**NextMAP**

Next MAP for transport telematic applications

**Funding:** European (5th RTD Framework Programme)

**Duration:** Jan 2001 - Dec 2002

**Status:** Complete with results

**Background & policy context:**

Current digital map databases have been defined and developed within European R&D projects for vehicle navigation systems, one of the most successful telematics markets. The Geographic Data Files (GDF) standard - a major output of these EC-funded projects - has been an essential precondition for the production of digital map databases.

**Objectives:**

NextMAP define, prototype, and evaluate the content of digital map databases required for future in-vehicle ITS applications - in particular Advanced Driver Assistance Systems (ADAS). ADAS applications support the driver in driving safely, comfortably and economically and include information, warning and control systems. NextMAP also propose and submit to the ISO standardisation an extension to GDF reflecting the requirements of these applications. Enhanced map databases are of great importance for all future map-based driver support systems. Pure information systems as well as intervening systems are under research today.

The key objectives of NextMAP are to:

- identify new map database requirements on the basis of functional requirements for anticipated in-vehicle ITS applications and focus on ADAS applications
- test and evaluate the technical and economical feasibility of these new maps
- formulate the map database requirements as extensions to the GDF standard and formulate cost consequences involved when adding the requirements on existing map databases. Consequences will be formulated in relation to the creation costs of a standard database

**Methodology:**

NextMAP's key activities:

- Determine preliminary functional requirements for anticipated Advanced Driver Assistance Systems (ADAS) applications and enhanced map database requirements, and to establish a roadmap indicating which information components are required with what accuracy, when, and for what type of applications
- Identify the source of this extended data and determine the viability of new data capturing techniques.
- Define and set up five test sites. For the sites in Stuttgart (DaimlerChrysler) and Coventry (Jaguar), enhanced maps will be digitised and made available to the car manufacturers. Test sites in Paris (Renault) and Turin (C.R.F.) will use the IN-ARTE project map data which will be converted into the NextMAP format. Finally, a test site in Munich will be defined and built by BMW without project resources.
- Prepare five test vehicles (one per car manufacturer) with the hardware and software necessary to run selected test applications.

**Related Projects:**

ADAS

**Parent Programmes:**
FP5-IST KA1 - Systems and services for the citizens

**Institute type:** Public institution  
**Institute name:** European Commission, DG Information Society  
**Funding type:** Public (EU)

**Partners:**
ERTICO (European Road Transport Telematics Implementation Coordination Organisation S.C.R.L.)
Navigation Technologies B.V.
Tele Atlas B.V.
Bayerische Motoren Werke Aktiengesellschaft AG
DaimlerChrysler AG
C. R. F. Società Consortile per Azioni
Jaguar Cars Ltd.
REGIENOV EIG (RENAULT Recherche Innovation acting on behalf of each of its members including in particular RENAULT and RENAULT Véhicules Industriels)

**Key Results:**

- Preliminary requirements for enhanced map database.
- Classification of data capturing techniques.
- Evaluation plan.
- Two test map databases and IN-ARTE map data prepared to be used in the tests.
- Five test vehicles ready for first tests with enhanced map databases on each test sites.
- Final requirements for enhanced map databases.
- Final evaluation results with overall technical and economical assessment.
- Extension to GDF submitted to the ISO standardisation (ISO TC204/SWG3.3).

**Technical Implications**

The final requirements for Enhanced Map Databases (EMD) presented in Deliverable D2.2 shows the desired evolution in content, accuracy and coverage of digital map databases to be used by future ADAS applications. The proposed EMD requirements were divided into two main groups:

- requirements concerning the geometric accuracy of the road network (e.g., road curvature, slope, etc.)
- requirements concerning additional information - i.e. new attributes and new features to be collected (topological lane information, traffic regulations and signs with their position, etc., see Table 3).

Different aspects for the creation of an EMD have been addressed, in particular:

- definition of relative versus absolute accuracy
- definition of geometric accuracy
- evolution of map content and road network coverage over time, resulting in an alignment of possible ADAS introduction and EMD creation strategy.

Not only is the content of a map database important, but also the point in time at which it will be available and the parts of the road network for which the information has to be collected (database coverage).

**Policy implications**

NextMAP was a unique opportunity for the map and car industries to join efforts for investigating the
technical and economical feasibility of an enhanced map database and its effects on applications' performance. This fruitful co-operation at all levels was key to the success of the project - constituting a precondition for the development of future map-based in-vehicle applications. Even more important, this co-operation strengthened European leadership in this vital sector, which will continue beyond the duration of the project.

NextMAP has successfully tested and evaluated the technical and economical feasibility of enhanced map databases. In particular, project results showed that:

- Enhanced map databases with an accurate representation of the road geometry and additional map content such as lanes, speed limits and traffic regulations are technically feasible and enable various new map-based vehicle applications which support the driver in driving safely, comfortably and economically.
- From an economic point of view, an enhanced map database could also be feasible, but there are significant differences in the cost of different features and attributes.

Documents:
- NextMAP Final Report (Final report)

STRIA Roadmaps:
Cooperative, connected and automated transport, Network and traffic management systems

Transport mode: Multimodal transport
Transport sectors: Passenger transport, Freight transport
Transport policies: Digitalisation
Geo-spatial type: Other