 xyz) provides a useful process model from a totally deregulated numbering environment.

6.2.6. Business model

A business model is the design by which a business intends to generate revenue and profits.

Assumptions for the business model

- There is a need for ETTIN and there are costs associated with it.
- A premium on the communication costs are prevented.
- Basic services are free of charge.
- Advanced services are charged.

Road operators

- need to inform the road users about the traffic status as good and as much as possible;
- contribute to the costs of the ETTIN organisation.

Road users

- need traffic and travel information;
- do not have a formal relationship with the ETTIN organisation;
- are properly informed beforehand on the costs related to their phone calls.

Service providers

- contribute to the cost of the ETTIN organisation;
- decide what to charge for which service.

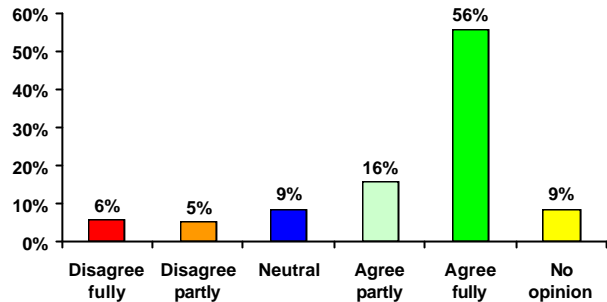


Fig. 16 Reactions to the business model

Analysis of the responses to the business model

Only a very few of the road operators are willing to contribute to the costs of the ETTIN organisation, costs should be covered by either paid services (self supporting) and/or European support. Besides this point all seem to agree on the proposed model. The pricing structure should be clear and unambiguous for users.

Service providers are expected to contribute to such an activity only if there is a solid business case; and they are unlikely to invest in a European organisation.

6.2.7. Promotion/Marketing

Marketing and promotion is used to attract and persuade costumers to use a certain product or service.

Assumptions for the promotion/marketing

- Promotion/marketing might take the most effort of the ETTIN entity.

The ETTIN organisation

- is responsible for the promotion/marketing of ETTIN and the corresponding website;
- promotes/markets ETTIN in a professional way;
- needs sufficient funds for the promotion/marketing.

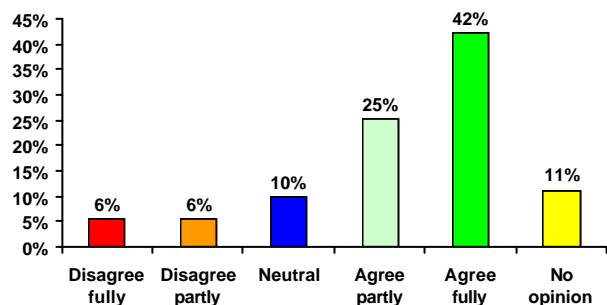


Fig. 17 Reactions to promotion/marketing

Analysis of the responses to promotion/marketing

It is believed to be the role of the ETTIN organisation to professionally promote 116xyz, but it is not believed to be the most important role. Again service providers should be included in the process, since they have more expertise and it affects their business. Many respondents want to claim the costs for marketing via the service providers or European funding.

6.2.8. Role of the road operators

Since this Quick Scan focuses on the role of the road operator a description of the possible responsibilities of the road operator in the introduction and operational phase is presented here.

Assumptions for the role of the road operators

Road operators

- have a leading role in the ETTIN organisation during the introduction phase
- form an ETTIN Working Group
- provide funds for the ETTIN Working Group
- reserve a 116xyz number together
- provide means for pilots/demonstrations during the introduction phase
- play an important role in the operational phase
- can be content providers; they provide data to the service providers not to the ETTIN organisation.

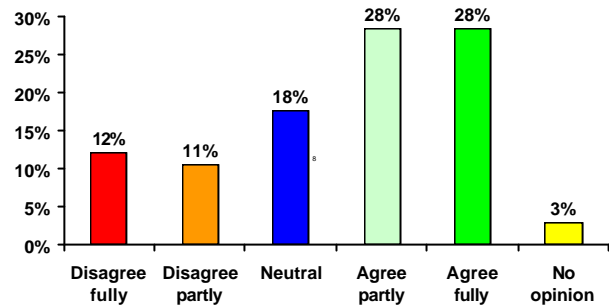


Fig. 18 Reactions to the role of the road operators

Analysis of the responses concerning the role of road operators

Of all the issues this one has the most diversity in its answers. It is not yet clear what the role of the road operator should be with regard to ETTIN. The major part of the responses is, however, positive. Some issues were raised:

- There are more than 100 road operators in Europe, so it is very difficult to organise.
- All stakeholders should be included, what qualifies road authorities to take on a leading role?
- More certainty is needed with regard to funding and political support before the road operators can determine to play an active role or not.

6.2.9. Risk management

There are a number of risks that might prevent or delay the introduction of a new system, the main risks for ETTIN were identified and respondents have been asked their opinion on these risks.

Main risks for ETTIN

1. Institutional problems of forming the ETTIN organisation.
2. Too many partners involved.
3. A sound business case for the ETTIN organisation.
4. Legal and regulatory restrictions.
5. The ETTIN organisation focussing more on the technical issues than on the needs of the road users.
6. Lack of services in certain areas in Europe.
7. International billing.
8. To reserve one European number.
9. Competition between the service providers and hence a lack of willingness to cooperate.
10. Co-existence of several service providers under ETTIN covering the same geographical area.
11. Sufficient quality level of the ETTIN services and the possibilities to check the qualities.
12. Sufficient promotion and marketing.
13. Confusion of the public about what ETTIN is and what not.
14. Telephone services are (or soon will be) outdated.
15. Language problems.

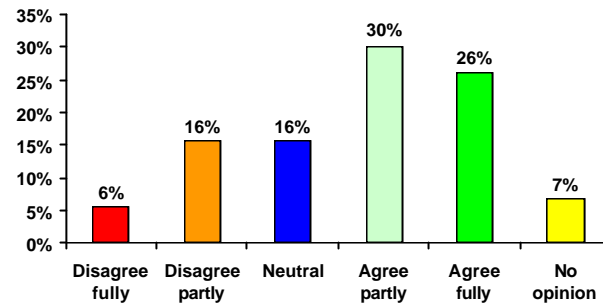


Fig. 19 Reactions to the main risks for ETTIN

Analysis of the responses concerning the risks for ETTIN

The combination of those opinions is also indicated in the table below (Table. 4) in order of importance. The totals are a weighted sum of the number of opinions given for Disagree to Agree. The higher the value, the more the respondents consider the topic to be a real risk for the development of ETTIN.

Risk Management		
1	Institutional problems of forming the ETTIN organisation	9
2	Too many partners involved	8
3	A sound business case for the ETTIN organisation	7
4	Legal and regulatory restrictions	6
5	The ETTIN organisation focussing more on the technical issues than on the needs of the road users	6
6	Lack of services in certain areas in Europe	6
7	International billing	6
8	To reserve one European number	6
9	Competition between the service providers and hence a lack of willingness to cooperate	5
10	Co-existence of several service providers under ETTIN covering the same geographical area	5
11	Sufficient quality level of the ETTIN services and the possibilities to check the qualities	4
12	Sufficient promotion and marketing	4
13	Confusion of the public about what ETTIN is and what not	3
14	Telephone services are (or soon will be) outdated	3
15	Language problems	3

Table. 4 Overview of main risks

The risks are different for every country. However many see the competition between the service providers and hence a reluctance to cooperate as one of the greater risks along with institutional problems.

It is remarkable the respondents do not see the many different language used in Europe as a large risk (number 15 Table. 4). And marketing which proved to be a major issue for the American 511 is not considered a large risk either.

6.2.10. Road authorities versus service providers

The answers of the 6 service providers and the 11 road authorities were split in different figures in Annex A11. Comparing these figures shows no large differences in opinions between the service providers and road authorities.

In general the road operators have a clear opinion and they are in favour of the ETTIN developments. The opinions of the service providers are more evenly distributed over the range disagree ... agree. This is according to expectations. Road operators have more or less the same common objectives, while each service provider has its own interest, so more differences in opinion are expected from them.

Furthermore it should be noted that the current Quick Scan focuses on the role (and thus the opinions) of the road operators. Additional work is needed to determine the opinions of the service providers to the same level. The fact that several road operators also act as service providers makes it even more complicated.

Two topics with a significant difference between the opinions of the road operators and those of the service providers stand out: Organisational structure and the role of the road authorities (see Fig. 20). Service providers seem to be more indifferent towards the role of the road operators. A leading role for road operators in the operational phase is not opposed, but it is not encouraged either by service providers.

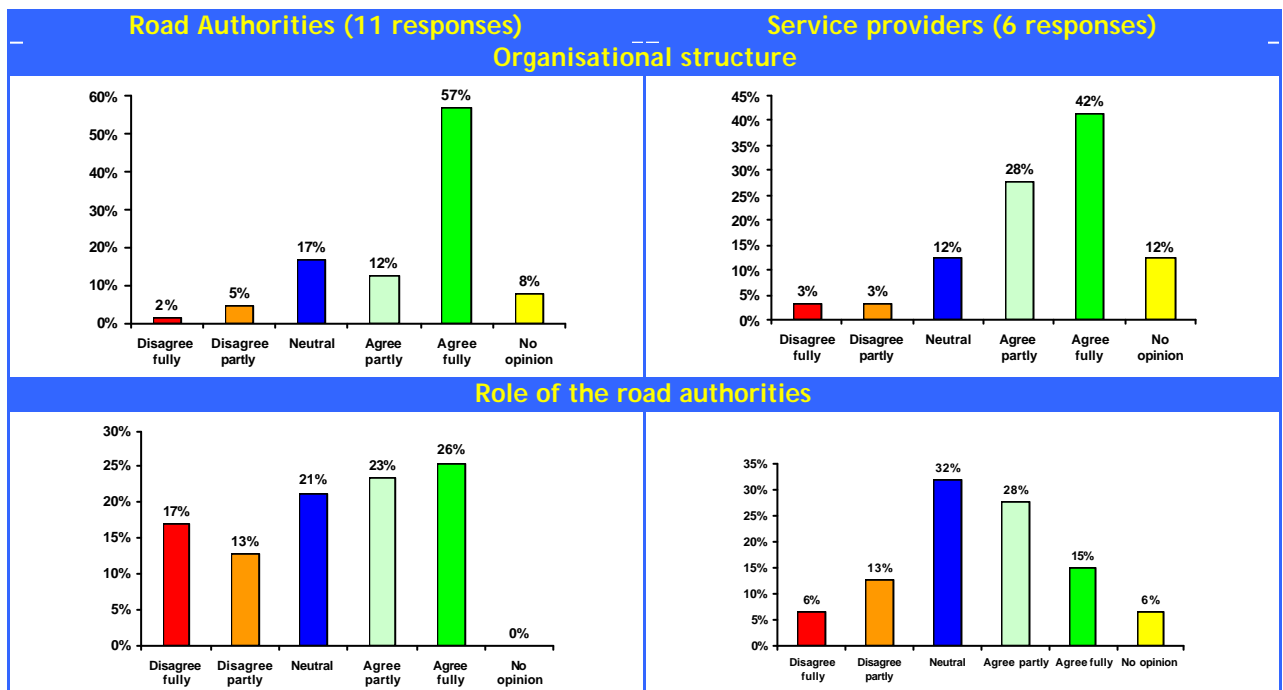


Fig. 20 Reactions to the organisational structure and the role of the road operators split between road operators and service providers.

7. Conclusions and recommendations

7.1. Answers to the Quick Scan questions

The responses to the questionnaires provided good input to answer the Quick Scan questions. Overall the ETTIN initiative is received very well by the responding stakeholders, but a long road is still to go.

7.1.1. Which existing services could be made accessible via ETTIN?

From the available reports on traffic information services and the first questionnaires many services are found that are suitable for ETTIN. Two categories can be defined:

1. Existing telephone services (IVR systems and Call Centres) like the ones provided by the automobile associations and road authorities, which provide traffic information on congestion, road works and incidents.
2. Services that can be transformed into an Interactive Voice Response system like radio bulletins and RDS-TMC messages.

One of the major problems is the different languages and the coverage of the existing services. There are already a large number of services in Europe, mostly national. It can be expected that more and more international services will be introduced in the future. They are a pre-requisite for ETTIN: without international services, there is hardly a case for ETTIN. Vice versa ETTIN is likely to stimulate the extension of existing services and the introduction of new international ones.

7.1.2. What kind of ETTIN services could become available in the future?

The general response to the questionnaires is that ETTIN should start with services providing traffic-related information. Later on this could be extended to multi-modal services (e.g. including public transport information). Yellow pages and breakdown services are not seen as possible ETTIN services.

It is not foreseen that ETTIN will lead to new, not yet existing type of services, soon. It will merely improve the access to existing services. An effect of ETTIN on existing services is expected in two ways: 1) services providing their information in more languages and 2) services extending the area they provide information about (e.g. covering several countries).

Because of the easy to remember, single number it is expected that both national travellers and international travellers will have an easier access to traffic-related information. This easy access is likely to result in an increase of the number of clients for such services. Marketing of ETTIN is an important item to create and maintain sufficient awareness as can be learnt from 511.

The ETTIN organisation should stimulate that the different services under ETTIN have more or less the same menu structure. If the higher levels of the menu structure are alike in every region end-users can easily use a service they have not used before (e.g. abroad).

Currently competing services providing comparable information are offered in many European countries. Following the experiences from many other developments (511, GPRS, RDS-TMC, etc.) this competition will continue. Under ETTIN competing services are expected to co-exist as well. The ETTIN organisation must not only ensure a level playing field for the service providers, but also a fair playing field in the sense that the investments and the commercial interests of the service providers will be considered. This can get complex: Common marketing of ETTIN will benefit all services. But different services might have different quality levels and service providers might have large differences in the investments done for the services.

7.1.3. What is the best road map to introduce ETTIN?

Based on the reactions response to both questionnaires an indicative road map for the next steps in the development of ETTIN was made for each of the three main issues: introduction, content and organisation.

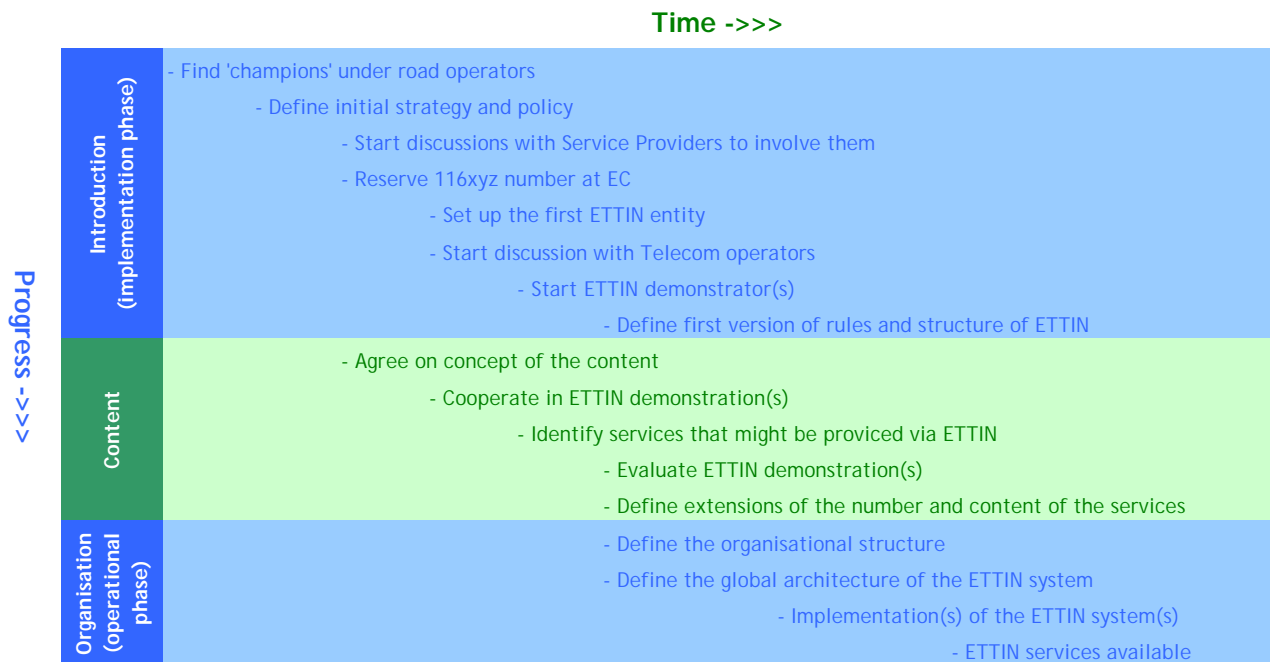


Fig. 21 Indicative road map for the next steps in the development of ETTIN

The roadmap strongly depends on the willingness of road operators to take up the challenge of leading the introduction of ETTIN and if so, how. Important items in this roadmap are:

- The suggestion of setting up an ETTIN work group is received well. But the first step should be to organise a discussion and prepare decision making within the involved organisations. Preferably the entity to organise the (first) steps for ETTIN is formed by a number of “champions” with strong interests in ETTIN. This group is needed to lead the process and to coordinate further activities.
- Because the approval of the Commission Decision on reserving the telephone number 116xyz for European services is expected in the 2nd half of 2006, it is strongly recommended to reserve an 116xyz number as soon as possible. Simultaneously a discussion with the EC and ECC-CEPT concerning the rules with respect to the use of this number should be started. Especially the issue to allow paid services is important. As with 112 use should be made of the currently available opportunity.
- As 511 in the USA it is important to involve service providers as early as possible.
- Rules and structures (including organisation, business case, etc.) for ETTIN services need to be specified as early as possible to provide service providers with an idea of the options.
- Later a demonstration phase is needed to show the possibilities. This will also stimulate service providers to create first versions of international services.

7.1.4. What role need the road operators play in this?

Road authorities state in the questionnaires that they should play a role in the ETTIN organisation, but their role cannot be defined yet. More clarity is needed about funding and European political support before the road operators can determine to play an active role or not.

Based on the experiences with RDS-TMC and with 511 in the USA there is a role for the road operators both in the introduction and the organisation phase of the ETTIN organisation; because of public interest and standardisation aspects. Many of the road authorities see the competition between the service providers and hence a reluctance to cooperate as one of the greater risks. Based on these conclusions a proposed role for the road operators is described below.

Proposed role during the Introduction phase

During the introduction/implementation phase the road operators should play a leading role. Of course they must keep in mind the interest of the other stakeholders (road users, service providers).

Road operators should form a Working Group, this will be the basis for the ETTIN organisation. The Working Group can be compared with the Deployment Coalition for 511. Road operators should provide funds for it and/or it could be supported by the European Commission, which has showed an interest. Service providers should be asked to cooperate in this period and to provide their input regarding their needs and wishes. No significant funds or leading initiatives are expected from their side in this phase.

The ETTIN Working Group should coordinate to reserve the 116xyz number in Europe. It should also coordinate the preparation of the formal agreements with service providers and telecom operators. And it should coordinate a pilot implementation of test and demonstration ETTIN systems to raise further interest.

Proposed role during the Operational phase

During the operational phase the road operators will keep playing an important role. A neutral central body is needed for ETTIN, but it is not yet clear if during the operational phase the leading parties should be road operators or service providers. Marketing and system operations are the expertise of commercial parties, while monitoring, control and ensuring a level playing field are the task of a public organisation.

Pros for road operators' involvement in ETTIN:

The main responsibilities of road operators are traffic safety and a high performance road network. Implementation of ETTIN can improve access to traveller information and extensions of current services can be expected, either in coverage, language or content. Improved access and quality of services enable road users to make informed decisions about their trip. This rises comfort levels, since it reduces uncertainty (for example about expected travel times). It can affect traveller's behaviour positively, which in turn has its impact on traffic safety and traffic flow.

Cons for road operators' involvement in ETTIN

- Setting up ETTIN might lead to disruptions in the current market of traffic information services.
- Active participation by road authorities might raise expectations concerning financial contributions and hence lead to reluctance with other stakeholders to invest.
- Traffic safety is an important theme with constant political attention. Traffic safety should in no way be jeopardised by introducing a phone number as a main point of access to traveller information.

7.1.5. Which other organisations should be involved?

Many of the respondents of the questionnaires agree the ETTIN organisation should be responsible for coordination, monitoring and marketing of the ETTIN system, but always in cooperation with other stakeholders. A decentralised approach per country is also proposed.

The response to the second questionnaire shows the service providers should be involved in the development and setting up of ETTIN too. Telecom operators and standardisation bodies are important to make agreements with, but it is not foreseen that they should be actively participating in the development of ETTIN.

The respondents consider organisational issues and institutional differences to be a large bottleneck due to the number of stakeholders involved.

7.2. ETTIN proposals compared with 511

511 in the USA is the main example of ETTIN and the motive for the current Quick Scan. However there are a number of significant differences between the American and the European situation. In the following list a number of issues on ETTIN and 511 are compared. Differences and examples of good practice in 511 are highlighted.

- The current 511 services are all set up and operated by public authorities. In Europe road operators are careful not to compete with the existing service of private organisations.
- A significant problem of 511 is the lack of good available traffic data in some regions. In most European countries basic traffic data is available and already distributed by services providers.

- 511 was a joint initiative of the public and private sector. In Europe the public sector initiated the current activities, but the private sector (service providers) needs to be involved as soon as possible as well.
- A Deployment Coalition coordinates the central actions of 511, while all implementations are done locally. This could be a good model for ETTIN.
- In 511 the different services have a comparable structure of the main menu, this is also recommended for ETTIN for reasons of user friendliness.
- 511 have problems implanting speech recognition due to different accents. The language problem in Europe is even larger.
- Both telephone services and web-services are branded 511. The same would be a good approach for ETTIN.

511 is a good benchmark and example for ETTIN, but 511 solutions cannot be copied one on one to the European situation.

7.3. Conclusions from lessons learned from comparable developments

Chapter 5 shows the lessons learned from previous initiatives. The main conclusions for ETTIN are:

- A political decision at a higher level will boost the development of ETTIN, as it did for RDS-TMC and 112.
- The current plans for the introduction of 116xyz numbers in Europe should be used. A group of "Champions" should take the opportunity to influence this process.
- ETTIN needs the involvement of public organisations for standardisation and funding. The involvement of the public sector is also needed, because a sound business case is not yet clear.
- Reluctance of end-users to pay for traffic information makes the business case for ETTIN (and its services) difficult. However RDS-TMC, SMS and IVR show a successful business case for the services via ETTIN is possible. Besides that the One stop shop approach of ETTIN should be appealing for end-users.
- Care should be taken that situations change during the development of a system/concept. A flexible approach for ETTIN is therefore needed.

7.4. Recommendations for actions

The results of the work in the Quick Scan lead to some clear recommendations for action. These recommendations basically form the start of the road map:

- The many - diverse - commercial interests of service providers make it unlikely that the private sector will be able to introduce ETTIN successfully within the coming years. Therefore the road operators need to take the lead in the beginning and carefully consider if and when it can be handed over to others.
- It is recommended that a number of road operators with a strong interest in ETTIN ("champions") form an ETTIN working group in order to coordinate the first actions.
- The initiative for 116xyz is in a final stage and can still be influenced. 116xyz is set up with the public interest in mind and is intended for free services. For a solid business case for traffic information services paid services are crucial. It is therefore recommended that the ETTIN working group establishes contact with the organisations responsible, COCOM-EC and ECC-CEPT, as soon as possible.
- If the discussions with COCOM-EC and ECC-CEPT are successful, the dialogue with service providers should start. The road operators should keep in mind the interest of the (international) travellers as well as the commercial interests of service providers.

7.5. Recommendations for further studies

The above given road map and the recommendations for further actions identifies the main steps that needs to be made. In parallel a number of further investigations needs to take place:

- The Working Group needs material/studies to back up a draft proposal for the allocation of a 116xyz number for traffic services.
- The current scan focuses on the LDC countries, other European countries should also be involved. A good way to start would be to get their opinions on the questions in the two questionnaires too.
- The opinions of service providers were investigated in a limited way only. Their opinions need to be analysed as well. This asks for a detailed study, since each of the service providers has its own (commercial) interest.
- A cost / benefit analysis needs to be made on ETTIN. What are the costs involved and what are the benefits for the road operators, service providers and others?

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List of definitions

Definition	Description
(ECC-) CEPT	European Conference of Postal and Telecommunications Administrations
COCOM-EC	Communication Committee of the European Commission
DATEX	Data Exchange protocol - standard and applications developed for information exchange between traffic management centres and
EC	European Commission
EENA	European Emergency Number Agency - 112
EMCT	European Conference of Ministers of Transport
ETTIN	European Traffic and Travel Information Number
ETTIN content	The content of the services that are provided via the ETTIN portal
ETTIN introduction	The introduction phase of ETTIN, thus the period from now until the first operational start of ETTIN
ETTIN operational phase	The operational phase of ETTIN after the first introduction
ETTIN organisation	The organisation (form still to be defined) responsible for among others the coordination, monitoring, development, etc. of the work related to ETTIN. It also comprises of the identification of the participants and stakeholders and their respective roles within the ETTIN organisation during the operational phase of ETTIN after its introduction.
ETTIN services	Services provided via and not by ETTIN, ETTIN functions as a portal not as a service provider
ETTIN stakeholders	Organisations whose businesses or objectives are significantly influenced by ETTIN like road operators/authorities, service providers, telecom operators and automobile associations.
ETTIN system	The complete system of ETTIN, including possibly central equipment as well as local equipment in different countries/regions.
GPRS	General Packet Radio Service- mobile data service available to users of GSM mobile phones
HESC	Harmonised European Short Codes
IVR	Interactive Voice Response system, a system that responds to the user by voice
LDC	Long Distance Corridors is a demonstration project looking to support freight and other long distance traffic as it travels between Ireland and Italy
OTAP	Open Travel data Access Protocol OTAP allows service providers to easily and cost effectively access the real time traffic data held in the databases of road operators, traffic information centres and other content providers.
RDS-TMC	Radio Data Signal - Traffic Message Channel - providing digital information in side-bands of the FM-radio
Service provider	Organisation that provides road telematic services to road users. Road operators, radio broadcasters, automobile associations, automobile industries can also play the role of service provider.