



Urban mobility and freight distribution service: best practices and lessons learnt in the MEROPE Interreg III B project

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Abstract

MEROPE (Telematic instruments for innovative services for mobility and logistic in urban and metropolitan areas), an INTERREG III B MEDOCC (Western Mediterranean) area project, started in September 2002 and ended in October 2004. In particular MEROPE addressed axis 3 - *Transport Systems and Information Society*; Measure 3.4 - *Innovative communication and information technologies for the development of the territory*. MEROPE's overall objective was to investigate and develop evaluation models and telematic instruments to manage mobility and logistics in urban and metropolitan areas, in order to promote the development and application of innovative Information and Communication Technology (ICT) in support of integrated transport systems.

A total of 14 cities were involved in the project, between them carrying out 9 study projects and 7 demonstration projects oriented towards the analysis and definition of mobility, transport and logistics chain features, with particular attention to their impacts in terms of environment, sustainability and competitiveness.

This paper presents the development of the Merope project both at interregional level and in terms of the work carried out in each local site. Rather than a straightforward description of the work, however, it concentrates largely on an analysis of the project's best practices and added value. As the project is now closed both in terms of activities and financial management, its current importance lies in its sustainability and transferability. Thus this paper will analyse the innovative actions carried out in Merope, within the general economic, social and political context of mobility and logistics, in order to identify what Merope has brought to the sector and what indeed remains to be done.

Keywords: ICT; Innovation; Logistics; Microsimulation; Mobility; Modelling; New Fuels; Sustainability; Transit point; Transport; Vehicle Routing.

Introduction

The MEROPE project (Telematic instruments for innovative services for mobility and logistics in urban and metropolitan areas), was financed by the INTERREG III B MEDOCC (Western Mediterranean) programme and approved on approved on axis 3 -

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Transport Systems and Information Society; Measure 3.4 - *Innovative communication and information technologies for the development of the territory*. The project began in September 2002 and was concluded in October 2004. The main aim of the MEROPE project was to investigate and develop evaluation models and telematic instruments to manage mobility and logistics in urban and metropolitan areas, in order to promote the development and application of innovative Information and Communication Technology (ICT) in support of integrated transport systems.

MEROPE's specific objectives were as follows:

- Analysis of urban and metropolitan mobility and transport characteristics;
- Development of a shared methodological approach related to mobility and logistical reorganisation;
- Studies, analyses and simulation projects on the use of ICT technology in innovative mobility and logistics services;
- Demonstrative pilot projects related to various aspects of mobility and logistical reorganisation;
- Definition of "best practices" based on real experiences.

The 14 cities involved in the project, between them completed 9 study projects and 7 demonstration projects, oriented towards the analysis and definition of mobility, transport and logistics chain features, with a particular attention to their impacts in terms of environment, sustainability and competitiveness. Each city followed its own specific project which was then integrated and coordinated within the context of the overall project.

The seven pilot projects concerned a number of innovative programmes of work regarding different aspects of the mobility and logistics process. Between them the projects produced: a system of integrated ticket sales via internet, experimentation and enlargement of innovative goods distribution systems, a system for the control and monitoring of vehicle flows and two different systems of integrated management of parking areas including use of variable message panels, on-board information panels on public transport, and an on-line mobility data base.

The nine studies also considered a range of mobility and logistics issues. These aspects included the feasibility of a transit point for goods distribution, other goods distribution management possibilities (by road and rail), the feasibility of city centre access control systems using electronic gates, technological systems and services to support mobility management and relative methodologies and systems of parking management.

Furthermore, a number of international co-operation projects of data and methodology exchange were successfully completed and relative simulations and analysis developed. These projects involved various actors including local administrations, universities, research centres and transport companies. One cooperation project was also carried out with a third country, Morocco.

This paper will present the work carried out throughout these studies, pilot and cooperation projects and the overall project level activities. However, it will concentrate particularly not on the technical aspects of the project but on the lessons learned from the project, the 'best practices' and indeed the problems encountered. As the project is now closed both in terms of activities and financial management, the importance now

lies in its sustainability and transferability. This paper aims to identify where these features are present in the MEROPE project and what must be done to build on them.

Technical development

Project work was divided into 5 activity phases which are described in detail below.

Activity Phase A: studies

The three actions within this initial phase were undertaken between February 2003 and October 2003. The first two activities involved preliminary studies to define an executive action plan and feasibility analysis and project planning. In conclusion the first deliverable, *P1: Report on Base Data and Information for the Execution of Local Projects*, was produced. This report combined contributions from each partner which described the characteristics of the local site and the proposed MEROPE actions.

Activity A3, meanwhile, was that of local project studies and the identification of evaluation indicators. The resultant deliverable the *P2: Details of the Common Evaluation of Local Project Results*. This deliverable was developed by Universitat Politècnica de Catalunya (UPC) and CETE Méditerranée who worked together to find a model to allow for a common evaluation of project results. It provides a clear definition of the typology of the MEROPE projects and goes on to outline a structured methodological process to evaluate city logistics scenarios and the environmental impact of proposed interventions.

This first phase can be described as a “fact-finding mission”. Partners were asked to fully analyse the characteristics of their local site and consider how the Merope project could be of added value in that particular reality and how the work could be evaluated. A number of the problems identified and affronted are described below (Page 9: Problems Encountered and Solutions Adopted) but one specific issues which came to light, and which the Merope project hoped to go some way to resolving, was the lack of easily accessible information on city logistics and the lack of previous, integrated strategies of intervention. The Merope project suffered from this in terms of delays to the project timetable. However, on a more positive front, the phase served to identify the problem which the successive phases could then seek to resolve.

Activity Phase B: development of local pilot projects

Phase B, running from June 2003 to October 2004, occupied most time and most of the project budget, it being the phase in which local projects were developed. Action B1 concerned the development of demonstration projects while action B2 foresaw the development of local study projects. These actions were both concluded with a final report, *P3 Report on the Development and Completion of Local Demonstration Projects* and *P4 Development and Completion of Local Study Projects*, respectively, both of which were compiled by the project leader using contributions from each partner. The

partners followed a common model to describe the background to their project, the activities carried out and the project results.

Feasibility studies were successfully undertaken in nine sites, all producing valuable data and findings regarding the local reality and also the wider picture on mobility and logistics services. In a number of cases, the findings were reinforced through the use of simulations. The studies have provided a wealth of transferable information on mobility, logistics and the use of ICT in innovative services.

Moreover, in seven sites pilot projects and demonstrations were carried out, including projects relating to car park management, traffic flow management, goods distribution, user information, communication and environmental impacts. Each of the projects has provided an important demonstration of how innovative mobility services can be developed and integrated into existing services and what benefits they bring to the local reality.

As the MEROPE project was approved and financed under Measure 3.4: Innovative Information and Communication Technology for territorial development, a large part of phase B concentrated on the identification and development of IC technology. A number of MEROPE partners experimented with innovative technology, most notably Siena, who produced, for example, an innovative data transmission service, Genoa, who uses high tech hand held data for the management of their hub and fleet, and Florence under the supervision of ATAF, who uses GIS tracking systems for its on board information screens. Other partners experimented successfully with Internet technology and electronic information panels.

The MEROPE local projects and their results are summarised in the table below:

Table 1: Merope Sites, Actions and Results.

<i>Site</i>	<i>Planned MEROPE activities and interventions</i>	<i>Results obtained</i>
Florentine metropolitan area	Technological/informative platform for mobility information, monitoring and management of intermediate services. Pilot project Goods distribution in the historical centre with transit point. Feasibility Study	Definition of Strategic Plan for application of IC and telematic technology. Creation of an integrated computerised base to provide user information on services, integrated timetables and inter modality. Methodology and relative computerised instruments for evaluation of overall accessibility to transport services. Definition of technological services and infrastructures to monitor mobility processes. Feasibility study for a transit point in Florence, with economic analysis, hypothesis for management, location and dimension of the warehouse and fleet.
Siena	System of integrated car park, tourist bus and traffic flow management with variable indicators. Pilot project	Development and patenting of system for control and monitoring of vehicle flows. System monitors and manages tourist buses using data provided by data collection unit. Variable messages panels inform bus operators on car park availability.
S. Gimignano	Feasibility study for automatic access control to the LTA and identification of technological system and typology of communication network. Feasibility Study	The feasibility study is one of the council's preliminary evaluation instruments for the possibility of creating a system of control for access to the historical centre.

Lucca Comune	Feasibility study and planning for the creation of a logistic service centre. Feasibility study	Cognitive investigation into the structure of a goods distribution system in the historical centre. Data exchange with UPC to develop a simulation of mobility situation in the historical centre.
Lucca Provincia	Development of logistics systems of goods inter-mobility and movement with software elaboration for an applicative simulation. Feasibility Study	Evaluation of potential inclination of local production fabric (Garfagnana – Media Valle del Serchio e Piana di Lucca) to use advanced logistic services for goods transportation and modal rebalancing in favour of railways.
Genova	Development of ICT instruments for the optimisation of goods loading and delivery in the city centre and the metropolitan area. Pilot project	Experimentation of existing project and widening of the area served to the entire historical centre. Improvement of existing service with aid of innovative ICT to manage vehicles and routes: handheld apparatus with GPS, barcode reader and GPRS transmission technology. Collaboration with CETE Méditerranée: study on reduction of environmental using following low impact vehicles for goods transportation.
Modena	Optimised goods distribution in urban centre through transit point. Pilot project	Action plan for the rationalisation of goods distribution in the urban area.
Piacenza Area	Planning of a goods flow observatory. Vast area logistics plan with logistic intervention and ICT systems. Pilot project	Urban logistic plan, web site and a database to manage an integrated system of urban logistics. Data exchange with UPC to develop a simulation of the situation regarding mobility in Piacenza.
Napoli (Pozzuoli)	Telecentre for improved use and management of an integrated public transport parking system. Improved accessibility to insular territory. Pilot project	Initial analysis of technological systems and services to support mobility management leading to reference framework for mobility management based on ITS systems and services. Integrated management of stopping areas.
Roma	Optimised goods distribution in the urban centre through a transit point. Methodology and guidelines. Feasibility study	Analysis of demand/supply with identification of a site for a logistical platform. Data exchange with LGI2P - Armines for the optimal hub location.
Terni	Study of urban logistics improvement with transit point. Logistics system with integrated urban mobility system. Feasibility study	Analysis of transit using electronic gates; sample survey among commercial operators; evaluation of medium term requirements (quantity, goods category, logistics bases, delivery points).
Cosenza	Feasibility of goods distribution control system with simulation techniques to estimate impact on mobility conditions. Evaluation of different communication strategies and structure of goods distribution process. Feasibility study	Pilot project concerning the feasibility of a goods distribution centre in the urban area of Cosenza and of the relative telematic systems for traffic control.

Sevilla	Identification and evaluation of current mobility models and processes. DLZM demonstration (internet use for reservation of loading zones). ICT simulation and evaluation on goods distribution. Pilot project	Study to identify system to manage reservations of loading zones for goods delivery. Two-week experimental project with the participation of various actors.
Palma de Mallorca	Study to define and implement a system of ticket sales via internet. Pilot project	System of integrated ticket sales via internet.
Marrakech	Study relative to general plan for management and regulation of traffic and mobility of people and goods. Report	Feasibility study that will lead to a logistic platform integrated in a car park in Marrakech.

Activity Phase C: experience exchange

Activity C1, undertaken between April 2003 and May 2004, concerned project data analysis including data, experience and problem/solution exchange. This process was carried out particularly through meetings between consortium members and between the two committees developed: Steering Committee (CdP - Comité de Pilotage) and the Coordination Committee MEROPE – CITY PORTS (CdC) which provided inter-project cooperation with the Regione Emilia Romagna, project leader of the CITY PORTS project approved under INTERREG IIIB CADSES.

Aside from these regular meetings, a number of initiatives were organised concerning specific sectors of the project. All partners interested in innovative means of goods distribution were invited to a demonstrative meeting in Genoa where they were shown round the existing hub for goods delivery optimization. Methodology exchange took place between Lucca and Perugia and a common methodology was formed between Merope and the CITY-PORTS project. The experience of MEROPE was used to help develop the CITY PORTS methodology, which was then made available to the MEROPE project.

An exchange of expertise also took place between Siena and the Communauté Urbaine de Marrakech. The administration in Marrakech has been working towards a General Plan for the management and regulation of traffic and mobility, due to the city's uncontrolled rate of growth in terms of population and commercial activities without construction of the necessary infrastructure.

The activities developed by the technical office of Communauté Urbaine de Marrakech concern improvements to the viability of private transport and goods transportation vehicles in the city centre. In particular, the study aimed to identify short term programmes to improve circulation and medium term solutions to parking related problems. Thus, a series of studies on traffic characteristics and analysis on the current provision were carried out. The studies were extended to include goods distribution transport and were carried out under the technical supervision of Siena Parcheggi. The study was further streamlined to concentrate on the feasibility of a car park in the centre of Marrakech. Siena Parcheggi were entrusted with the study and have developed a project hypothesis with various construction options. The study project is ongoing.

While the final outcome of this study remains unclear, the process leading up to this point has been extremely productive. Once the initial problems were resolved the two parties were able to open productive lines of communication, promote an exchange of experience and ideas between two very different realities and to produce real results. Furthermore, the study has laid the basis for the development of what could be of notable economic importance to Marrakech. The importance of this final factor is extremely high as the INTERREG IIIB programme specifically states that one of its ultimate objectives is to extend territorial development to the whole Mediterranean Zone.

One other important example of exchange are the cooperation projects carried out between UPC, Lucca and Piacenza, between CETE and Genoa and between Armines and Rome. The UPC/ Lucca/ Piacenza project tested an evaluation methodology for a city logistic model using simulation software. The project involved exchanges of data regarding, to name but a few, traffic flows, vehicle typology, city maps including retail location. Genoa and CETE undertook an exchange of data in order to evaluate the environmental impact (through a rate of pollutant reduction) of a fleet of electric vehicles on an ecological road. Armines and Rome also carried out a cooperation project using data exchange to find the optimal location for a transit point in Rome.

Action C2, (January 2004 - project end), involved result evaluation, specifically the analysis of indicators at local sites. The conclusive deliverable was the *P5 Report on the Elaboration of a Simulation System for the Comparative Analysis of Impacts on Different Locations Relative to Mobility, Accessibility and Feasibility*, which elaborated a simulation system for comparative impact evaluation regarding mobility, territorial accessibility, communication and sustainability. This action underwent some changes from the original proposal. It was developed by UPC and CETE and rather than involving the whole project it concentrated on the cooperation projects described above. This work then formed the basis of the P5 while the rest of the project was evaluated using a series of indicators established at the outset of the project which were then included in the *P6 Final Report: Project Best Practices*. This report forms part of Action C3, Conclusions and recommendations, which proposed coordinated action between partners to elaborate project conclusions and developed a series of recommendations relating to the activities developed throughout the project. The report highlights the positive and negative aspects of the project in an attempt to provide a document that not only sums up the project but also provides guidelines which could be adopted by other similar projects.

Activity Phase D: networking

The first action in this phase concentrated on the definition and implementation of a strategic network at an institutional level and involved relationships with local councils, regions and third countries. This lasted the entire duration of the project. Through meetings and regular contact the consortium itself formed a strategic network and managed to include a number of council administrations and regional authorities in addition to various different mobility actors such as universities, research centres and public transport companies. As seen above, it also included Morocco as a third country and proved vital in establishing a good working relationship between the partners within the EU and Morocco, thus enlarging the network.

The second action, on the other hand, worked towards organising and creating a horizontal platform of information and dialogue and encouraged communication and links between partners. Again this action lasted the duration of the project and included the production of deliverable *P7 Quality Handbook*. This deliverable established how the project should be managed and run and what was expected of each partner. Following this document and maintaining constant flows of information between project leader and partners, a working horizontal platform was established.

A Working Group was also created for the integration of project methodology and results with the City Ports project and ran from March 2003 to project end. This Committee, which united representatives from the working groups of each project and experts in the relative themes, ensured the exchange of experience and of the results from the two projects. The scientific component of the Coordination Committee was formed by sector-based experts who were also representative of the various different “schools of thought” that have been developed in Europe with regards to city logistics.

The final action in this phase, again lasting for the project duration, was based on the consolidation of experience and reciprocity of network techniques and the definition of a shared informative methodology. Ultimately, rather than a shared informative methodology some good examples of individual informative schemes were created. One particular example is that of AICIA in Seville who involved a wide range of local actors from goods carriers to the local police and also set in place a training programme for those involved in using the computer systems.

Activity Phase E: information activities

Both Action E1 and E2 concerned publicity, working towards extracting project results and diffusing them through conferences, seminars and publications. This involved all partners and lasted from April 2004 to the project end.

Throughout this phase the MEROPE web site, the final version of which was presented in September 2003, was developed in collaboration between the Regione Umbria and the Regione Toscana. The web site, which can be found at www.merope.net, contains one section for the general public where information on the project, the partners and related events can be found and another section for registered users only. Registered users, in this case the project partners, can access documents related to project activities, administration and meetings, for example, power point version of all partners’ presentations which were made available shortly after the meeting itself.

Any event regarding the project was published in time to allow maximum publicity and dissemination. The web site will continue to be active for a further three years from the end of the project activities in order to allow continued diffusion of the project and its results.

The MEROPE project was presented, both by the lead partner and by project partners, at a series of international, national and local events. On an international level the Regione Toscana presented the project in Danzica in June 2003 at the Cesura’03 Conference and in Vienna at the e-challenges 2004 conference on the 27th – 29th of October 2004.

At a local level dissemination was carried out in a number of different forms. The Regione Toscana organised a number of information days. One was held in Pisa in

February 2003 and the other in Lucca in March 2004 and other partners also organised local dissemination activities. In Naples, for example, CTP presented the MEROPE project using information panels during an exhibition of ecological vehicles. Moreover, numerous articles have been published in local newspapers and the MEROPE final workshop was covered by both local and national newspapers.

MEROPE was also presented at an innovation exhibition, Firenze World Vision, held in Florence, 23rd -26th September. Here some of the instruments developed throughout the project were demonstrated, for example the technology developed in Siena for the management of tourist buses and the monitoring of environmental conditions.

Another important activity concerned the seminar for project leaders involved in INTERREG IIIB Medocc organised in Rome in October 2004. The MEROPE project was presented as a management best practice and the presentation can be found on the Medocc website: www.interreg-medocc.org.

At project conclusion some partners organised local conferences to present their result and experiences. A conference entitled “Urban Logistics: an opportunity for the economy, mobility and the environment” was organised by Piacenza on the 8th of November 2004. It included presentations regarding different aspects of the project and a round table on the issue of urban logistics in general. (presentation can be found on www.piacenzamerici.it). The Regione Calabria also organised a local conference, held on the 19th and 20th of November 2004, and entitled “Project for inter-modal accessibility to Euro-Mediterranean transport in the community programme INTERREG IIIB MEDOCC”.

MEROPE’s final workshop was held in collaboration with the projects, CITY PORTS (INTERREG IIIB CADSES) and eDRUL (V Framework IST Programme – IST), on the 15th and 16th of November in Florence. It was entitled “Innovative Urban Logistic Services for the sustainability and accessibility of European cities”. The workshop welcomed 30 speakers from various backgrounds and attracted an attendance of over 200 people from various countries. The event was covered in a number of newspapers and television channels both at local and national level.

Problems encountered and solutions adopted

Attempts were made to form a political committee in order to take the choices made in Merope to a local and national political dimension. This committee held an initial meeting at the time of the Merope project meeting in Pozzuoli and welcomed participation from the Mayor of Pozzuoli, and Regional and Local Ministers from Naples, Siena, Lucca and Marrakech. While the meeting was successful and political interest was demonstrated, the committee did not continue with any kind of regularity as it was quickly discovered how difficult it is to organise inter-regional and international meetings between politicians. The solution taken in terms of political involvement was for each partner to concentrate on its local political actors and try to involve them. This proved more effective than trying to organise international committees.

One increasingly evident problem was that the MEROPE consortium was large for an Interreg III B. Being a project aimed towards concrete pilot actions, thus requiring a high level of control, 13 partners (20 with local partners) proved to be far too many. Furthermore, the MEROPE consortium consisted of partners of a varying nature,

including universities, research institutes, local and regional public administrations and transport companies and the integration between them was sometimes fairly complex.

To overcome these problems, the partners were in frequent contact, prevalently via email, in order to exchange information and data. In addition, partners had the possibility to discuss any issues at the three-monthly project meetings and a number of visits between groups of partners were organised to resolve specific problems or undertake specific activities. Furthermore, the lead partner found that it is fundamental for at least one or two people to follow all project phases, from the presentation of the project proposal, to the meetings and the relationship with the Management Authority and the Secretariat.

Another important consideration regards the programme of activities and various project phases. These were determined at the proposal stage and were based on educated estimates, however, throughout the project a number of local sites found that their original plan had to be adapted to coincide with their daily territorial events and realities. One example is Seville where the location and timetable of the original plan had to be completely changed in order to allow for metro building works. Another example is Piacenza where the initial plan to develop a goods observatory, was substituted with the implementation of a database. This change was due to the lack of attention previously paid to the issues addressed. It was therefore necessary to undertake an initial process of information collection and to reorganise it in a structured database. It became increasingly clear throughout the MEROPE project that, in general, little attention had been paid to goods distribution in urban environments. A number of partners discovered that their site did not have the history of analysis in this sector and therefore the studies started with little background data and information.

Other partners to face changes and delays include Mallorca, the Regione Calabria, Rome and Modena and Cosenza. In these cases the solution was to change the local project objectives or timetable to suit the new conditions.

Almost all those who undertook a study project had difficulties in data collection. Armines had problems regarding data typology, as the mathematical models require static data in addition to dynamic data and it was often not available. The solution adopted was to create a model which is flexible enough to fit configurations with partial data and to simulate missing data. The model is structured to allow new data insertion if and when available. I2T3 in Firenze, Rome and Terni also faced such difficulties. In Rome and Terni this was particularly related to surveys and the incomplete responses provided. In Rome the solution adopted was to hold meetings with the respondents and explain exactly what was required and why. This involvement was found to be strictly related to the success of the project.

Difficulties relating to technical operation were experienced by both Genoa, Siena and Mallorca. In Genoa electrical vehicles initially adopted as a low environmental impact solution experienced a sudden decrease in efficiency. The solution was to introduce vehicles supplied by methane gas, which proved very reliable, and to experiment with appropriate maintenance assistance to the vehicles themselves and the battery charging stations.

In Siena, for example, delays were caused by hardware malfunctions (GSM Communicators), and the necessity to integrate and encourage communication between the various systems (ACITRAFF system, software for managing the tourist bus flows, variable message screens). Siena Parcheggi held several meetings with the system supplier to face the problem of incompatibility and after several attempted solutions and

tests the issue of incompatibility was successfully solved. Delays were also created by the hardware and software testing necessary to activate the whole system.

To summarise the situation regarding pilot project implementation, the process was not simple and was hindered both by the problems identified above and by external factors which often came into play. The results in some cases were not a concrete as originally hoped and thus did not go as far to resolving logistics problems. However, overall the experience was positive in that partners did manage to learn from their mistakes produce instruments and services of direct relevance to their local territory and to gain knowledge and experience in this area.

The future of MEROPE

Initiatives and sources of finance to assure project sustainability

70% of the demonstrations provided by the MEROPE project will continue as permanent fixtures after the conclusion of the project. This is due to the fact that MEROPE was born from real territorial needs and therefore there is a widespread interest to maintain the resultant services and equipment. The projects that were developed throughout MEROPE could have a real use and impact if implemented as permanent features. Some examples of the sustainability of the technology developed include ATAF and Siena. The on board-information panels developed by ATAF have undergone an experimental stage and become permanent features on 64 buses. In Siena the system for managing tourist bus parking has also been tested and approved as a permanent feature, now in deployment phase.

Many projects do require administrative support and, more specifically, some kind of financial backing, mainly in the initial phase of setting up the project. This problem was highlighted by the experience of AICIA. During the demonstration, the reservation and use of the specified load zones by the participating carriers was free of charge. Although participation and interest in the project was relatively high, there is a lack of willingness to pay for the use of such a system. If the service were to be implemented on a permanent basis a financial commitment from the local authorities would be necessary.

In Genoa this problem has also been recognised. The goods distribution service is open to anyone (transporters, forwarding agents, or private citizens) who needs to make a delivery in the historical centre of the city and until this point it has been free and facultative. It has been recognised that stricter conditions imposed by the council, aimed at convincing users to deliver all goods to the demonstration area, would have increased the amount of deliveries carried out via the hub. The council in Genoa is currently analysing various solutions, such as tendering, to assign the distribution system (managed by the council or by a separate private company).

The sites which carried out studies also recognised the issue of financial viability and sustainability. The solution they recommended for a successful development of an eventual city logistics system was to provide an in-depth business plan outlining exactly what the necessary investment would be and to encourage public/private partnerships. Currently a solution based only on public resources is neither feasible nor sustainable. Cooperation, in terms of costs and benefits, with private entrepreneurs, directly involved in distribution, represents an effective and efficient solution.

In general, the measures taken in terms of publicity and dissemination of results should help to increase interest and awareness of mobility issues, thus encouraging possible investment.

Main impacts

One weakness regarding the multiplier effect of the Merope project was that no methodology common to all partners was developed and therefore it is difficult to present the results in a format that can be useful to local administrations at a generic level. Indeed, while local projects were compared and evaluated using common indicators, due to the fact that they were all responding to local needs they were often very different. Common analysis and presentation was not easy.

As described above the Merope consortium did make attempts throughout the project to involve the political sector. While the creation of a political committee proved too ambitious a number of successful meetings helped to promote political interest both at local and national level. In addition to the meeting held at Pozzuoli, two other seminars had a high political content. The final seminar held in Piacenza dedicated a morning to the political side of mobility issues by inviting local councillors from Genoa City Council, Piacenza City Council and the Province of Piacenza. The final workshop held in Florence also welcomed the participation of representatives from the Regione Toscana, the Regione Emilia Romagna, the Province of Florence and Siena City Council. These events are important in terms of sustainability of the project as they promote awareness and support for the measures taken.

It is political support, or indeed opposition, that will determine the long-term implementation of the services experimented throughout the project. Overall the local political reaction was generally positive and supportive but has not yet passed into concrete action. For example, the local authorities took an active role in the project carried out by AICIA in Dos Hermanas, collaborating in the preparation process. However, they showed concern for some financial and supervision aspects. As such, while they showed support for the measure, especially, it has not yet been included in any town mobility plan.

In Genoa's case the local authority was the main partner in the project and is currently working to identify the means needed to make the distribution system a permanent fixture, both in juridical, economic and in legislative terms, for example the eventual closer of the historical centre and greater restrictions of distribution timetables.

Regarding the transit analysis at the electronic gates undertaken in Terni by the Regione Umbria, the public administration is currently working towards revising access and parking permits to the LTA, meanwhile in Piacenza, the results of the survey and the study carried out within MEROPE were taken into consideration by the local council, who in the summer of 2004 committed itself to updating the General Plan of Urban Traffic 1998 (PGTU). Furthermore, from the results of the MEROPE project the Province and the Council of Piacenza have decided to undertake a further analysis and evaluation of a economical-financial character regarding the introduction of a transit point for urban goods distribution in Piacenza.

These points are considered important as indicators of the possible sustainability of the MEROPE project at local level. Furthermore, within the ambit of the project and of the mobility and logistics sector the project has helped to increase awareness of possible

alternative means of transport. The programme of publicity and dissemination was particularly successful in informing those present on the use of European funds, regional cooperation and mobility issues and solutions. Thus it can be said that, with the necessary political and financial support from various fronts, the ideas and action of the MEROPE project could have a future, either in other similar projects or in different forms.

References

- Taniguchi E. and Van der Heijden R.E.C.M (2000) "An Evaluation Methodology for City Logistics", *Transport Reviews*, Vol. 20, No. 1, pp.65-90.
- Frosini, P., Gini, S., Agostini, F. and Huntingford, J. (2005) "Urban Mobility and Freight Distribution Service: the 14 Cities of the MEROPE Interreg III B Project", *Policies and Technologies for Sustainable Goods Distribution in Urban Areas: Towards the e-Logistics Agency*, Edited by Ambrosino, G., Boero, M., Nelson, J. D. and Romanazzo, M., ENEA 2005.
- Kohler U. (1997) "An innovating concept for City Logistics", *Proceedings of the 4th World Congress on ITS*, Berlin.
- Frosini, P., Ambrosino, G., Agostani, F. et al. (June 2003) "Urban Mobility and Freight Distribution Service: the 14 Cities of MEROPE Interreg III B Project", *CESURA '03*, Gdansk.
- Frosini, P., Gini, S., Ambrosino G. et al. (October 2004) "An evaluation methodology for innovative mobility services: the MEROPE cities", *eChallenges '04*, Wien.
- Ambrosino, G. et al. (2003) "The European Project eDRUL: a B2B platform for freight distribution in city areas", *CESURA '03 Conference*, June 4-6 2003, Gdansk, Poland.
- Ambrosino, G. et al. (2002) "The European Project eDRUL for demand responsive urban logistics", *Telebalt Conference*, October 2002, Vilnius.

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