Co-ordinated travel management

The urban area of Montpellier

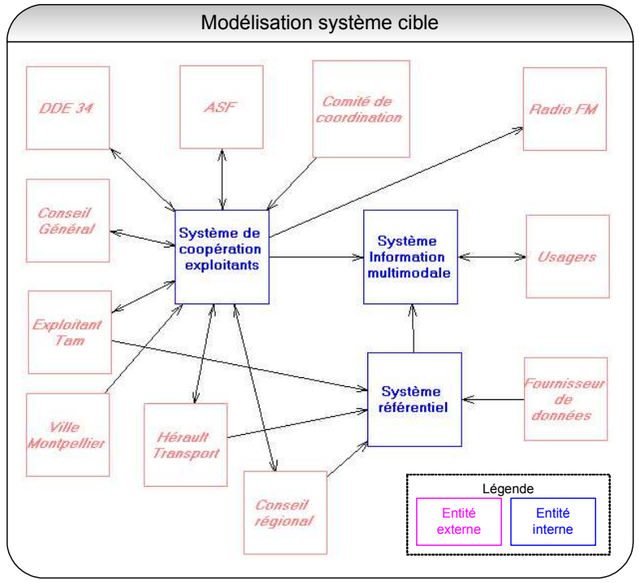
Organization modelling

This is useful not only to show how functions are organized within the scope of simple processes, but also to show where the basic information that will be "processed" in the system comes from.

Certain choices in terms of functional allocation will lead to modifications to the interfaces to be established between the different actors in the overall system functioning. This may give rise to the following questions:

- how is the multimodal information supplied?
- who will manage the reference system?
- how will user information be organized (single or multiple systems) ?

These questions give rise to the description of organizational scenarios, premises of the organizational architecture that will be implemented.



Modelling of the target system using ACTIF

How ACTIF helped - statements from:

Nicolas MALLOT, DDE Hérault—Project manager
Hatem BOULHLEL, Montpellier local authority

Nicolas Mallot, DDE Hérault

"The ACTIF methodology was applied to Montpellier, at the request of the DDE Hérault (local MoT office), initially with the intention of identifying the conditions necessary for the development of a multimodal information system for travellers in the metropolitan area. The use of ACTIF has proved essential for several aspects. Firstly, it enabled us to embark upon a project between road network operators and public transport authorities, which is not always easy due to the issues at stake and the objectives of each party, which are sometimes contradictory. ACTIF also highlighted a strong need for cooperation and coordination between operators and transport authorities. Finally, ACTIF enabled the theoretical foundations of a multimodal information system for travellers to be identified, which was the initial objective.

Today, on the basis of the recommendations put forward, we have made progress in terms of cooperation and coordination between road operators and transport authorities. A permanent technical committee (GEENDAM: multimodal travel management in the Montpellier metropolitan area) has been created on the initiative of the DDE. It groups together all network operators and transport authorities that are involved in the urban transportation plan study and meets every three months. An e extranet site aimed at fostering cooperation has been developed with the help of the CETE Méditerranée, in order to facilitate information exchange and cooperation. A deeper look into cooperation and coordination in the event of a crisis is planned for the coming months.

As for multimodal travel information, we intend to suggest to the different partners that Montpellier be made an experimental site for the development of a multimodal travel information portal for the area (as part of the urban transportation plan study) within the scope of the EU INTERREG project, in collaboration with the CETE Méditerranée and the Ecole des Mines (a higher education institution)".

Hatem BOUHLEL, ville de Montpellier

"A project such as ACTIF provides a method and matter which facilitates reflection. The modelling proved particularly useful and enabled this refection to be put into simple diagrams, which enabled discussion between technicians. However, the pedagogical side of ACTIF needs improving for decision-makers who often wish to see rapid and concrete results. It is important to help technicians to show the use of this type of formative approach in decision-making".

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***Project**: implement systems combining the coordination of operators and communication to users*

***Challenge:** optimise the use of roads and encourage the use of public and environmentally-friendly modes of transport*

***How ACTIF helped:** the use of the model and tools enabled the convergence of two different approaches*

The local context

Demographic growth linked to the dynamics of the urban area of Montpellier has led to peri-urbanization with a significant impact on travel conditions. The area does not have bypasses, however the A9 acts as a southern ring road with three free interchanges providing access to Montpellier. These are regularly saturated in the morning rush hour, leading to major problems in terms of safety and queues on the motorway. The traffic management measures taken by the various road operators are often not coordinated.

One of the initial objectives of local officials was a modal shift from private vehicles to public transport. Measures aimed at dissuading the use of cars in the town centre have been implemented through traffic schemes and a reduction in parking supply. Today, their main preoccupation is the success of the tramway. The success of Line 1 and the nature of Line 2, designed as a distributor line connecting with public transport services from the city suburbs, has shown the need for a **multimodal information service**.

The objectives are those of an urban transportation plan :

- develop a multimodal information system,
- optimise the use of existing roads,
- promote public transport and environmentally-friendly roads as opposed to the use of cars,
- encourage modal shift via park-and ride sites.

The Direction Départementale de l'Equipement (local Ministry of Transport office) has a central role to play in the action of the various partners, in order to optimise the use of infrastructure within the scope of **coordinated travel management**. This role was confirmed by article 18 of the law of the 13th August 2004 relating to local responsibilities and independence, which confers upon the State the mission of ensuring "the coherence and efficiency of the road network as a whole, and in particular road safety and the consistency of road management and user information".

On its initiative, and with the collaboration of local authorities, the DDE therefore chaired discussions on the possible implementation of a **multimodal information system.**

The use of ACTIF

Within the scope of this mission, the DDE must propose objectives, a method and a general project architecture, which on the one hand highlights ways of improving cooperation between road network operators and transport authorities, and on the other hand indicates the manner in which a multimodal information system should be implemented and the necessary links between the two different aspects of the project.

The DDE called upon the CERTU and SETEC ITS for assistance, within the scope of the ACTIF project, in order to :

- clearly define the project scope (geographical and functional scope, network concerned, type of information targeted),
- establish a diagnosis of current practices and systems,
- clarify needs, constraints and functioning principles,
- model different scenarios for the functioning of a comprehensive transport system integrating multimodal information and coordinated transportation management.

This assistance, which was provided in the first months of 2005, was presented to the steering committee in April 2005. The different points of the ACTIF study are presented in this information sheet. The complete report is available on the ACTIF web site.

A project ?

The ACTIF team can provide help with your projects and pilot studies.

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Defining project scopes
Different scopes, but consistency between actors

The geographical and functional scope of the project, as well as the actors involved, depend upon whether one focuses on the objective of coordinated transportation management in the urban area of Montpellier or on multimodal information concerning all public transport networks serving Montpellier :

- coordinated travel management will essentially interest road operators acting within the scope of the urban transportation plan (urban municipalities and groups of municipalities, county councils, local Ministry of Transport offices and the ASF motorway company),

Languedoc-Roussillon region

Montpellier metropolitan area

- whereas multimodal information must take into account all transport within the Languedoc-Roussillon area, as Montpellier has a significant number of commuters who may be interested by rail transport (possibly even outside the geographic region). The actors concerned in this case are the regional council, public transport authorities and their different operators.

  Problems related to the heterogeneity of these scopes can essentially be resolved by choosing a single conciliator to examine both projects. The action of the latter will be facilitated by the fact that transport authorities generally have consistent policies.

The diagnosis of the existing situation
The coordination and sharing of information: starting from scratch

During different interviews with partners, conducted in spring 2005, and in comparison with the functions and interfaces proposed in the ACTIF model between “traffic and transportation management” and “travel information” professions (functional areas 3 and 6 of the model), the following elements were highlighted :

- multimodal information

Prior to their journey, users primarily obtain information on the transport supply through the web sites of transport operators: TAM (for the urban area of Montpellier) and the regional express transport network (TER). There is no system that provides an overall view of public transport services on a regional scale.
During journeys, information never intersects. At the same time, information on available parking spaces is at best provided in the vicinity of car parks, which does not facilitate modal shift.

- Coordination of road network operators

The comparison of the logical functional model provided by ACTIF and actual practices highlighted the following points :

  – coordination is in deferred time, i.e. the creation of traffic management plans is operational,

  – coordination in real time is lacking, in addition to knowledge of traffic conditions on other partners’ networks.

Regular meetings between road operators have provided the foundation for a system of shared information on forecast disruptions (road works, major public events), but have not yet led to coordinated road management. Major incidents or events are dealt with through traffic management plans (TMP) whose development requires discussion between the different actors concerned, notably for the designation of alternative routes. However, exchange between partners is not organized in the event of a major disruption.

Common traffic management strategies need to be defined but imply that useable information is made available to partners. However, data collection and traffic management means are of a varied nature and level, depending on the road operator. ASF possesses an operating aid system called MISTRAL in addition to field equipment for traffic data collection and user information (107.7 radio station and VMS). These data collection and traffic management means are limited for the other actors.

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Functioning requirements and principles
Shared information, commonly-decided communication

Through different contacts, the partners’ requirements were more clearly expressed.

In terms of multimodal information, transport authorities wish:
- to have information on the scale of the geographical area retained, which is independent of the different operators,
- to have theoretical information on transport supply and disruptions affecting the various networks,
- to take into account private vehicles which will be encouraged to use tramway park-and-ride sites or stations,
- promote tourist information.

In terms of traffic management improvements, the different actors (road managers and transport authorities) wish:
- to have better knowledge of traffic conditions on other partners’ networks (disruptions, planned road-works, traffic forecasts,….)
- to disseminate information to users in real time (VMS, local radio stations,….).

The main requirements of the partners can be summarized as follows: “share information, but discuss and agree on how it is to be communicated”.

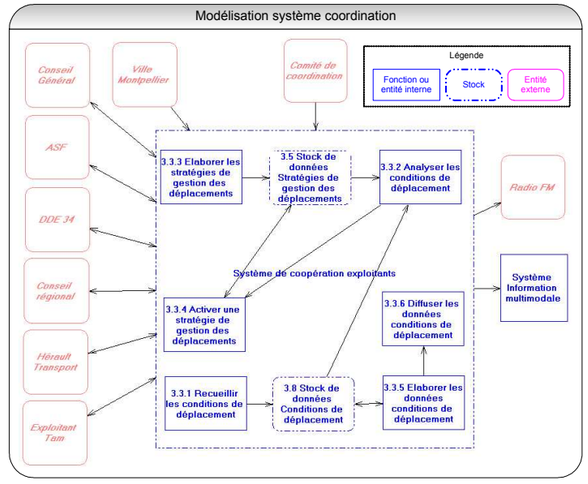
The design of a coherent system taking these two main aspects into account must also take into consideration the “function-in-synergy” principles of the various organizations; principles that are heavily dependent on the realities and constraints out in the field :
- lack of hierarchy: no hierarchical dependence between actors,
- subsidiarity: each actor remains master within its particular field of competence,
- cooperation: the sharing of information and simultaneous intervention if necessary,
- coordination: cooperation based on pre-defined strategies,
- information exchange in asynchronous mode: a system can continue to function in spite of the absence or unavailability of another system.

Modelling of the functional architecture
Highlighting the interfaces between systems and organizations

The work carried out using ACTIF and its tool, OSCAR, (which uses objects described in the model to draw possible functional and organizational architectures) was based on the identification of three different sub-systems :
- a multimodal information system,
- a system referred to as “cooperation between operators”,
- a system referred to as the “reference” system, which is essential for enabling an actual intersecting of information. Indeed it guarantees its consistency (form, format, description, translation….) in addition to the description of similitudes between the different networks. This fundamental notion, in the field of cartography, for example, had not previously been taken into consideration.

The basic functions of each of these systems are a transcription into ACTIF vocabulary of the activities identified for each one of them.

The system facilitating cooperation between operators comprises the following activities :
- collectively develop traffic management strategies (alternative routes, for example),
- provide an overall view of transportation for the area concerned,
- disseminate information to all partners,
- issue requests for assistance to predefined partners
- activate a strategy according to the nature of the incident (thanks to a decisional-aid tool) by issuing recommendations for measures to be implemented by operators.



Modelling of the coordination system with ACTIF