SEVENTH FRAMEWORK PROGRAMME
THEME 7
Transport including Aeronautics

Project DELTA

CONCERTED COORDINATION OF THE PROMOTION OF EFFICIENT MULTIMODAL INTERFACES

Coordination Action

Grant Agreement No: 218486

Deliverable D2.1

State-of-practice in seasonal demand management

Version:	Final (2nd Release)
Date:	March 2010
Dissemination level:	Public

PROJECT INFORMATION

Title: Concerted coordination for the promotion of efficient multimodal interfaces

Acronym: DELTA

Grant Agreement no: 218486

Programme: 7th Framework Programme

Funding Scheme: Coordination Action

Start date: 1st January 2009

Duration: 24 months

Web site: www.delta-project.eu

PROJECT PARTNERS

No	Name	Short name	Country
1 (coordinator)	Centre of Research and Technology Hellas / Hellenic Institute of Transport	CERTH/HIT	Greece
2	Swedish National Road and Transport Research Institute	VTI	Sweden
3	Forschungsgesellschaft Mobilitat GmbH - Austrian Mobility Research	FGM-AMOR	Austria
4	Trivector Traffic AB	Trivector	Sweden
5	Budapest University of Technology and Economics	BME	Hungary
6	BDO EOS Svetovanje d.o.o.	BDO EOS	Slovenia
7	MIZAR Automazione S.p.A.	MIZAR	Italy
8	Universita degliStudi di Salerno	Usalerno	Italy
9	Anatoliki S.A. Development Company	REACM	Greece
10	Segura Durán Assessors S.A.	SD Assessors	Spain
11	Ente Autonomo Volturno	EAV	Italy
12	Municipality of Solcava	Solcava	Slovenia
13	Centre d'Etudes Techniques de l'Equipement du Sud Ouest	CETE SO	France

DOCUMENT PROFILE

Document status: Final (2nd Release)

Deliverable code: D2.1

Deliverable title: State-of-practice in seasonal demand management

Work Package: 2

Preparation date: March 2009

Submission date: March 2010

Total pages: 144 (excluding Annex A)

Dissemination level: Public

Author: Andrej Marinc, BDO EOS Svetovanje d.o.o.

Contributors: Aleksija Rutar, BDO EOS; Boštjan Petauer BDO EOS; Jernej Hribar BDO EOS, Robert Varga BME; Ioanna Tsalakanidou REACM; Alojz Lipnik SOLCAVA.

Reviewer: Dr. Yannis Tyrinopoulos, CERTH/HIT

Abstract: This deliverable "State-of-practice in seasonal demand management" documents the results of the wide inventory and the in-depth analysis of previous and ongoing European R&D projects and other international initiatives addressing the theme of transport demand management. A long list of 79 projects and initiatives was reviewed for their relevance to DELTA, while 16 of them with medium and high relevance to DELTA were further analyzed. Innovative approaches, mobility management measures, pilot applications and their results were examined. The most important results and findings of this deliverable will be used in next stages of the project.

EXECUTIVE SUMMARY

The DELTA project addresses the problems and needs associated with passenger transport systems that face high and steep seasonal demand. The focus of the project is on local and regional transport systems rather than on national or international scales. The project will define and validate intelligent mobility tools and practices guidelines, as well as policy guidelines addressing the optimum management of seasonal demand for transport areas with proven relevant problems. The end result will take the form of a Decision Support Instrument (DSI) to help the local transport authorities and other agencies to apply techniques and strategies that minimize the unnecessary passenger trips, create efficient multimodal interfaces and synergies between the local transport means and maximize the use of their resources.

In regions suffering from an intense seasonality of transport demand, "intelligent" mobility systems and Intelligent Transport Systems (ITS) able to improve the effectiveness and efficiency of the local transport system are key solutions to the growing problems of transport infrastructure congestion, environmental pollution, increased travel times, low quality services for the travelers-visitors, etc.

In order to move towards a solid development of transport systems, the stakeholders of transport society (operators, decision makers, users etc.) need a good assessment of best practices, common guidelines for new intelligent mobility schemes implementation and "smart" emerging ideas for transport systems adaptation.

In the context of many research projects executed in the past, a large variety of research and development activities have been undertaken that resulted in systems, methodologies and techniques for intelligent transport demand management, traffic control and passengers' information with the ultimate objective to make public transport systems and services more suitable to the transport demand profiles of the cities across Europe. Furthermore, many initiatives have been taken worldwide in an attempt to analyze the issue of mobility management and propose sustainable solutions to existing problems.

The Deliverable D2.1 "State-of-practice in seasonal demand management" provides the results of a wide inventory and the in-depth analysis of previous and ongoing European R&D projects and other international initiatives addressing the theme of transportation demand management.

In order to conclude to the above, a two-stage approach was adopted: first a long list of 79 projects and initiatives was reviewed for their relevance to DELTA. Then 16 of them with medium and high relevance to DELTA were further analyzed. Innovative approaches, mobility management measures, pilot applications and their results were examined.

The review verified that until now only few projects have addressed the problems and needs associated with passenger transport systems that face high seasonal demand and this topic of steep seasonal demand has been treated as marginal. This finding actually verifies the gap in the existing knowledge of handling seasonal traffic peaks in the concerned regions. Local

authorities need this knowledge and the associated tools that will help them to better handle their strong variation in the transport demand. This gap exists not only in practice but also in the research fields. DELTA aims to close this gap through a series of technical and promotion actions.

However, there has been a considerable number of different projects and initiatives with quite interesting mobility management methods and approaches, which aim to solve traffic problems in big cities, around tourist attractions/resorts and special events. The review identified libraries, system architectures, feasibility and pilot studies of innovative mobility measures, technologies, organization schemes, policies and strategies in an attempt to effectively address traffic peaks and encourage citizens and visitors to change their mobility habits and shift from private cars to more green transport modes.

DELTA could learn from these projects and initiatives. All these innovative, intelligent and emerging mobility management methods/schemes which are placing particular emphasis on issues related to multimodality and connection between cities and tourist areas could be taken into consideration when dealing with seasonal demand management.

CONTENTS

1. Introduction 12
1.1. Purpose 12
1.2. Overview of the DELTA project 12
1.3. Structure of Deliverable D2.1 14
2. Methodology used 15
2.1. Introduction 15
2.2. Inventory and analysis 15
3. Inventory and analysis of previous and ongoing EU R&D projects and initiatives relevant to DELTA 18
3.1. Analysed projects and initiatives 18
3.2. Representative examples of national and local initiatives in the DELTA participating countries 24
3.2.1. Austria 24
3.2.2. France 27
3.2.3. Greece 28
3.2.4. Hungary 31
3.2.5. Italy 33
3.2.6. Slovenia 34
3.2.7. Spain 36
3.2.8. Sweden 40
4. In-depth analysis of relevant projects 42
4.1. Introduction 42
4.2. Alps Mobility 42
4.2.1. Introduction 42
4.2.2. Innovative approaches 42
4.2.3. Measures 43
4.2.4. Pilots and results 43
4.2.5. Concluding remarks 44
4.3. European Platform on Mobility Management (EPOMM) 47
4.3.1. Introduction 47
4.3.2. Innovative approaches 48
4.3.3. Measures 48
4.3.4. Pilots and results 49

4.3.5. Concluding remarks 51
4.4. FRAME and European ITS Architecture 53
4.4.1. Introduction 53
4.4.2. Innovative approaches 53
4.4.3. Measures 54
4.4.4. Pilots and results 57
4.4.5. Concluding remarks 58
4.5. Guide to Traffic and Transport Management for Special Events, Roads and Traffic Authority 60
4.5.1. Introduction 60
4.5.2. Innovative approaches 60
4.5.3. Measures 60
4.5.4. Pilots and results 61
4.5.5. Concluding remarks 63
4.6. Managing travel for planned special events 65
4.6.1. Introduction 65
4.6.2. Innovative approaches 65
4.6.3. Measures 65
4.6.4. Pilots and results 65
4.6.5. Concluding remarks 70
4.7. Cooperative Mobility Program (MIT) 73
4.7.1. Introduction 73
4.7.2. Innovative approaches 73
4.7.3. Measures 73
4.7.4. Pilots and results 74
4.7.5. Concluding remarks 75
4.8. MAX 77
4.8.1. Introduction 77
4.8.2. Innovative approaches 77
4.8.3. Measures 78
4.8.4. Pilots and results 81
4.8.5. Concluding remarks 82
4.9. MobilAlp 84
4.9.1. Introduction 84

4.9.2. Innovative approaches 84
4.9.3. Measures 84
4.9.4. Pilots and results 84
4.9.5. Concluding remarks 86
4.10. MOBINET 88
4.10.1. Introduction 88
4.10.2. Innovative approaches 88
4.10.3. Measures 88
4.10.4. Pilots and results 89
4.10.5. Concluding remarks 92
4.11. Most & Most-Met 94
4.11.1. Introduction 94
4.11.2. Innovative approaches 94
4.11.3. Measures 94
4.11.4. Pilots and results 96
4.11.5. Concluding remarks 102
4.12. Niches+ 105
4.12.1. Introduction 105
4.12.2. Innovative approaches 105
4.12.3. Measures 106
4.12.4. Pilots and results 107
4.12.5. Concluding remarks 107
4.13. Optimum2 110
4.13.1. Introduction 110
4.13.2. Innovative approaches 110
4.13.3. Measures 111
4.13.4. Pilots and results 112
4.13.5. Concluding remarks 116
4.14. PIMMS 118
4.14.1. Introduction 118
4.14.2. Innovative approaches 119
4.14.3. Measures 119
4.14.4. Pilots and results 120
4.14.5. Concluding remarks 122

4.15. Smash Events 124
4.15.1. Introduction 124
4.15.2. Innovative approaches 124
4.15.3. Measures 124
4.15.4. Pilots and results 125
4.15.5. Concluding remarks 126
4.16. Target2 128
4.16.1. Introduction 128
4.16.2. Innovative approaches 128
4.16.3. Measures 129
4.16.4. Pilots and results 129
4.16.5. Concluding remarks 131
4.17. TDM Encyclopedia 133
4.17.1. Introduction 133
4.17.2. Innovative approaches 133
4.17.3. Measures 133
4.17.4. Pilots and results 134
4.17.5. Concluding remarks 136
5. Conclusions 138
References 140

LIST OF TABLES

Table 1: List of projects and initiatives related to DELTA project 18
Table 2: List of most relevant projects and initiatives to DELTA project 23
Table 3: List of some of the ITS architectures for nations and projects 57

LIST OF FIGURES

Figure 1 : Electric vehicle 24
Figure 2: Combined tickets for rail travels and events 24
Figure 3: City Bike Rental System in Vienna 25
Figure 4: Motorail instead of motorway in Austria 26

Figure 5: Photo of the bicycle network 28
Figure 6: Photo of the bicycle network in the city centre 28
Figure 9: Traffic policy for summer 2008, Aigina Island 31
Figure 10: The ATeNA project 34
Figure 11: Ground transport, Railway 37
Figure 12: Ground transport, Metro 38
Figure 13: Ground transport, Buses 39
Figure 14 : Matrix of Alps Mobility 46
Figure 15: Matrix of EPOMM 52
Figure 16: Interrelationship between the main components of the FRAME Architecture 55
Figure 17: Matrix of FRAME and European ITS Architecture 59
Figure 18: Matrix of Guide to Traffic and Transport Management for Special Events, Roads and Traffic Authority 64
Figure 19: Matrix of Managing travel for planned special events 72
Figure 20: Matrix of Cooperative Mobility Program (MIT) 76
Figure 21: Matrix of MAX 83
Figure 22: Matrix of MobilAlp 87
Figure 23: Matrix of MOBINET 93
Figure 24: Matrix of Most & Most-Met - Cluster 2: "Tourism MM" 103
Figure 25: Matrix of Most & Most-Met - Cluster 5: "Event Management" 104
Figure 26: Matrix of Niches+ 109
Figure 27: Matrix of Optimum2 (Part1) 117
Figure 28: Matrix of Optimum2 (Part2) 118
Figure 29: Matrix of PIMMS 123
Figure 30: Matrix of Smash events 127
Figure 31: Matrix of Target2 132
Figure 32: Matrix of TDM Encyclopedia 137

ANNEXES

A: Templates of projects and initiatives

ABBREVIATIONS AND TERMINOLOGY

EU	European Union
FP5	Fifth Framework programme
FP6	Sixth Framework programme
FP7	Seventh Framework programme
IEE	Intelligent Energy Europe
MM	Mobility Management
FHWA	Federal Highway Administration
TMC PFS	Transportation Management Center Pooled-Fund Study
TDM	Transport Demand Management
TMP	Transport Management Plan
CMP	Cooperative Mobility Program
DSI	Decision Support Instrument

1. INTRODUCTION

1.1. Purpose

The Deliverable D2.1 "State-of-practice in seasonal demand management" provides the results of a wide inventory and the in-depth analysis of previous and ongoing European R&D projects and other international initiatives addressing the theme of transportation demand management.

The present document aims to point out the information and existing knowledge about the regions that have already applied innovative, intelligent and emerging mobility management methods/schemes to handle the mobility overload, placing particular emphasis on issues related to multimodality and connection between cities and tourist areas.

First, an inventory and analysis of previous and ongoing EU projects / platforms / initiatives were carried out and then an in-depth analysis of the most important projects and initiatives more relevant to DELTA was performed. In addition to the European R&D efforts and other international initiatives, the deliverable includes an overview of selected local and national initiatives taken in the seven countries participating in DELTA. The local project partners performed a review of the most important mobility measures and actions taken locally and national to better handle the seasonal traffic peaks in certain regions of their countries.

The document provides a description of the mobility schemes and strategies currently available and defined in relevant initiatives, the prerequisites, conditions and terms for their implementation, an appraisal of their effectiveness and lessons learnt.

This deliverable is very important for the future development of the DELTA project, because it provides descriptions of the mobility schemes currently available, pilots, results and their failure and success stories, which presents a solid base - guidelines for the next stages of the project.

1.2. Overview of the DELTA project

DELTA is a research project, which addresses regions that suffer from strong and seasonal variations of transport demand causing congestion, environmental pollution, energy loss, increased travel times and other negative effects. The project will define and validate intelligent mobility tools and practices guidelines, as well as policy guidelines addressing the optimum management of seasonal demand for transport areas with proven relevant problems. The basic objectives of the project are to:

- create a detailed database and a knowledge base with the seasonal characteristics of the target regions;
- classify the regions based on their seasonal demand characteristics;

- formulate a Framework of mobility schemes, strategies and related measures applied per region profile to handle seasonal peaks;
- promote multimodal interfaces linking different transport modes, systems and passenger trips;
- identify benchmarks for sustainable mobility (Handbook of benchmarks);
- create roadmaps (the DELTA Decision Support Instrument) of strategies, policies and measures to handle the seasonal peaks in the target regions;
- create a Network of European Cities with seasonal demand characteristics; and
- define future research needs and recommendations for new EU policies based on the proposed strategies and guidelines.

The results of the project will help the local transport or other agencies to apply strategies, policies and measures adapted to the local conditions and to handle the varying transport demand. Additional expected impacts are:

- contribution towards increased acceptance and use of new solutions and technologies within the transport sector.
- indirect contribution towards a reduction of CO2, other traffic induced pollutant emissions and noise in compliance with EU legislation.
- efficient energy use in transport and increase of road safety.
- provision of optimized transport systems and mobility services.
- encouragement of collaboration and synergies between organizations and regions in order to meet varying transport demand.
- encouragement of public-private partnerships (e.g. transport operators, public works administration, municipalities, private tourist agencies, etc.) in those regions for the mutual benefit.
- stimulation of more active participation of the numerous SMEs acting in the regions with varying transport demand towards the definition of sustainable solutions.

The DELTA project will affect spatial and regional development of the areas concerned by providing innovative sustainable mobility solutions allowing a new, highly promising option for tourism and spatial economic development. Despite the often conflicting interests of these two sectors in "conventional" tourism, the "DELTA" approach provides a synergetic solution for both. Once the tourism-offer is established and marketed, it will have a positive effect in the local, regional (tourism development, increased sustainability of transport etc.) and transnational dimension (networking of the regions, new transport offers etc.)

The development of a sustainable mobility favours the preservation of a fragile environment that can suffer from the negative impacts of mobility: concentration of transport activities and negative effects in the built and natural environment, diminished life conditions and attractiveness. It contributes to the sustainable spatial development of the "DELTA pilot

regions" as it promotes alternatives to private motorized traffic and mobility, improves mobility at regional level and contributes to a better organisation and attractiveness.

It reinforces and extends transnational networks and therefore contributes to the setting of long term cooperation. Best practices exchanges as well as formalisation of methods and knowledge on a transnational basis are integrated. It also capitalises the results of a number of previous experiences and initiatives.

More information about the DELTA project can be found on the website: www.delta-project.eu.

1.3. Structure of Deliverable D2.1

The analysis of the current state-of-practice has been divided in two parts:

- An inventory of previous and ongoing European R&D projects and initiatives relevant to the DELTA topic.
- The in-depth critical analysis of projects and initiatives, which are closely related to the objectives of the project.

The first part of the Deliverable D2.1 relates to the review of the collected previous and ongoing European R&D projects and initiatives relevant to the DELTA topic. Collected EU projects were inventoried using different criteria.

Following the project's inventory activity, an in-depth analysis of selected projects and initiatives carried out. This exercise entailed innovative approaches, mobility management measures, pilot applications and their results were examined.

In relation with the above, the second chapter provides the methodology followed.

The third chapter depicts the inventory of previous and ongoing European R&D projects and international initiatives, as well as the national and local initiatives taken in the DELTA participating countries. 79 projects and international have been reviewed in total. The relevant templates are provided in Annex A of this deliverable.

The fourth chapter includes the in-depth analysis of the 16 EU R&D projects and other initiatives deemed to as more relevant to DELTA. For each project/initiative, the innovative approaches and mobility measures, the pilot applications and results, as well as some concluding remarks are provided.

The fifth chapter provides some final concluding remarks and findings derived from the state-of-practice review.

2. METHODOLOGY USED

2.1. Introduction

In the context of many research projects executed in the past, a variety of research and development activities have been undertaken that resulted in systems, methodologies and techniques for intelligent transport demand management, traffic control and passenger's information with the ultimate objective to make public transport systems and services more suitable to the transport demand profiles of cities and regions across Europe.

Several research projects have been carried out within the context of Europe's RTD framework programmes that have addressed the concerned issues of demand management, use of innovative and intelligent mobility schemes and promotion and enhancement of multimodality in cities and regions with highly variable seasonal transport demand.

Worldwide, several quite interesting initiatives have been taken addressing the subject of mobility and transportation demand management. Some of the most interesting ones have been included in this review.

To ensure the best possible outcomes, Task 2.1 - Analysis of current state-of-practice - has been divided in two parts:

- the inventory of previous and ongoing projects and initiatives
- the in-depth analysis of these previous and ongoing projects/initiatives

2.2. Inventory and analysis

The inventory of previous and ongoing projects is based on the summary state-of-practice presented in section B.1.1 of the DELTA Annex 1 - "Description of Work". This summary has been significantly expanded and deepened by the partners participating in this project task.

Project partners have searched for previous and ongoing European R&D projects relevant to the topics addressed by DELTA in the 5th, 6th and 7th Framework Programmes, the Interreg programmes, IEE programmes, CIVITAS initiatives and other international activities and studies.

The international literature provides also many interesting sources of actions and initiatives taken by universities and R&D institutions. Some of these initiatives more relevant to the subject matter of the DELTA project have been included in this inventory.

In this Task, project partners have inventoried and analysed seventy-nine previous and ongoing European R&D projects and international initiatives addressing the themes of intelligent transport demand management, traffic control and passenger's information.

In order to cover the widest possible knowledge base, national efforts have also been included in this review. In particular, all project partners - including those not participating in Task 2.1 (CETE SO, EAV and SD Assessors) – have inventoried selected national and local projects and initiatives addressing the themes of mobility management. Where available, local initiatives to handle seasonal traffic peaks have been addressed.

After the inventory, an analysis of all projects and initiatives was performed. The partners analysed the projects and initiatives allocated to them, according to a predefined template for analysis of current state-of-practice. The template includes the following sections:

- *Project title and acronym;*
- *Type of project and Programme of funding;*
- *Name and type of Project partner's institution, link to the project website and geographical regions covered;*
- *Abstract;*
- *Innovative (planning, methodology…) approach;*
- *Used intelligent and emerging mobility management methods/schemes;*
- *Relevance to DELTA;*
- *Typology of used data and*
- *Results and outcomes*

All seventy-nine project templates are included in Annex A of Deliverable D2.1.

The projects have been classified into three groups according to their relevance to the DELTA project: minor, medium and high relevance. From the entire list of projects, sixteen of them have medium and high relevance to DELTA and those were selected for the in-depth analysis.

Partners participating in the second part of Task 2.1 (the in-depth analysis) conducted a thorough examination of selected projects and also prepared matrixes for all analysed projects. The main topics analysed in these selected projects were:

- *Innovative approaches used*
- *Measures implemented*
- *Pilots applications*
- *Results derived from the applications*

For the in-depth analysis, the templates from the first part of Task 2.1 were used as well as all the available documents and reports from the selected projects (Final reports, Interim reports, Deliverables, Brochures, Web pages, Leaflets, etc).

With the help of a simple Matrix, clear links between innovative approaches, measures, and the results of the pilots were shown. If someone would like to know what kind of innovative approaches were used in one project, he/she

should look at the top of the Matrix and then follow the arrows to find out which measures were used for that innovative approach and in which pilot were they used. Results of that pilot are shown in the last row of the Matrixes. Arrows present connections between two or more project elements. One measure (MM method/scheme) could be used in more regions (pilots). One look at the Matrix shows all the connections between the project elements and how they interact.

3. INVENTORY AND ANALYSIS OF PREVIOUS AND ONGOING EU R&D PROJECTS AND INITIATIVES RELEVANT TO DELTA

3.1. Analysed projects and initiatives

The state-of-practice review resulted to seventy-nine previous and ongoing EU R&D projects and international initiatives, which are related to the subject of mobility and transportation demand management. These projects and initiatives are presented in Table 1 below.

Table 1: List of projects and initiatives related to DELTA project

WP2- TASK 2.1 *Analysis of current state-of-practice:*
An inventory and an in-depth analysis of previous and ongoing European R&D projects

List of projects/platforms/etc related to the DELTA topic.

Number	Acronym	Title	URL	EU, national or local	Relevance to "DELTA"
1	ACCESS 2 ALL	Mobility Schemes Ensuring Accessibility of Public Transport for All Users	http://www.access-to-all.eu/	EU - ongoing FP7	Minor
2	ALPS MOBILITY I	Pilot Project for Environmentally Sound Travel Logistics Linked with Electronic Booking and	http://www.alpsmobility.net	EU - INTERREG IIC	Medium
3	ALPS MOBILITY II	Alpine Pearls: an ecologically benign journey through the Alps	http://www.alpsmobility.net/	EU - INTERREG III B	Minor
4	BIOSIRE	Creating Sustainable Transport in Tourism Regions	www.biosire.eu	EU - ongoing IEE	Minor
5	CONDUITS	Coordination of network descriptors for urban intelligent transportation systems	www.conduits.eu	EU - ongoing FP7	Minor
6	CITYMOBIL	Towards advanced road transport for the urban environment	www.citymobil-project.eu	EU - ongoing FP6	Minor
7	CIVITAS-CARAVEL	Civitas - Caravel	http://www.civitas-caravel.org/	CIVITAS initiatives	Minor
8	CIVITAS-MIRACLES	Multi initiative for rationalised accessibility and clean liveable environments	http://www.civitas-initiative.org/project_sheet?lan=en&id=8	CIVITAS initiatives	Minor
9	CIVITAS-MOBILIS	Mobility initiatives for local integration and sustainability.	http://www.civitas-initiative.org/project_sheet?lan=en&id=2..	CIVITAS initiatives	Minor
10	CIVITAS-SUCCESS	Smaller urban communities in Civitas for environmentally sustainable solutions	http://www.civitas-success.org	CIVITAS initiatives	Minor
11	CONCEPT	Co-Operation of Networks for the Creation of Effective Policies for Transportation	www.concept3c.org	EU - INTERREG IIIC	Minor
12	CONNECT	Connect	http://projectapps.vtt.fi/Connect/portal/alias__Rainbow/lang__en/tabID__3401/DesktopDefault.asp	EU - completed FP6	Minor
13	CUPID	Co-ordinating Urban Pricing Integrated Demonstrations	www.transport-pricing.net	EU - completed FP5	Minor
14	e-ATOMIUM	e-Atomium	www.e-atomium.org	EU - completed IEE	Minor
15	EBSF	European Bus System of the Future	http://uitp.org/knowledge/projects-details.cfm?id=442	EU - ongoing FP7	Minor
16	ELTIS	European local transport information service	www.eltis.org.	Platform - ELTIS is an initiative of the EC's Directorate General for Energy and Transport.	Minor
17	EPOMM	European Platform on Mobility Management	www.epomm.org	Platform	Medium
18	EURFORUM	European Research Forum for Urban Mobility	www.eurforum.net	EU - FP6	Minor
19	FRAME & E-FRAME	Frame and e-frame	www.frame-online.net	EU - FP5 & FP7	Medium
20	I - TOUR	Intelligent Transport system for Optimized URban trips	www.itourproject.com/web/	EU - FP7	Minor
21	I - TRAVEL	Service Platform for the Connected Traveller	www.i-travelproject.com	Small scale collaborative project	Minor
22	LINK	The European Forum on Intermodal Passenger Travel	www.linkforum.e	EU - FP6	Minor
23	M.I.T. (U.S.A.)	Innovative mobility management project	http://web.mit.edu/ctpid/cmp/cmact.html		Medium

24	MACIMED	Alternative Touristic Cycling Mobility Through Mediterranean Islands	www.macimed.org/ENG	EU - Interreg III B MEDOCC	Minor
25	MASCARA	Flexible mobility services for citizens social cohesion and accessibility to rural and small/medium urban	http://www.mascaraproject.com/index.php	EU - INTERREG IIIC	Minor
26	MAX	Successful travel awareness campaignes and Mobility Management strategies	www.max-success.eu	EU - ongoing FP6	Medium
27	MEDIATE	Methodology for Describing the Accessibility of Transport in Europe	http://mediate.euregio.net/	EU - ongoing FP7	Minor
28	MIDAS	Measures to Influence transport Demand to Achieve Sustainability	www.midas-eu.com	EU - completed IEE	Minor
29	MOBILALP	Sustainable Alpine Mobility	www.mobilalp.eu/en	EU - INTERREG III B	High
30	MOBI-NET	Mobility Centre Network	http://mobi-net.eu	EU - ongoing IEE	Medium
31	MOST & MOST-MET	Mobility Management Strategies for the Next Decades	http://mo.st/	EU - completed FP5	Medium
32	MOVE - SUMO& SARA database	International Cluster for Mobility Management Development and Research Dissemination	www.move-project.org	EU - completed IEE	Minor
33	MUSTT Report	Multi-stakeholder European Targeted Action for Sustainable Tourism & Transport	www.iclei-europe.org	DG Enterprise European	Minor
34	NICHES+	Niches+	http://niches-transport.euregio.net/	EU - ongoing FP7	Medium
35	NICHES including OSMOSE	Niches including Osmose	http://www.niches-transport.org/index.php?id=203 http://www.osmose-os.org/	EU - completed FP6	Minor
36	OPTIMUM2	Optimal Planning Through Implementation of Mobility Management	www.optimum2.org	EU - completed INTERREG IIIB	Medium
37	PILOT	Planning Integrated Local Transport	www.pilot-transport.org		Minor
38	PIMMS	Partner Initiatives for the development of Mobility Management Services	www.pimms-eu.org	EU - completed INTERREG IIIC	High
39	PLUME	PLanning and Urban Mobility in Europe	Policy/Urban_environment/Land_use/PLUME---PLanning-and-Urban-Mobility-in-Europe_1230.html	EU - completed FP5	Minor
40	PROGRESS	Pricing road use for greater responsibility, efficiency and sustainability in cities.	www.progress-project.org	EU - completed FP5	Minor
41	PROPOLIS	Propolis	http://cordis.europa.eu/data/PROJ_FP5/ACTIONegDndSESSIONeq112362005919ndDOCeq1454ndTBLeqEN_PROJ.htm	EU - completed FP5	Minor
42	QUITS	Design and testing of an integrated methodology for the valuation of the quality of transport and systems	http://cordis.europa.eu/transport/src/quitrep.htm	EU - completed FP5	Minor
43	SAMPLUS	Systems for the Advanced Management of Public Transport Operations	http://cordis.europa.eu/telematics/tap_transport/research/projects/samplus.html	EU - completed FP5	Minor
44	SAMPO	Systems for Advanced Management of Public Transport Operations	http://cordis.europa.eu/telematics/tap_transport/research/projects/sampo.html	EU - completed FP5	Minor
45	SMASH EVENTS	Ecological event management	www.smash-events.net	EU - completed FP5	Medium
46	SMILE including 170 practices in a database	Sustainable Mobility Initiatives for Local Environment	www.smile-europe.org	EU - DG ENV, LIFE programme	Minor
47	STADIUM	Smart Transport Applications Designed for large events with Impacts on Urban Mobility	www.stadium-project.eu/site/	EU - ongoing FP7	Minor
48	STEPS	Scenarios for the Transport system and Energy supply and their Potential effectS	www.steps-eu.com	EU - completed FP6	Minor
49	STREAM	Sustainable Mobility for Tourism and Recreation	www.iee-stream.com	EU - ongoing IEE	Minor
50	TARGET2	Travel Awareness Regional Groups for Environmental Transport	www.eu-target.net	EU - completed INTERREG IIIB	Medium
51	TDM Encyclopedia	Transportation Demand Management (TDM) Encyclopedia	http://www.vtpi.org/tdm	Ongoing Victoria Transport Policy Institute project	Medium
52	TELLUS	Tellus	http://www.civitas-initiative.org/project_sheet?lan=en&id=7	CIVITAS initiatives	Minor
53	TRANSPLUS	Transplus	www.transplus.net	EU - completed Energy, Environment	Minor

54	TRANSPOWER	Supervised Implementation of Sustainable Urban Transport Concepts	www.transpower-rp6.org	EU - FP6	Minor
55	TREATISE	Training and environmental transport	www.treatise.eu.com	EU - completed IEE	Minor
56	TRENDSETTER	Trendsetter	http://www.trendsetter-europe.org/	CIVITAS initiatives	Minor
57	VIAJEO	International Demonstrations of the Platform for Transport Planning and Travel Information	www.viajeo.eu	EC DG Research for Specific International Cooperation Actions (SICA)	Minor
58	VILLEMIZERO	Zero Emission Cities	www.villemizero.eu/hp.asp	EU - Interreg III B MEDOCC	Minor
59	VIVALDI	Visionary & vibrant actions through local transport demonstration	http://www.civitas-initiative.org/project_sheet?lan=en&id=6	CIVITAS initiatives	Minor
60	WISETRIP	Wide Scale network of E-systems for Multimodal Journey Planning and Delivery of Trip Intelligent Personalised data	www.wisetrip-eu.org	EU - ongoing FP7	Minor
61	-	Innovative Mobility Research (IMR) group, University of California, Berkeley (U.S.A.)	www.innovativemobility.org		Minor
62	-	Guide to Traffic and Transport Management for Special Events, Roads and Traffic Authority, NSW,	www.rta.nsw.gov.au/usingroads		Medium
63	-	Managing travel for planned special events, Federal Highway Agency, USA 2003	http://ops.fhwa.dot.gov		Medium
64	ALERT Project	Efficient and sustainable traffic planning for leisure time	http://www.alert2000.de/	National/local - Germany	Minor
65	FLASH, MISTIC	Flash-Mistic	not available	National/local - Italy	Minor
66	ISCHIA-BUS	Ischia-Bus	www.ischiabus.it	National/local - Italy	Minor
67	Less cars to the arena	Färre bilar till arenan: en förstudie om metoder att minska (ensam)bilåkandet till tävlingar, konserter	not available	National/local - Sweden -A pre	Minor
68	MEROPE	Telematic instruments for innovative services of mobility and logistics in urban and metropolitan areas	not available	Interreg IIIB MEDITERRANEE	Minor
69	Road 45/70 through Mora	Förstudie väg 45/70 genom Mora	not available	National/local - Sweden -Preliminary	Minor
70	Salzburg Mobility Centre	Salzburg Mobility Centre	www.mobilito.at	Natioonal/local - Austria	Minor
71	SITUS-TP	Sistema Informativo Telematico dell'Università di Salerno per il Trasporto Pubblico	www.unisa.it/situs-tp	National/local - Italy	Minor
72	SPITSMIJDEN	Experimental design and modelling	www.spitsmijden.nl	National/local - Nederland	Minor
73	STRIMTP	STRIMTP il Sistema Telematico Regionale Integrato per il Monitoraggio del Trasporto Pubblico	www.strimtp.it	National/local - Italy	Minor
74	-	Elaboration of transport development sector's strategy.	not available	National/local - Hungary -	Minor
75	-	Forecast study of the number of pilgrims present in Lourdes on 13, 14, 15 September 2008 for the visit of Benoit XVI.	not available	National/local - France	Minor
76	-	Motor vehicles reduction in landscape park Logarska dolina	not available	National/local - Slovene - phare	Minor
77	-	Passanger Traffic Count and Itinerary Questioning on interurban road transport in Hungary 2007.	not available	National/local - Hungary	Minor
78	-	Reduction of a traffic in Julian Alps	not available	National/local - Slovene	Minor
79	-	Traffic reduction in alpine valleys	not available	Slovene - Interreg IIIb	Minor

As mentioned previously, for each project and initiative a template has been developed to examine each key characteristics. All seventy-nine projects templates are included in Annex A of Deliverable D2.1.

After a thorough study of the templates, the projects were classified into three groups depending on the relevance to the "DELTA project": Minor, Medium and High relevance.

The head factors in the classification of the projects were the implementation of innovative, intelligent and emerging mobility management methods/ schemes to handle the seasonal variations of transport demand, placing particular emphasis on issues related to multimodality and connection between cities and tourist (rural) areas. Table 1 presents 63 projects of "Minor relevance", 14 projects of "Medium relevance" and only 2 projects of "High relevance".

The group "Minor relevance" to the DELTA topic includes projects/platforms/ initiatives, which are dealing with the mobility management methods and schemes in highly populated areas. These projects have good ideas on how to solve such problems – bicycle rental and parking, park and ride facilities, carpool and car-share systems, innovative bus systems, etc., but they are city oriented (traffic problems in European metropolis) and they are not dealing with seasonal variations of transport demand or with multimodality connection between cities and rural areas.

Projects and initiatives in the "Medium relevance" group are presenting interesting mobility management methods/schemes or databases of mobility strategies with ideas and concepts that can be partly used for solving the problem with seasonal variations of transport demand. Indicative mobility management methods and schemes, which are used in "Medium relevance" group of projects are:

- *combined tickets*
- *carpool service*
- *cycling*
- *bicycle park*
- *special offers for public transport and bicycle users*
- *info via internet*
- *mass communication campaign*
- *remote parking with park and ride system*
- *bike bus strategy*
- *virtual tourist mobility office*
- *tourist bus*
- *tourist maps and leaflets*
- *metropolitan transport authority*
- *walking and cycling network*
- *increased frequency of public transport*
- *guides for the network of paths*
- *bus information brochures*
- *tourist office*
- *information and marketing campaigns*
- *improved information about public transport*
- *car sharing service*
- *mobility information on internet*
- *mobility centre*
- *bike transportation facilities in public transport*

- *round trips*
- *action days*
- *promotion brochure*
- *green travel network*
- *clear zones*
- *special event ticket*
- *special arrangements*
- *adjustments to public transport*
- *restricted access for bus in the inner city*
- *newly established lines*
- *enlargement of public transport*

The group "High relevance" includes projects, which are peripherally or partly dealing with the problem of seasonal variations of transport demand and multimodality connection between cities and tourist areas. Mobility management methods/schemes, which are used in this group of projects are:

- *development of public transport links between the tourist resorts and the railway stations and airports of the nearby cities*
- *info point for sustainable mobility*
- *bicycle hire service*
- *additional transport services*
- *link between rail station and cable car*
- *journey planner*
- *electric vehicles*
- *satellite tracking system – creation of a multimedia route*
- *shuttle service*
- *bus on call*
- *integrated tickets*
- *parking restrictions*
- *developed park and ride schemes*
- *improved public transport*
- *intermodality between train and bicycle*
- *creation of pedestrian streets network*
- *green paths*
- *cycling policy*
- *bike parking*

- *road pricing*
- *call a bike system*
- *travel marketing campaign*

Overall, several different projects and initiatives with quite interesting mobility management methods and approaches were found. One of them aims to solve traffic problems at large scale events through planning and management policies (e.g. STADIUM Project). There are also many different possibilities of multi-modal travel and mobility services, which could encourage intermodality in areas having mainly urban and less seasonal traffic demand (e.g. I-TOUR and VIAJEO projects). DELTA could learn from these projects and initiatives. However, some of these EU R&D projects are at the initial phase of implementation, so there is no information about their results for further analysis. Therefore, these projects have been categorised under the "Minor relevance" group.

Sixteen projects and initiatives (presented in Table 2) were selected for the in-depth analysis (Medium and High relevance to DELTA). The number in front of the project's name represents the number of the project in Table 1.

Table 2: List of most relevant projects and initiatives to DELTA project

WP2- TASK 2.1 *Analysis of current state-of-practice:*
An inventory and an in-depth analysis of previous and ongoing European R&D projects

List of categorised relevant projects/platforms to DELTA project

Number	Acronym	Title	URL	EU, national or local	Relevance to "DELTA"
2	ALPS MOBILITY I	Pilot Project for Environmentally Sound Travel Logistics Linked with Electronic Booking and	http://www.alpsmobility.net	EU - INTERREG IIC	Medium
17	EPOMM	European Platform on Mobility Management	www.epomm.org	Platform	Medium
19	FRAME & E-FRAME	Frame and e-frame	www.frame-online.net	EU - FP5 & FP7	Medium
23	M.I.T. (U.S.A.)	Innovative mobility management project	http://web.mit.edu/ctpid/cmp/cmact.html		Medium
26	MAX	Successful travel awareness campaignes and Mobility Management strategies	www.max-success.eu	EU - ongoing FP6	Medium
29	MOBILALP	Sustainable Alpine Mobility	www.mobilalp.eu/en	EU - INTERREG III B	High
30	MOBI-NET	Mobility Centre Network	http://mobi-net.eu	EU - ongoing IEE	Medium
31	MOST & MOST-MET	Mobility Management Strategies for the Next Decades	http://mo.st/	EU - completed FP5	Medium
34	NICHES+	Niches+	http://niches-transport.euregio.net/	EU - ongoing FP7	Medium
36	OPTIMUM2	Optimal Planning Through Implementation of Mobility Management	www.optimum2.org	EU - completed INTERREG IIIB	Medium
38	PIMMS	Partner Initiatives for the development of Mobility Management Services	www.pimms-eu.org	EU - completed INTERREG IIIC	High
45	SMASH EVENTS	Ecological event management	www.smash-events.net	EU - completed FP5	Medium
50	TARGET2	Travel Awareness Regional Groups for Environmental Transport	www.eu-target.net	EU - completed INTERREG IIIB	Medium
51	TDM Encyclopedia	Transportation Demand Management (TDM) Encyclopedia	http://www.vtpi.org/tdm	Ongoing Victoria Transport Policy Institute project	Medium
62	-	Guide to Traffic and Transport Management for Special Events, Roads and Traffic Authority, NSW,	www.rta.nsw.gov.au/usingroads		Medium
63	-	Managing travel for planned special events, Federal Highway Agency, USA 2003	http://ops.fhwa.dot.gov		Medium

3.2. Representative examples of national and local initiatives in the DELTA participating countries

3.2.1. Austria

Werfenweng - Electric vehicles, solar loading stations and non-motorized traffic for local mobility of tourists

Werfenweng is a car free holiday resort in Austria (Carinthia). Werfenweng is located on the southern slopes of the Tennen Mountains and follows the concept of a car-free holiday resort. The use of private cars is restricted in the village. In order to ensure full mobility for the visitors, the local people provide horse coaches, private chauffeurs, night taxis and a Werfenweng shuttle service. In summer, a fleet of electric vehicles can be rented. Part of the electricity of the resort is provided by solar power stations. In addition, a farmer's shop sells high-quality products from the area that directly benefits local farmers.

(ftp://ftp.fao.org/paia/mnts/case/case_studies_en.pdf (Case studies. Sustainable mountain tourism in action))

Figure 1 : Electric vehicle

Combined Tickets for rail travels and events

The ÖBB (Austrian Federal Railways company) is offering price reductions for event tickets when the travel is done by train (e.g. for the AirPower09, concerts, fairs etc.). Additionally to the normal schedule, shuttle-trains for visitors are installed.

Figure 2: Combined tickets for rail travels and events

Holiday packages (rail tickets, transfer, hotel) – "Wedelweiss tickets"

During the winter months the ÖBB (Austrian Federal Railways company) is offering holiday packages for skiing tourists to reduce the seasonal individual traffic peak. Tourists buy the train ticket and receive a voucher for the transfer from the station to the hotel and return and for the skiing pass. This allows a holiday without inconveniences travelling by car during bad weather or waiting in the jams. The following regions can be visited using this ticket:

- Montafon
- Arlberg
- Skicircus Saalbach Hinterglemm Leogang
- Europa Sportregion Zell am See - Kaprun
- Ski, Berge & Thermen Gastein
- Salzburger Sportwelt
- Wildschönau
- Obergurgl - Hochgurgl
- Ski-Board-Arena Werfenweng
- Alpbachtal Seenland

Additionally there is also another package called "Snow and Fun" ticket, which does not include hotel bookings and is perfect for short trips to skiing resorts. This ticket is available for Styria for example for the regions of Präbichl and Kreischberg.

City Bike Rental System in Vienna

The Citybike is a public bike rental system that allows you to visit Vienna's sights by bike at your convenience. The Citybikes may be rented out and returned at any of more than 54 rental stations which are usually located near underground stations. To utilize the Citybike Vienna Service, you have to book ahead. Booking can be done on the internet or directly at the Citybike Terminal with a credit card (Maestro Card, Master Card, Visa, JCB). The one-time booking fee is € 1, which will be credited to you after the successful booking of your rides. There is also a citybike tourist card available for borrowing.

Figure 3: City Bike Rental System in Vienna

City of Salzburg is applying access restrictions to the city centre

The city of Salzburg is applying ad-hoc traffic restrictions to the city centre based on their bad weather policy. Due to heavy traffic volumes during the holiday season caused by tourists visiting Salzburg, the main routes into the city are jammed quite soon and the parking houses are crowded in the city centre. This happens mostly on rainy and cold days as many visitors and tourists mainly from Germany visiting the festival or just want to enjoy a day in the city. The solution for the tourists is to use alternative transport means or park their car on a park&ride facility outside of the city for 10€ (parking fee and one-day ticket for public transport valid for five people).

Motorail instead of motorway

The Tauern motorail connects the Möll valley in Carinthia with the Gastein valley in Salzburg through the Tauern tunnel. As this is a very popular north-south route through Austria there are very often traffic jams during the holiday season on the motorway. Using this motorail train allows bypassing the traffic jam on the motorway. More than 400,000 passengers and 180,000 vehicles take advantage of the Tauern motorail every year. The motorail trains depart every 60 minutes and every 30 minutes on heavy traffic weekends. The price for a car (<3.5 tonns) is 30€ for a return ticket. Compared to toll to be paid additionally to the normal toll for the tunnels on the motorway (20€) this is a very good and convenient offer to avoid the jams.

Figure 4: Motorail instead of motorway in Austria

3.2.2. France

Some indicative mobility management measures applied in France are the following:

- Annual traffic forecasts of the "Bison Futé" calendar; its purpose is to show the days (or half-days) on which heavy or very heavy traffic is expected, to allow holidaymakers to defer their departure or change their route.
- Setting-up of a calendar of days on which HGVs are forbidden (based on the "Bison Futé" calendar) in order to avoid simultaneity of holiday traffic with slower vehicles.
- Management of road works on major routes and calendar of days free of road works, in order to avoid the presence of road works affecting traffic on the main departure days as defined in the "Bison Futé" calendar.
- "Personalised route" operations: distribution of leaflets encouraging users to leave the congested main roads network and guidance on the secondary network. Management of traffic heading back to large towns after the weekend (favourable weather conditions) or after major events.
- PALOMAR and bad-weather plans which enable management of exceptional circumstances by mobilising the forces of law (Rhône Valley PALOMAR plan, PISO plan between South-West France and Spain).
- Real-time road information ("Bison Futé" real-time data base, accessible to all subscribed media). Conceded motorway companies also provide real-time information and traffic forecasts (website of the French Motorway Companies Association).
- Modulation of tollgates according to season (Isle of Ré bridge).
- Traffic allocation: in case of disruption, traffic is oriented to one of two normally concurrent routes (same Origin-Destination, similar journey times) thanks to variable directional signalling.
- Dynamic speed management on the A7 and A9 (South East France). A national deployment schema of this type of measure, implemented for major summer departures, is currently being elaborated.
- Dynamic ramp metering and even ramp closure (eg, closure of one or several successive access ramps at the A10/A83 intersection.
- Dynamic overtaking ban for HGVs in order to improve fluidity (often linked to dynamic speed regulation).
- Display of travel times in the Tarentaise valley, to ease the burden of access times to ski resorts.
- Manual junction regulation to give priority to a road temporarily.
- Adaptation of traffic light cycles according to traffic peaks (Gertrude system in the Bordeaux agglomeration).

- Dynamic lane management: use of hard shoulder, lane reserved for carpooling, in particular on entering the Grenoble agglomeration.
- Modal transfer incentive.

3.2.3. Greece

Kos Island-Bicycle Network

The island of Kos is considered to be one of the most popular resorts of the Dodecanese Islands cluster, situated at the South-Eastern Aegean Sea. Kos is also one of the most well-known European destinations for tourists. The Kos island of today is a modern tourist destination offering many possibilities for: sports, sightseeing, excursions eating and entertainments. This island has given the world Hippocrates, father of medicine. The town is built along a wide bay and catches the eye from the very first moment. Kos is a gifted town with impressive archaeological and historical sightseeing, such as the ruins of the excavated ancient town, the castle of the knights, the famous sycamore tree of Hippokrates, etc.

Mobility wise, Kos has the most traditional bicycle network in Greece. Since many decades, local inhabitants but especially tourists use bicycles for their mobility. Currently, the bicycle network covers a distance of 14 km. with two-way bicycle lanes, i.e. 28 km in total. Recently, the Municipality of Kos took the decision to further expand the network towards the city centre. So 3 km of bicycle network out of the 14 km are located in the city centre. This demonstrates the emphasis given by the local authorities for this mobility scheme, but also the acceptance by the tourists.

Figure 5: Photo of the bicycle network

Figure 6: Photo of the bicycle network in the city centre

The bicycle network, the public transit and other measures and restrictions (one-way streets, pedestrian zones) taken by the Municipality of Kos have reduced drastically the traffic in the city centre and the major transport routes in the seasonal peak (mainly in July-August). The inhabitants and the tourists still use cars and motorbikes, but the alternatives of bicycles and public transit

have contributed to the creation of an environmentally friendly transportation environment.

Olympic Games 2004, Athens

A mobility management plan was set up to handle the increased traffic and public transport demand during the Olympic Games held in Athens in 2004. This plan encompassed the following measures applied during August 2004:

- Establishment of an Olympic road network 605 km long (Fig.3). The Olympic road network consisted of the Olympic Ring (blue line), the Primary Olympic Road Network (green lines) and the Secondary Olympic Road Network (yellow lines). The trips of Olympic Family were mainly implemented within Olympic Ring and through the primary Olympic road network.
- Establishment of Olympic Lanes (Fig.4) covering the Olympic Ring area and part of the Primary Olympic Road Network. Access to Olympic Lanes was allowed only to certified vehicles used by Olympic Family, to the "Olympic buses" transferring spectators to stadiums and in general in Games venues and to emergency vehicles.
- Establishment of "Entrance and Circulation Controlled Zones (ETCZ)" and "Parking Controlled Zones (PCZ)" in Stadiums and Games venues surrounding area.
    - *ETFZ:* Only vehicles possessing "Access and Parking Permission" were allowed to enter and circulate in these zones.
    - P*CZ:* All vehicles were allowed to enter and circulate in these zones, but only the ones possess an "Access and Parking Permission" were allowed to park.
- Eligible to "Access and Parking Permissions" were only the people leaving and working in EDFZ and PCZ zones.
- Establishment of "Olympic Bus Lines" connecting Olympic Games venues with each other and Olympic Games Venues with central places, suburban train and metro stations. The "Olympic Buses" were allowed to use the Olympic Ring and the Primary Olympic Road Network. These measures provided

Figure 7: Olympic Ring and Road

Figure 8: Olympic Lanes

very frequent bus service and only few stops. The "Olympic Bus Lines" offered free bus services to passengers possessing "Game tickets".

Carnival, Xanthi – Free parking and shuttle services

The city of Xanthi in Northern Greece hosts more than 250.000 visitors during the Carnival week, especially on the Sunday when the Carnival parade takes place. This results in high congestion problems and high travel times at the main road gateway, since you may need more than 2 hours to drive for a distance of around 10 km. In order to solve the problem, local authorities have created a free-parking area 3km away from the city of Xanthi (at the old airport near the Neos Zigos area) and offer free shuttle services from the parking area to the city centre. This service is offered only during Carnival time and more specific on the Carnival parade day (Sunday).

Aigina Island – Traffic and Parking Restrictions & Free mini bus services

The island of Aigina is located at Saronikos Gulf at the south of the city of Athens. During summer and especially during summer weekends it hosts a large number of visitors. To avoid transport congestion in city centre, the Municipal Authorities apply traffic and parking restrictions in central streets, offering at the same time the possibility to park a car or a motorcycle in decentralized parking spots and commute to the city centre by taking the free municipal mini bus. More specifically, the traffic strategy for the summer of year 2008 includes: "pedestrianization" of the seaside avenue (Leoforos Demokratias) during the night, pedenestrianization of central streets during day time (Spiros Rodis street), parking prohibition in seafront area and free bus services connecting decentralized parking spots to the city centre.

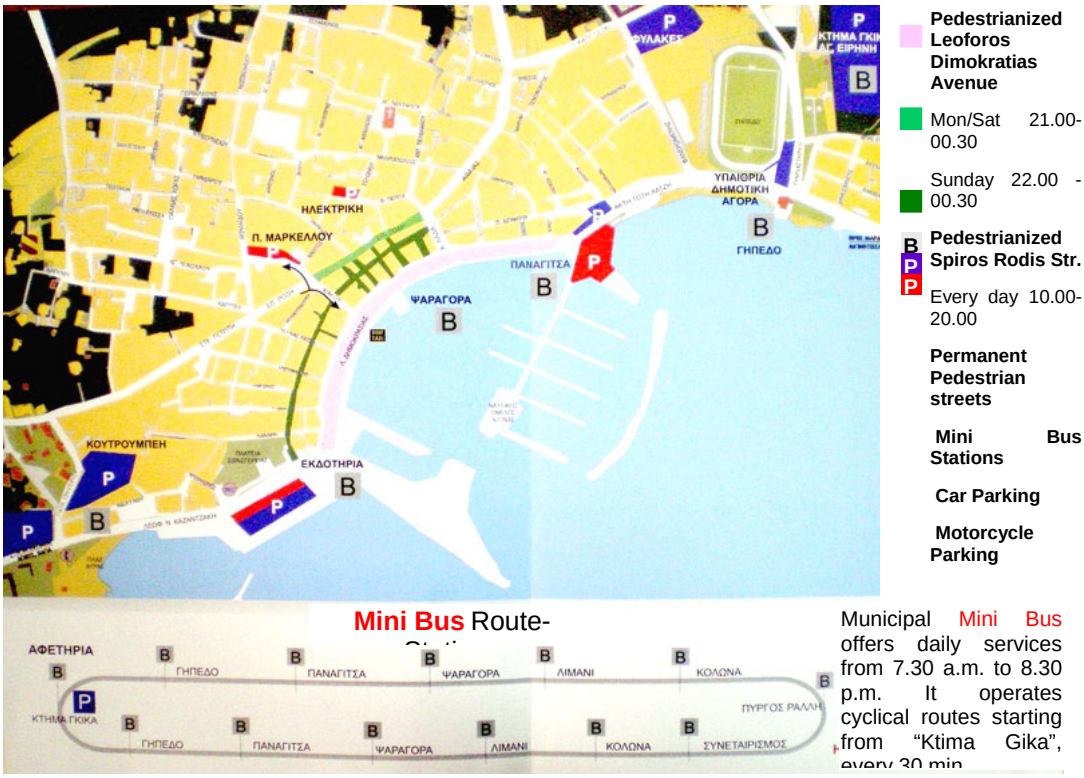

Figure 9: Traffic policy for summer 2008, Aigina Island

3.2.4. Hungary

Local initiatives and measures to limit the seasonal traffic peaks in lake Balaton:

1. New bicycle tracks around Lake Balaton
2. Bicycle parking possibilities
3. Rent-a-bike (private)
4. Construction of new car parking spots
5. Increased parking fees
6. Airport shuttle buses (from Sármellék Fly Balaton Airport to Lake Balaton)
7. Restricted/pedestrian areas (e.g. at Tihany Abbey)
8. Since 2004 there is an additional 3rd lane on motorway M7 direction Budapest to handle congestions
9. Improved Public Transport in attractive cities
10. Bus transport:
    a) more bus company serves the road transport around the Lake;
    b) there are flexible timetables for different seasons;

c) in case of planned sport and cultural events Kapos Volán serves the peak demand;

d) on motorway M7 more express buses are operated, consequently several little settlements remained unserved (Zala Volán used to stop in every settlement).

11. Rail transport:

Generally it is a target to make the rail transport more attractive in the Region.

a) modern locomotives and rail-coaches are operated in Balaton Region;

b) to have more flexible scheduling from Budapest every 2 hours starts a train to both sides of the Lake;

c) Siófok Express (Budapest –Siófok) is an extra train in summer, supported by the local authority;

d) diagonal trains running in summer season from further parts of the country:

Záhony-Budapest-Tapolca (from East)

Miskolc-Budapest-Tapolca (from North-East)

Szeged- Budapest- Keszthely (from South)

Győr-Komárom, Székesfehervár- Tihany (from North to Balaton)

e) BAGOLY Trains are operated on nights to carry young people home from entertainment areas (bagoly means: owl, night bird)

f) 3 new varations of timetables will be developed

peak: 24 June- 26 August

pre- and post season: May, Sept, Oct

off season: Only 6 pairs of trains will run from Budapest to Balaton, and they stop only on the main railway stations (not even on holiday stops)

g) There is a nostalgia train on the line Keszthely-Badacsony-Révfülöp-Sümeg. This train can be also ordered to different tourist attractions.

12. Combined tickets:

BALATON Card (since 2005)

a) Price around 10 Euro.

b) Valid till next April for 2 adults and 3 children.

c) Reduced tariffs for Balaton ships 20 % (except the ferry).

d) Further discounts (~10-15 %) on accommodation, restaurants, museums, beaches, sports, phone, internet and certain special events (e.g. Harley Davidson Festival), etc.

BALATON MIX Card

a) Prices: 10 Euro/adult, 6 Euro/child or 20 Euro/family.

b) Valid for 3 days in a month (0.00-24.00) for free travelling on rail and ships (even the ferry) around the Lake.

c) Free bicycle transport.

d) One 50% reduced return rail-ticket to other city.

3.2.5. Italy

Innovative Urban Mobility Managements: Car Sharing and ICT

Car sharing today represents one valid alternative to the use of private cars. Many positive experiences have been gained in the world in the last decade supporting the spreading of car sharing, showing benefits in terms of better use of public spaces and of efficient use of vehicles.

One of the most important projects in the area of car sharing implemented in Italy in the last decade is the ATeNA. Started in 1999 in the town of Naples, the project was developed jointly by the Municipality of Naples, the ANM (the Neapolitan Mobility Company) and FIAT. To improve the effectiveness of the project, 25 ZEV (zero emission vehicles) "FIAT Seicento", based on electric engine, were used and a new interchange area sited in the Southern part of the city of Naples (the "Brin interchange parking") was arranged with charge stations. These cars, having an autonomy of about 50 km, can reach a speed of about 100 km/h, can access all the areas of the municipality without restrictions and can be parked free everywhere.

The cars were also equipped with a navigator that allowed the choice of route and ideal step to step toward the destination. Users could access Brin parking, check the availability of car (also established by a large electronic panel exposed outside the parking), authenticate their personal data and their license plate, and after paying a caution, receive an "E-Card", a magnetic card charged with a specific amount.

Figure 10: The ATeNA project

With this card users can take the rented car and leave theirs in Brin Parking. After the use, again with the E-Card, users can pay the fee in accordance with a charging time, including the cost for parking their cars.

The ATeNA project was implemented in Naples, a city with high population density providing interesting results.

In the period 2007-2010, again in Naples, another project will be implemented, the "ECORENT". In this project, 20 electric vehicles will be offered by many public companies for pilot applications of a similar car sharing approach.

3.2.6. Slovenia

Traffic reduction in Alpine valleys (Municipality of Kranjska Gora)

Vrata is one of the valleys in Julian Alps which in summer time faces strong pressure of individual motor traffic. Municipality Kranjska Gora tried to found solutions to reduce traffic and its negative influences to the environment. A study was made which defined objectives for traffic reduction in Vrata valley and defined steps for the implementation of these objectives.

All the target groups were included in the process of decision-making and defining directives for traffic reduction. The target groups were land owners, inhabitants of two villages at the entrance to Vrata valley, workers in tourism,

visitors and other users of the valley, bus companies, municipality, relevant, state institutions, Triglav national park.

Methodology was directed to qualitatively include target groups through the whole process of defining a study. In the first workshop a working group (representatives of target groups) was formulated, which helped making decisions at all levels of the project – on the basis of analyses which were made in the process (analyses of data, surveys, protocols, cartography).

Result of the project was a study of traffic reduction in Vrata valley with clear directions and with activity plan to follow defined objectives.

Reduction of traffic in Julian Alps (Municipalities of Kranjska Gora, Bohinj & Bovec)

Julian Alps are the biggest mountain range in Slovenia where the only national park in Slovenia exists. Julian Alps are faced with all bigger negative influences of individual motor traffic. Municipalities Kranjska Gora, Bohinj and Bovec decided to cooperate to find common solutions. A project defined solution of reducing and management of traffic in the most problematic areas in those municipalities and has prepared a strategy to reduce traffic in Julian Alps.

In studies, following methods, which were important to take decisions, were used: workshops (8) with target groups, meetings with target groups, analyses of earlier studies and facts about the traffic and relevant information, gathering and analyses of cartography, analyses of spatial documents at municipal level. A model of traffic reduction for each problematic area was based on a consensus with target groups about the crucial directions of traffic reduction.

Main result of the project is Study Reduction of a traffic in Julian Alps, which consists of: a model of traffic reduction in Julian Alps, a model of traffic reduction for particular areas (Bohinj, Vrata valley, Vršič pass and Mangrt road), information-promotion brochure, information-promotion boards, spatial documentation to arrange parking places at Vršič pass and at the entrance to Vrata valley.

Motor vehicles reduction in landscape park Logarska dolina (Logarska dolina d.o.o.)

Landscape park Logarska dolina was declared in 1987 and in 1992 the concession for landscape park management was given to Logarska dolina d.o.o., which is governed by local associates (mainly landowners). One of the main problems when company started to operate was unorganized visits. After few years of the company's operation, the second phase of the project "Reduction of motor vehicles in Landscape Park Logarska dolina" was implemented. The project enabled implementation of some urgent measures (reduction and stop of vehicles at the park entrance). Apart from this project, the company decided to reduce motor traffic all the time of its operation (a toll to enter landscape park with motor vehicles operates from the beginning

of the company – walkers, bicyclists and users of regular bus lines are excused to pay entrance toll, building of natural-ethnographic trail in Logarska dolina – which directs visitors to walk and use walking trails in the park, information material, traffic signalling, etc.).

Formalisation of entrance points forced vehicles to reduce their speed. At entrance points visitors get information material about the park (parking places, walking and hiking trails, natural and cultural heritage, lodging etc). Parking places before the entrance points enabled free access to the park (a principle of "polluter pays").

Forming/building of entrance points were based on space conditions (the closeness to enter a park, owners, relief and other conditions). An important issue during project implementation was to keep the landscape image of the area (the entrance point is an old typical wooden building, which was moved to that place).

Results were: forming/building of entrance point to landscape park Logarska dolina (new crossroad, information point, regulation of small river, a view point, information board), forming/building of three parking places before the entrance to a park (later one of the parking places was reformed for caravans), adjustment of spatial documentation and natural-ethnographic trail in Logarska dolina.

3.2.7. Spain

There are four inhabited islands within the Balearic Islands: Mallorca, Menorca, Ibiza and Formentera. The inter-island transport is managed by the government of the Balearic Islands. Each island has its own Island council and they control the inland transport of their respective island.

The new master plan for the transport sector of the Balearic Islands defines a set of highly detailed proposals and covers different areas of action, including attempting to identify the seasonal peaks in traffic that the islands witness, given their high dependence on tourism and the increased use and dependence of private vehicles: introducing new public transport services, increasing availability and modifying existing services, removal of transit bans and developing 'on-demand' services, etc.

In November 2008, the Government of the Balearic Islands signed with the Islands' councils, new cooperation agreements, to implement these new proposed measures in the Transport sector master plan and other ancillary matters in public passenger transport.

In general, it should be stressed that the government of the Balearic Islands has set for the 2007-2011 term, one primary objective: **a move towards a more balanced and sustainable territory**. For this the following strategies have been established:

- Development of railway and tramway.
- Development of the partnership in improving the land transport.
- Ensuring connectivity between the islands and the mainland.

- Deploy a regulatory framework governing the territorial development with sustainability criteria.

Among the various initiatives undertaken to promote the new transport policy, and among them peak seasonal traffic, are:

Ground Transport:

Rail

Strengthening of the rail network within the island of Mallorca. Development of the rail network, and contribute to articulation of the towns and cities of Mallorca, is to promote rail as an alternative to road transport in order to obtain benefits in terms of traffic decongestion, lower levels of land and energy consumption and increase the levels of safety to the people.

Summary of some of the new initiatives concerning the Mallorca rail network:

- New Line Artá-Cala Ratjada (Phase I): 190.000.000,00€
- New Line Sa Pobla- Alcúdia: 92.000.000,00€
- Purchase of new units for the line of Manacor- Artà- Cala Ratjada: 38.000.000,00€

Figure 11: Ground transport, Railway

Metro

There is a subway line of 8km in length that connects the centre of the capital of Mallorca, Palma, with the university campus. Since the 29th of September 2008, a bus service has been in operation, departing every 15 minutes from the metro station (coinciding with the metro timetable), with the route running along all of the university buildings.

Figure 12: Ground transport, Metro

Tram

The government of the Balearic Islands has launched, together with the city council of Palma a new tramway infrastructure "Trambadía", which will link the city with the airport and shipping port, running along the bay of Palma, a major tourist point, this will allow decongestion of traffic within one of the most important areas of the island, especially important during the high tourist season.

Bicycles

Recently the government of the Balearic Islands has placed in the centre of Palma, a free bicycle service for the users of public transport, owners of an intermodal card can move around the city by bike. This service has also been placed at the university campus.

Buses

The Island of Ibiza highlights the implementation of the new central bus station, with the government of the Balearic Islands having recently signed a new transfer agreement with the Island of Ibiza. This initiative reorganizes the entire system of public land transport within Ibiza, facilitating and promoting its use to all residents and tourists, to reduce the reliance and use of private vehicles. In the tourist high season, the connections within the island and the frequencies are greatly increased to absorb the impact of the greater number of users that this peak time incurs.

Figure 13: Ground transport, Buses

On the island of Formentera there are also new public transport services for passengers, giving the island a new lease of life. One example is the creation of a new night service, with stops at the main sources of entertainment for young people. A 'by demand' transport service for the elderly, conducted by taxis throughout the island (24 licenses) allows these people to travel between their homes for the elderly and hospital. This is a free service.

Also a new transportation service is carried out by ecological electric 15 seat minibuses, which can be used to travel all around the natural park of Formentera. This service works especially well in the high tourist season, and since its introduction two years ago, it has enjoyed great success and acceptance.

Intermodality

The consortium of Mallorca transport manages the entire ground fleet of transport. One tool is the flagship intermodal card, allowing you to use all of the various modes of transport available: rail, tram, metro, bus and bicycle.

Various train lines are combined with bus services at the station to help move between towns and villages around the train station. The intermodal bus + train service has made available to residents and tourists, points that were only accessible before by use of private vehicle.

One of the first intermodal bus + train services to be launched is the line that covers Palma – Sa Pobla (by train) and Sa Pobla (important agricultural town within the island) - Pollensa and Port of Pollensa (tourist centre's and points of interest for its beaches and cultural heritage).

Ethnological Routes

Mallorca is a high quality wine region, especially the interior of Mallorca. There are a number of scheduled routes passing through the most important cellars and vineyards within the island, including surrounding villages. This is

an initiative of de-seasonalization of tourism and promotion of intermodal public transport. The services are normally carried out by bus + train, with a unique price.

New Technologies and Telecommunication

In 2005 and within the European program Interreg IIIb Medocc MATAARI, the Mallorcan Company of SD ASSESSORS S.A. designed and developed the Portal of General Transportation of the Balearic Islands. This site provides information in five languages for all public transport services within the islands, from schedules and stops, on-line viewing using GPS. It also offers tourists the possibility of scheduling all routes using public transport, offering alternative routes, routes of interest in terms of scenery, culture and culinary tastes, etc.

Shipping and Air transport

Air and sea transport is the responsibility of Inter Balearic Government. As a service of high interest to the intercommunication of the islands, they are governed by a declaration of public service obligation, which every year is reviewed and a commitment by operators to offer a minimum bid of routes, schedules and at a price stipulated by law is made. In the high tourist season, the services are greatly enhanced in comparison to the low winter season.

Lines covering the public service obligation are:

- Mallorca- Menorca
- Mallorca- Ibiza
- Ibiza-Formentera

In 2008, SD ASSESSORS SA conducted a feasibility study for the establishment of a public service by air (air bus) for the Government of the Balearic Islands.

3.2.8. Sweden

Some well known mobility management actions taken in several regions in Sweden are:

Less Cars to the Arena: this is a pilot study about how to reduce environmental effects of travels to events. The most important factors for reducing the traveling by car to events that were identified are: smart localisation of arenas/events, possibility to travel by metro and/or commuter train, and lack of parking space (Vägverket Report (SRA Report) 2005:30 (In Swedish)).

Road 45/70 through Mora: the objective of this preliminary study was to identify options for reducing traffic congestion during some major events in Mora. It was concluded that in combination with the construction of a by-

pass road, several other measures should be taken during events, for example the central parts of the town should be closed for traffic in combination with cheap parking near public transport to the town centre.

Eventsbusses in Malmö: Special busses are in operation for the football games of Malmö FF. The game ticket is valid for the bus ride. The same concept is used in several other Swedish cities for ice hockey games and other big sports events.

Street restrictions in summer, Ystad: the town of Ystad (on the south coast of Sweden) turns some inner city streets into pedestrian streets or forbid through traffic to decrease the car traffic in the summer peek. The same concept is used in the city of Visby (on the island of Gotland - the entire city centre is car free during summer month) and the city of Varberg.

Events parking management system in Gothenburg: in Gothenburg the car users get advice on where to park by an electronic park management system at big events (http://www.evenemangstrafiken.nu/). In Stockholm, large electronic signs at the city border make car users aware of big events and traffic problems.

Festival ticket = discounted train ticket, Roskilde, Denmark: visitors to the huge music festival in Roskilde, Denmark, can get a train ticket discount showing their festival ticket.

Traffic reallocation by using a barrier (bar) to avoid congestion, Gävle: after ice hockey games in the city of Gävle a barrier stops the traffic to use just one street, but to spread the traffic upon other streets (to avoid congestion) (http://epi.gavle.se/gk/t_sida.aspx?id=20558).

Nature and culture busses in the region of Skåne: in the most southern region of Sweden, the county transport authority Skånetrafiken is offering "nature and culture busses", which are operating on weekends taking users to some of the most visited recreational areas and culture sites in Skåne. The bus service is a big success and every year the routes are extended to more sites (http://www.skane.com/cmarter/cmarter.asp?doc=3199).

External parking lots/houses, Strömstad: in the city of Strömstad at the Swedish west coast the parking and traffic situation in summer is extreme. Therefore, the municipality offers daily and weekly parking at parking lots/houses in the outskirts of the city. Free bus service into the city is included in the price.
http://stromstadtourist.vastsverige.com/templates/article 2614.aspx.

4. IN-DEPTH ANALYSIS OF RELEVANT PROJECTS

4.1. Introduction

This chapter presents the in-depth analysis of the sixteen projects and initiatives from the categories "Medium" and "High" relevance. These projects have been analyzed by means of a matrix, linking innovative planning approaches, used intelligent and emerging mobility management methods/ schemes (measures), pilot demonstrations and results. The main topics analyzed in these selected projects and initiatives are:

- Innovative approaches used
- Measures implemented
- Pilots applications
- Results derived from the applications

In addition to the above, each project analysis starts with an introduction providing few facts about the project, and concludes with some final concluding remarks about the actual relevance to DELTA, the importance and the impacts of the measures taken (where available).

4.2. Alps Mobility

4.2.1. Introduction

The underlying idea for the pilot project Alps Mobility – an ecologically sustainable development of tourism in the Alps – involves developing practicable, environmentally friendly travel solutions in the Alps and mobility options at the holiday destinations, developed in cooperation with partner regions from which many travellers come to visit the Alps.

The primary goals of the pilot project are:

- the creation of a transnational partnership to promote an environmentally friendly mode of travel into and out of the model region (model region is tourist resorts and nearby cities);
- the implementation of measures for environmentally friendly transportation solutions within the model regions and model communities;
- the interconnection of these regions and communities and the development of an exemplary solution for the tourism regions.

4.2.2. Innovative approaches

The established data base links vacation ideas and excursion destinations with information on how a guest can ecologically reach these destinations by bus or train. Via the Internet, guests can be informed before leaving home or from their holiday location regarding which of their desired destinations are

available and what business hours are kept. Thereby prospective guests always receive information about how they can travel between their lodgings and their chosen destination in an environmentally friendly way.

One central innovation is the system's "*intermodal routing*" via the Internet. The term means that all modes of transportation and routes, even the walking routes, are linked to one another. So the guest receives route suggestions, which integrate hikes, bus rides, as well as e.g. boat rides or cable car connections. The possibility of intermodal routing has not been available in other transport information systems in this format before.

4.2.3. Measures

The established data base has the advantages of being available worldwide via the Internet and of offering direct access to information for those interested in an environmentally friendly holiday or who just want to learn something about the region. Because it combines information about public transport services with information about the region's attractions, lodgings and vacation destinations. There is an increase in the data base's value and significance as well as in the probability of finding regional information.

4.2.4. Pilots and results

In Bavaria – Germany, public transportation information is made available to them in both written and in map form. That way, guests can be well informed while they are in the resort area. In spite of doing without their own vehicles, they retain their mobility and enjoy a beautiful and interesting holiday.

Results in Bavaria: The success of the project can be gauged by the number of Internet "hits" received and by the number of passengers on buses and trains. However, it cannot be predicted whether merely an increase in the number of passengers is to be deemed a success or whether it is also a hindrance to a decrease in local public transportation usage.

In any case, the project's by-products were a success. The Competent Mobil team has prepared geographically-based bus line schedules for the province of Berchtesgaden, with enlarged maps of the settlement centres and information about special offers by Berchtesgaden's provincial public transit companies. They are available to the provincial administrative offices as well as to the regional bus companies and are being intensively utilized for passenger information. The project in its entirety can be presented as a nucleus for sustainable regional development.

In Lombardy – Italy, the Alps Mobility Project has facilitated the integration of tourism offerings by creating an "*Alps Mobility Card*", valid for 8 days. It offers the free use of all public transport and a wide range of public facilities at reduced prices, such as thermal baths, lift installations, cultural events, museums, athletic facilities, etc. The project has optimized public transit facilities and expanded their services, primarily by extending them into the

summer months and thereby helping to create interregional connections, particularly into Switzerland.

Results in Lombardy: Alps Mobility Project has succeeded in integrating all (not merely transit-related) tourist services into a single strategy - has concentrated on creating the framework for better tourism connections between the region's various urban centres to simultaneously improve the local quality of life. By guaranteeing public transit services within the region, the project has especially been able to promote demand from those markets in northern Europe and in southern and central Italy, which are compelled by the distance involved to travel to Alta Valtellina by plane and bus. Visitors from those regions have previously had no private transport available for mobility between the various towns in the Alta Valtellina region.

"Il villagio di nome Carnia" in Friuli-Venezia-Giulia, Italy, has been confronted with the problem of being cut off from the main public transportation systems (rail and bus), so the public transportation services are not designed to address tourists needs. The project offers the ideal means to transform those transit systems to best facilitate the region's accessibility and tourist usage. During the course of the project, bus connections were established that originate outside of the region, to enable travel to Carnia. Another measure implemented during the project was administrative and booking software installed, which is also supported by the above-mentioned information and booking center. Moreover, the internet portal www.carnia.it was established.

The final results are thought to be positive, even though the project goals were only partially achieved and further efforts are necessary. It must be taken into account that only limited resources were available, and therefore the aspirations toward exerting an influence on strongly habitual behaviours, such as using an automobile, could not be pursued more intensively. These results are positive not only in the sense of tourist mobility, but even more with regard to raising the awareness levels of the market and the business people about this complex tourism product.

In Pongau – Austria, "*mobilito - The Mobility Center in Salzburg*" was established and it began operating in April of 2000. This transit and tourism project, unique in all of Europe, is backed by the municipal association OPNV Pongau, which includes all 25 member communities in the region. Thereby, one of the most modern customer service centres for public transportation went into operation at the Bischofshofen railway station in Salzburg's Pongau region.

Results in Pongau: the services of the Mobility Centre are wide-ranging and comprise all modes of environmentally friendly mobility.

4.2.5. Concluding remarks

The relevance of this project with DELTA is the better organisation of public transport in connection with internet data and region's attractions, lodgings and vacation destinations. With better organisation of public transport less private transport can be achieved and congestion problems can be solved.

Some mobility management measures used in Alps Mobility project, which are also interesting for the DELTA project are:

- Database links between vacation ideas and excursion destinations with information on how a guest can ecologically reach these destinations by bus or train;
- Alps mobility card;
- Transformation of transit systems which can best facilitate the region's accessibility and tourist usage;
- Mobility center.

Such ideas could be transferred to similar environments – the idea could be used for travelling from urban to interurban areas and the seasonal variations of transport demand could be better handled.

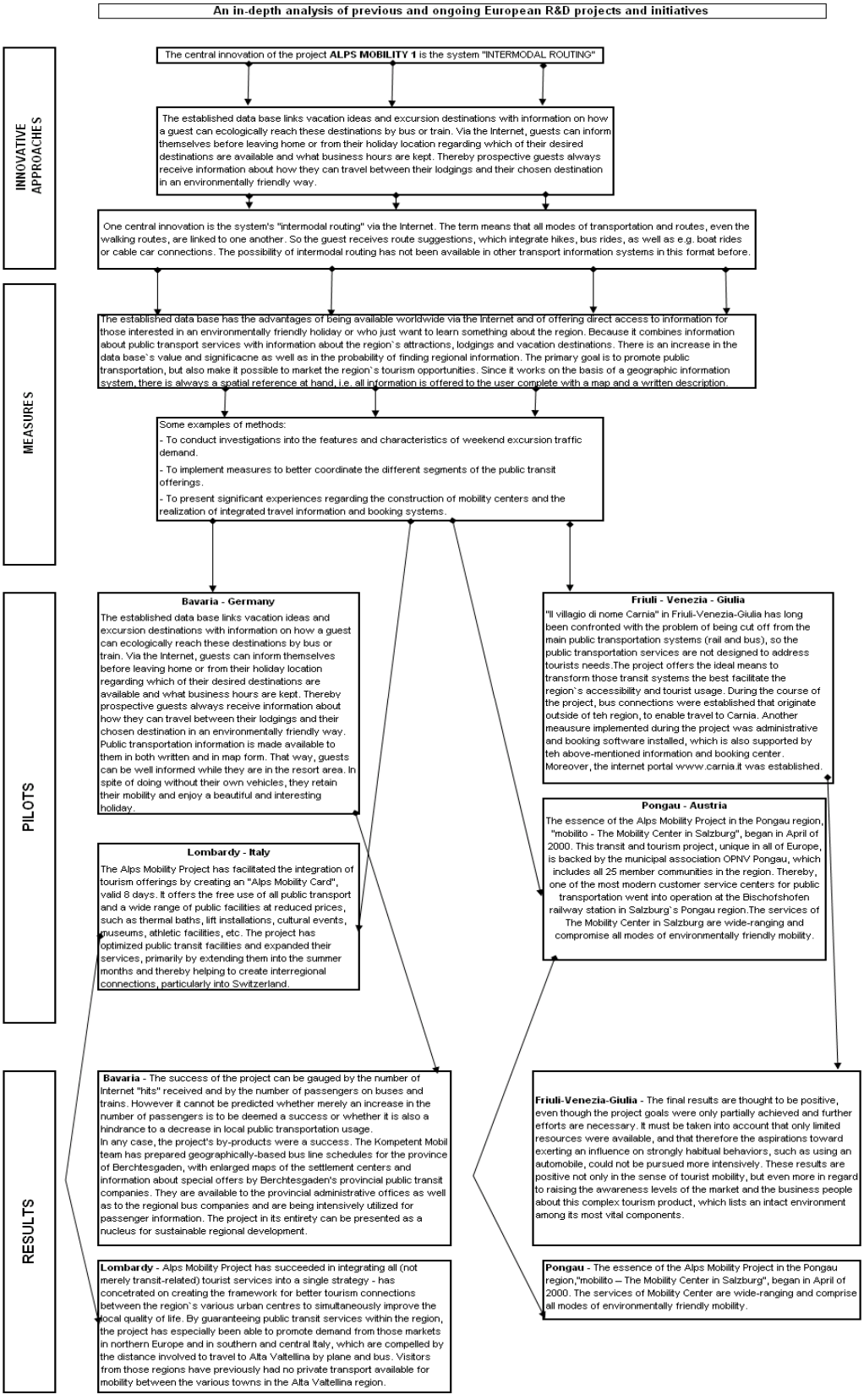

Figure 14 : Matrix of Alps Mobility

4.3. European Platform on Mobility Management (EPOMM)

4.3.1. Introduction

EPOMM (European Platform on Mobility Management) was founded as the final conference of the MOMENTUM research project – in Amsterdam 1997. In Amsterdam it was decided to develop it into a series and the next host was Nottingham in the UK in 1998. At that stage, it became obvious that there was a necessity to have platform to provide some continuity. In 1999, EPOMM was born, first as a European project. When the EU-support ceased, it had to be developed into an international association, which was finally registered in 2006 in Brussels.

EPOMM developed itself as a strong, co-operative and balanced network of all actors involved in Mobility Management in Europe, which provides a well-known network and reference point for all interested actors.

It represents access to a central and extensive data bank on mobility management (MM) issues, and direct transfer of state-of-the-art know-how. It has provided support in the formation and deepening of a national network on MM (called National Focal Point (NFP)).

Regular meetings and conferences helped to create an appropriate MM concept being applicable for all the European countries (promotion of national projects and policy; Influence on European Policy).

The main aims of EPOMM are:

- To promote and further develop Mobility Management in Europe.
- To support the active exchange of information and learning on Mobility Management between European countries.

The main tools to achieve these aims are:

- The website www.epomm.org containing the most updated and most in depth information on MM available.
- E-update: A monthly e-newsletter providing specific information on a mobility management topic.
- European Conference on Mobility Management (ECOMM) - The renowned yearly conference, which takes place every year in a city in an EPOMM member state.
- National Focal Points: The national mobility management networks of each EPOMM member country. They support the interchange between the European level and the national, regional and local level.
- Workshops: Organised by EPOMM to support build-up and transfer of know-how.
- EU-relations: Regular meetings with representatives of the EU to support the spread of MM.

- Project networking with all European projects involved in MM. This helps to keep up to date with all project results and helps preserve access to information after projects have been completed.

4.3.2. Innovative approaches

EPOMM provides a forum for all those interested in mobility management: representatives from EU member governments and other European countries, local and regional authorities, knowledge institutes, universities, researchers, major employers, transport operators and other users and interest groups.

All these actors use various services of the network (e.g. exchange of experiences, exchange of best practises, unified MM concept, etc.) to reach the overall target - reduction of single car drive.

4.3.3. Measures

Mobility Management measures do not always require large financial investments and may have a high benefit-cost ratio (campaigns and promotions for walking, cycling and public transport, cyclotax, limit car access, less parking spots, public transport information, mobility map, personalised travel assistance to help to reduce car use; employer might pay public transport tickets; car-sharing services; safe route to school). Indicative examples of successful implementations of different mobility management measures as best practices, which are presented at EPOMM's website (www.epomm.org) are the following:

1. In Sabimos (The Netherlands) PT travel information system introduces a new dynamic travel information system which uses satellite navigation and wireless communications to transmit information in real time to travellers and transport companies.
2. In Vorarlberg (Austria), new maps for trains, busses, cycling and walking were created. In order to offer a better orientation of Vorarlberg, eight new maps for train, bus, bike and walking trails have been developed.
3. The Dresden (Germany), the municipality implemented MM activities in 1996. There were big problems with rush hour traffic to workplaces. The transport infrastructure was not compatible with the highly increased motorisation and car use after the structural change process in 1989/90.
4. The Bike City in Vienna (Austria) is a housing estate, which targets the special needs of cyclists. Specific features are e.g. extra-large elevators, a bike-service-centre, as well as secured bicycle parking spaces. But also limited parking spaces for private cars are characteristic for the Bike-City.
5. Cyclotax: Using a bicycle taxi to transport passengers between subway and work in Rotterdam (The Netherlands).

6. The Italian tourist area Genova Valley gave birth to the idea of a sustainable mobility plan for the whole area around its National Park introducing a number initiatives promoting sustainable mobility.
7. Managing increased mobility due to Athens 2004 Olympic Games through car free day campaigns.

4.3.4. Pilots and results

1. Sabimos (The Netherlands)

The project introduces a new dynamic travel information system which uses satellite navigation and wireless communications to transmit information in real time to travellers and transport companies. It is the objective of Sabimos to set up a demonstration project to show that satellite navigation and wireless communication can be used to generate up-to-date travel information for bus and train passengers. Traffic control systems can also be included to greatly improve the flow and reliability of bus services substantially.

Results: The product is up-to-date travel information displayed at panels on busses, train stations, and bus stops.

2. Vorarlberg (Austria)

The public transportation of the complete region in Vorarlberg has been represented on eight maps, which show in detail all the stops and lines of the public transport system.

They also contain the streets and buildings as well as bicycle lanes, funiculars, car sharing stations and walking trails. It is also planned to represent the neighbouring regions of Liechtenstein, Germany and Switzerland.

Results: The important demand for these maps, also outside Vorarlberg, and the positive acceptance by the media proved that this project was quite successful.

3. Dresden (Germany)

In Germany, there are no law regulations to practise MM, so it is an optional activity of traffic source entities to take responsibility for the traffic they generate. With individual measures, such as job-tickets, coordination of timetables with shift patterns, relocations of bus stops, cycle parking with corresponding infrastructure, Intranet-based car-pooling schemes and even the establishment of a mobility team at Infineon/Qimonda, it has been possible to gain remarkable benefits.

Results: Dresden has got a lot of experience, successful cooperation, documented less car traffic in workplace travel and lower costs. At Infineon/ Qimonda, for example, the proportion of employees using private cars for their travel to work was reduced from 68% in 1996 to 55% in 2005. This is

equivalent to a saving of 12 million kilometres of car use per year, 400 kg of CO2 avoidance and 325 kg per employee and year.

4. Vienna (Austria)

The local municipal housing society GESIBA built a new housing estate near the city centre in Vienna, which targets the needs of cyclists. Due to the special design of the building, the flats and the surrounding area as well as a complementary bike service it is expected, that the bike will be used more often than customary in Vienna. For everyone needing a car from time to time a car sharing system is available. In addition, the nearby bus and underground stations offer public transport as an alternative mode to the private car.

Results: The Bike City is an innovative project for the city of Vienna. All housing units are already rented. This is a clear proof that there is a potential for housing estates like this and the director of GESIBA can imagine further "Bike Cities" in other locations. This contribution was targeted against the negative effects of traffic. But also a better quality of living conditions was reached.

5. Rotterdam (The Netherlands)

A number of business estates in Rotterdam have relatively poor public transport links, and De Esch is an example of these. There is a good metro link, but there is no onward transport to the final destination, and the distances are too long to walk. The solution is the introduction of a bicycle taxi, the "Cyclotax", which takes passengers from the Kralingse Zoom metro station to the business estates, such as De Esch.

Result: The greatest chances for bicycle taxis are not only in business market, but in the tourist market.

6. Genova (Italy)

This measure concerns the introduction of regulation to limit access by car on the crowed tourist area. Infrastructure measures and regulation were supported by an intense and relatively innovative marketing campaign.

The *results* of the mobility management initiatives were quite positive:

- car modal choice decreased from 93% to 82%;
- the new public transport service reached 13% of modal share;
- car trips in the valley reduced theirs lengths and numbers:
- cars arriving at the end of the valley decreased from 46% to 18%;
- carbon dioxide emissions decreased by 18% (-12 tons) and those of carbon monoxide by 25% (-0,9 tons);
- space for parking was reduced by 13%;

- the costs of the initiative were balanced by parking and public transport fees.

7. Athens (Greece)

The measure of the car free day (2000; 2001) in the city centre of Athens gained a high degree of acceptance. The car free centre idea was successfully demonstrated to the city centre commuters, inhabitants and shop owners. The car free day was expected to be the beginning of a series of similar events that would become more frequent until the summer of 2004. This way higher acceptance was gained and knowledge about this measure would provide better mobility results. It was planned that the city centre would be restricted to individual cars during the Athens 2004 Olympic Games.

Results: It was successfully implemented in 2004. The city centre of Athens was restricted to individual cars during the Olympic Games. Mobility Management could provide the means to achieve a satisfactory level of mobility in the centre.

4.3.5. Concluding remarks

EPOMM can facilitate the aims of DELTA at different levels. First, at the level of mobility management measures that could be applied to the DELTA regions, since many good examples, like the ones presented above, promote schemes and strategies that could be adapted to the regions with seasonal demand characteristics. Second, at the level of networking and promotion, since EPOMM is a major platform of a large variety of entities involved in mobility management in Europe and they could serve as agencies for the wide promotion of DELTA solutions.

Concerning measures for effective mobility management, the case studies presented previously suggest the use of "soft" measures, like information and communication, and coordination activities. "Soft" measures often enhance the effectiveness of "hard" measures within urban transport (e.g. new tram lines, new roads and new bike lanes). Some of the tested measures are:

- PT travel information system
- new maps for trains, busses, cycling and walking
- new MM activities – job-tickets, the coordination of timetables with shift patterns, relocations of bus stops, cycle parking with corresponding infrastructure, Intranet-based car-pooling schemes
- bike city
- cyclotax
- sustainable mobility plan
- car free day campaigns

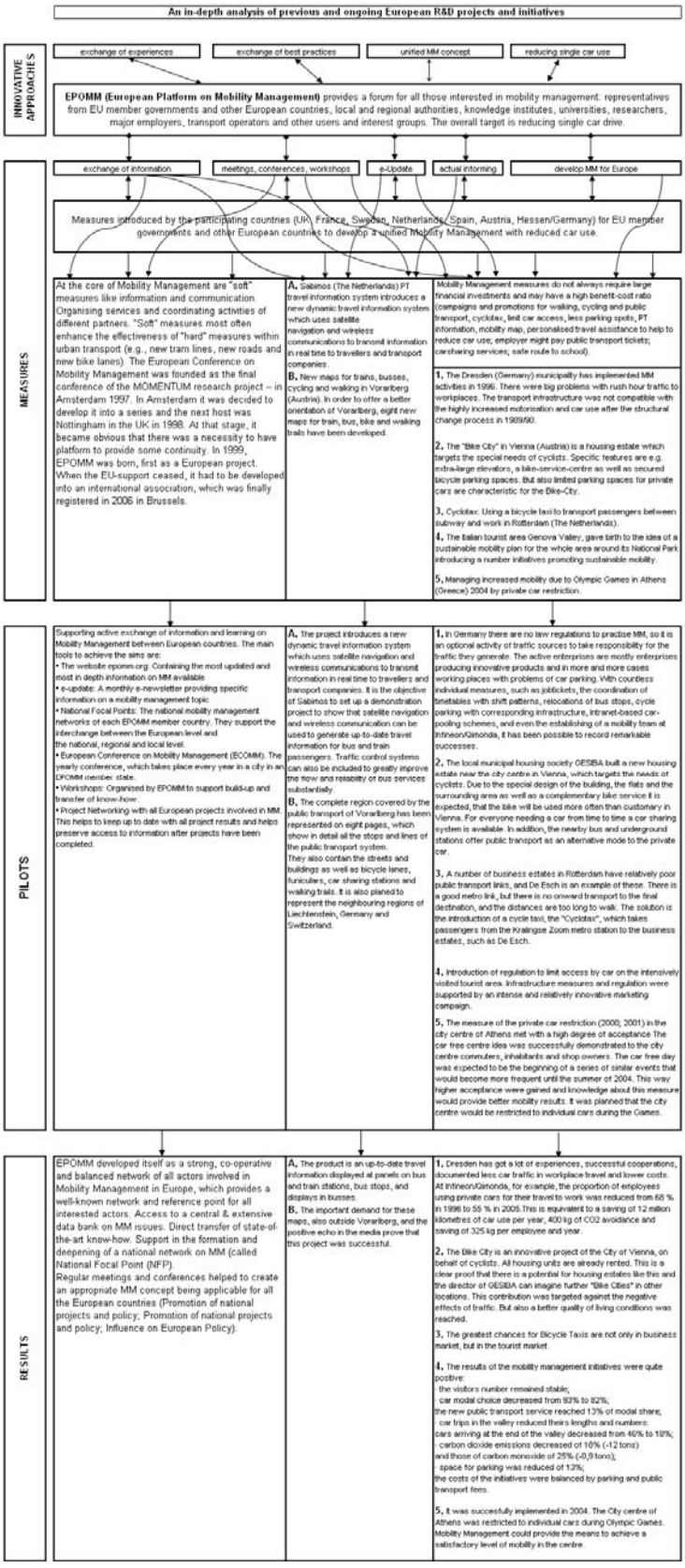

Figure 15: Matrix of EPOMM

4.4. FRAME and European ITS Architecture

4.4.1. Introduction

The FRAME project (Framework Architecture Made for Europe) was funded by the European Commission as part of the 5th Framework Programme of the Information Society Technologies (IST) Directorate. It was follow-up of the KAREN project (1998-2000,) which developed the first version of the European ITS Framework Architecture.

From 2001 to 2004, the task of promoting the Framework Architecture and providing practical assistance to users was carried out by the two closely linked projects FRAME-NET and FRAME-S. They provided various forms of support:

- seminars and training workshops
- international meetings and events
- brochures, reports and technical documents

and were also responsible for making updates and improvements to the Architecture, producing two new versions (2.0 and 3.0).

As a result of the involvement of the FRAME projects, the European ITS Framework Architecture has become known as the "FRAME Architecture".

From 2005 onwards, responsibility for maintaining the FRAME Architecture passed to the FRAME Forum. This is a group of Architecture users who are keen to see its promotion and support continue. The work supported by the FRAME Forum has resulted in improved versions of the Architecture and its FRAME Selection Tool becoming available from the FRAME website (http://www.frame-online.net).

The FRAME Architecture is currently being maintained by the EC Funded Project E-FRAME (2008-11), which will extend the FRAME Architecture to include support for Cooperative Systems. This project has also taken over many of the tasks previously undertaken by the FRAME Forum for its duration.

FRAME has been integrated in this state-of-practice of DELTA, since one of the project results is to enhance the Architecture with functionalities related to the seasonal transport demand management. So although its thematic relevance to DELTA is not high, the new version of FRAME will be able to be used as a basis for the development of ITS applications to handle the seasonal traffic peaks.

4.4.2. Innovative approaches

The Innovative approach offered by the FRAME Architecture is that it provides a common starting point for the building and maintaining of European ITS Architectures. This makes it much easier to provide inter-operability of ITS applications across Europe.

The purpose of an ITS architecture is to provide a tool for the planning, design and deployment of an ITS implementation. ITS architectures come in very

different forms and levels. They range from specific structures, such as the layout of a communication system or the design principles for an individual ITS element, to high-level concepts representing the underlying framework of a whole project.

The growing use of advanced telematics technologies in modern transport systems, their increasing complexity and the importance of ensuring integration and interoperability between systems make high level 'Framework' or 'System Architectures' more and more necessary.

A Framework Architecture provides strategic guidelines that will cover not only the functional elements, but also organizational, legal and business aspects. It provides the starting point for the development of the ITS architectures used for ITS implementations.

The FRAME Architecture is a high level framework architecture. It has been designed to serve as a tool for the creation of national, local or specific architectures, which in turn provide a basis for planning ITS projects and implementations. The FRAME Architecture is technology independent, and although it predominantly covers road-based ITS, it does have links to other modes for services such as trip planning.

4.4.3. Measures

It is not possible to define measures as implementation of functionalities in specific scenarios. For FRAME is more relevant to identify the output of the FRAME projects.

The main results though can be described as:

1. Maintenance of the FRAME Architecture.
2. The development of a method to create or apply the FRAME Architecture to the implementation of ITS.
3. Updates of the FRAME Architecture itself to include developments in the scope and content of the services that ITS may be called on to provide.
4. A Browsing Tool to allow the study of the FRAME Architecture using one of the many Internet browsers currently available.
5. A tool (Selection Tool) which enables the creation of particular ITS Architectures for nations, regions, cities and individual ITS projects.
6. Dissemination Material (technical material, reports, brochures and presentation) and Workshops to encourage and promote the use of the FRAME Architecture.

It is also possible to define the scope of the current FRAME Architecture in the following functional Areas:

1. Electronic Payment Facilities
2. Safety and Emergency Facilities
3. Traffic Management

4. Public Transport Operations
5. Advanced Driver Assistance Systems (ADAS)
6. Traveler Journey Assistance
7. Support for Law Enforcement
8. Freight and Fleet Operations

The E-FRAME Project is now extending these functional Areas to include functionality that will support cooperative vehicle-infrastructure systems.

FRAME is both an architecture and a methodology for the creation of ITS architectures based on the FRAME Architecture. The basic elements of the methodology, the required inputs, the results, and the relationships of the components with each other are shown in the following diagram.

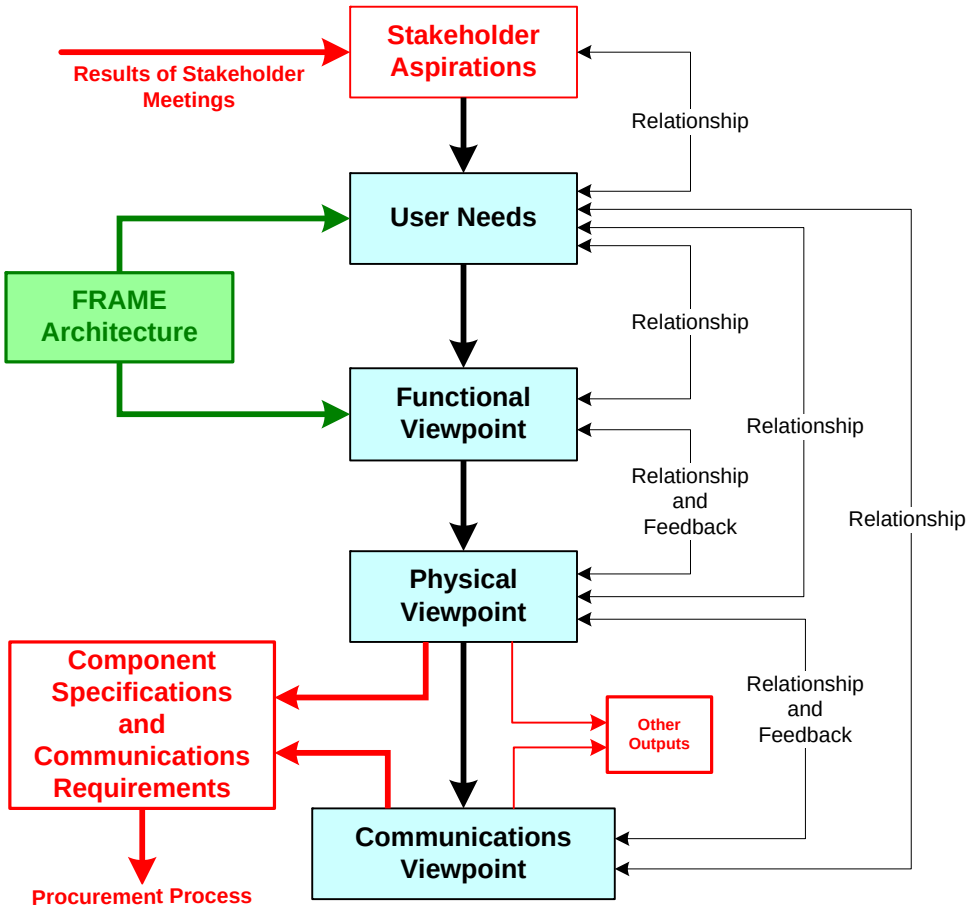

Figure 16: Interrelationship between the main components of the FRAME Architecture

The description of each of the elements in this diagram is as follows:

Stakeholder Aspirations: descriptions of the services that the stakeholders want ITS to provide and hence must be supported by the functionality in the

ITS architecture. They are written in the stakeholders' own words and gathered through consultation and direct discussions.

User Needs: provide the formal definition of the Stakeholder Aspirations. They will include any constraints the stakeholders wish to place on the delivery of the services.

Functional Viewpoint: defines the functionality needed by the ITS System to fulfill the User Needs and interface with the outside world. It also includes a high-level definition of the data used by the System as input or output. It is divided into Functional Areas, which are further divided into Functions. All the Areas are provided with diagrams (called Data Flow Diagrams), which show how the functions relate to each other, to Data Stores and to the Terminators (the outside world) through the Functional Data Flows.

Physical Viewpoint: describes the various ways the Functional Architecture can be used by defining how the functionality it contains can be grouped into physical locations to form implementable Systems, taking into account of any User Needs that have physical (as opposed to functional) requirements. The physical locations are linked to each other and to the outside world through Physical Data Flows, whose components are the Functional Data Flows from the Functional Viewpoint. The output from the Physical Viewpoint is the Component Specifications, which can be used in the following steps in the process of deploying the System.

Communications Viewpoint: developed from the Physical Architecture and describes the kind of communications links needed in a System in order to support its Physical Data Flows. It may include some requirements from the User Needs, where they relate to specific communication requirements. The output from the Communications Viewpoint is the Communications Requirements, which can be used in the following steps in the process of deploying the System.

The "Other Outputs" shown in the diagram can comprise some or all of the following:

Deployment Study: provides a high-level view of how the components and communications links identified in the Physical and Communications Viewpoints can be deployed. It may also describe ways in which any existing systems can be migrated to become part of the ITS implementation.

Cost Benefit Study: provides a prediction of the likely costs and benefits that can be expected to accrue from the deployment of the System described in the Architecture.

Organizational Viewpoint: looks at how the organizations responsible for owning, managing or operating Systems components and communications links can work together in order to deliver the ITS services required by the stakeholders.

Risk Analysis: describes the risks to ITS deployment and categorizes them according to the seriousness of their impact. Mitigation strategies may be able to be provided for some of the most severe risks.

As can be seen from the diagram, the FRAME Architecture provides the starting point for the identification of the User Needs and the functionality to support them. This is achieved through the use of the FRAME Selection Tool, which enables the selection of the User Needs and functionality that will be needed. It is also possible to extend the User Needs and functionality to cover services that are not included in the FRAME Architecture.

4.4.4. Pilots and results

National ITS Architectures do not need to be in conflict with FRAME Architecture, but instead, can be harmonized / derived from it at the European Level. They can include adaptations of the Architecture to cover the requirements of local regulations and particular service requirements, as well as organizational structures.

The following table provides lists of some of the ITS architectures for nations and projects, which have been built, based on, or harmonized with the FRAME Architecture:

Table 3: List of some of the ITS architectures for nations and projects

National Level		
ACTIF	France	National ITS architecture
ARTIST	Italy	National ITS architecture
HITS	Hungary	National ITS Architecture
NARITS	Romania	National ITS architecture
Team	Czech Republic	National ITS Architecture
TTS-A	Austria	National ITS (multimodal) architecture
Regional Level		
Belgrade	Capital of Serbia	Regional ITS Architecture
KCC	Kent County – UK region	Regional ITS Architecture
Transport Scotland	Scotland – UK region	Regional ITS Architecture
Project Level		
CONNECT	EC funded project	Regional ITS deployment for Eastern Europe
COOPERS	EC funded project	Development of Cooperative Systems for inter-urban roads
CVIS	EC funded project	FRAME served as a reference for functionality definition and mapping

SAFESPOT	EC funded project	Used in part of the development of Cooperative Systems for urban roads
VIKING	EC funded project	Regional ITS deployment for Scandinavia

4.4.5. Concluding remarks

The European ITS Framework (FRAME) Architecture is a "tool-box", from which other ITS Architectures and/or systems specifications plus communications requirements can be developed. It provides a framework for the development of:

- National, Regional or Local ITS Architectures
- Systems for ITS deployments at national, regional or local level

FRAME projects have build a general awareness of the relevance and use of the FRAME Architecture for the development and deployment of ITS. They provided benefits from the experiences gained in the implementation of other ITS.

The FRAME projects have thus provided an ITS Architecture and a method to support ITS definition and procurement. This work is being continued by the current E-FRAME project.

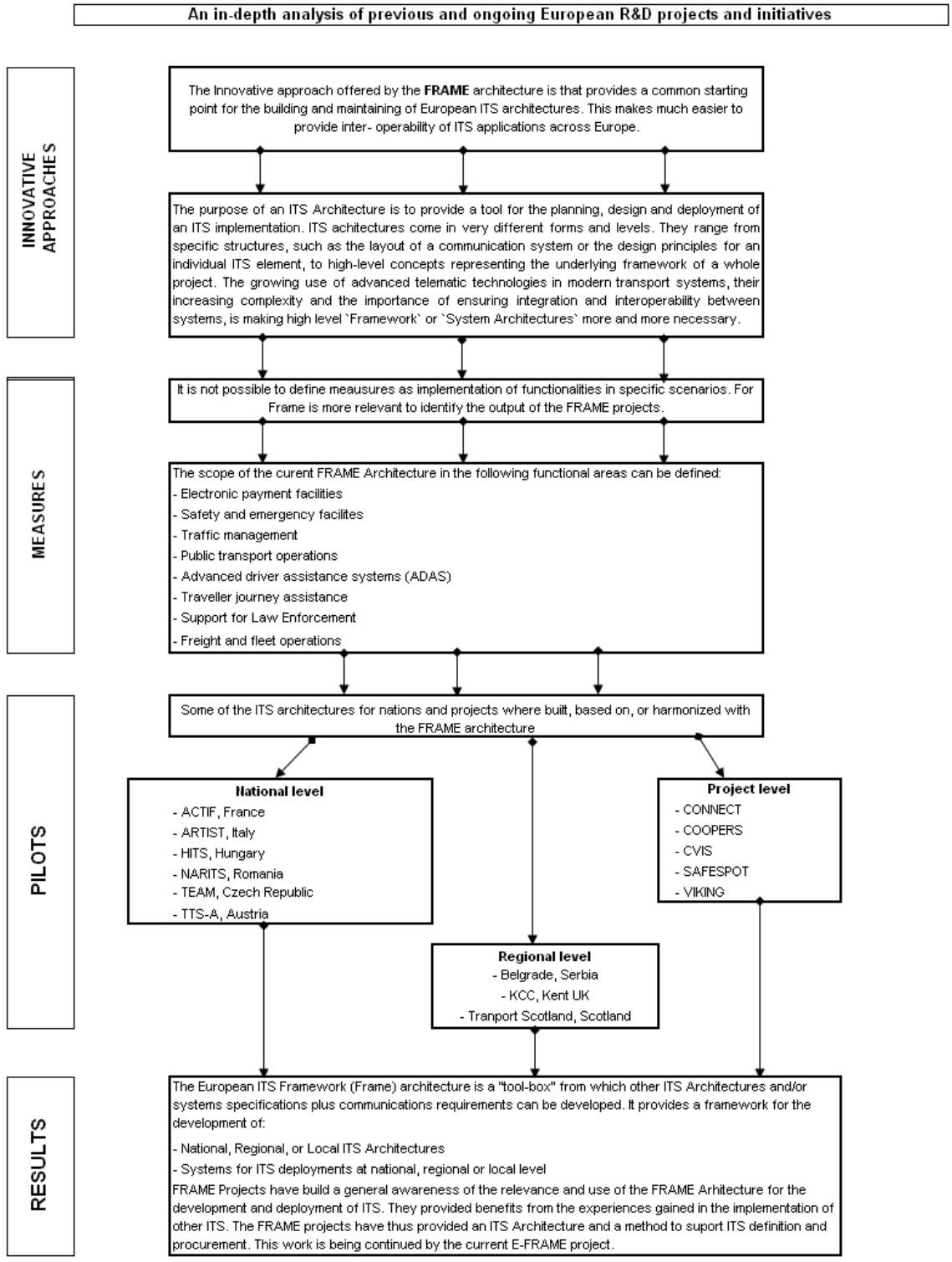

Figure 17: Matrix of FRAME and European ITS Architecture

4.5. Guide to Traffic and Transport Management for Special Events, Roads and Traffic Authority

4.5.1. Introduction

The NSW (New South Wales) Police, Local Government and the Roads & Traffic Authority (RTA) (Australia) have compiled this guide as a multi-agency approach to managing traffic and transport for special events in NSW. The guide is written for Event Organisers, Venue Managers, Police, Councils, the RTA and anyone else with an interest in traffic and transport management for special events. The guide points out statutory requirements, where they exist, and makes best-practice recommendations, where they do not.

The guide is not a rulebook. It rather captures the experiences and knowledge accumulated by the events industry and government agencies over the past decade. As such, it is recommended for all practitioners.

4.5.2. Innovative approaches

A Transport Management Plan (TMP) manages traffic and transport over a wide area. It includes one or more Traffic Control Plans. The TMP ensures a safe and successful event, for example by:

- isolating the event space from traffic (Traffic Control Plans),
- managing the reduced capacity of the road system, and
- minimising the traffic impact on the non-event community and the emergency services.

4.5.3. Measures

A special event (in traffic management terms) is any planned activity that is wholly or partly conducted on a road, requires multiple agency involvement, requires special traffic management arrangements, and may involve large numbers of participants and/or spectators. Examples are marathons, fun runs, cycling events, parades, marches and street market days. The definition also applies to events conducted in their own venue if the event requires special traffic management arrangements and multiple agency support.

Since introducing the first process in 1999, four changes in the operational environment for special events have occurred. They are:

- gazetting of the Occupational Health & Safety Act 2000;
- increasing tendency of Australian courts to uphold public liability claims;
- increasing numbers of special events (especially smaller events); and
- increasing traffic volumes on NSW roads.

To ensure a common understanding throughout NSW, the Police, Councils and the RTA have adopted a common process: the Traffic & Transport Management for Special Events Process.

4.5.4. Pilots and results

1. Traffic management plan for different situations (cultural and sport events, etc.)

New classes of special events: For traffic and transport management purposes, the new process identifies four distinct classes of special events. These replace the previous five categories.

Whereas the old classification system focused on the type of road (state, regional or local) and estimated crowd sizes, the new classification system focuses on:

- disruption to traffic and transport systems, and
- disruption to the non-event community.

Class 1: is an event that impacts major traffic & transport systems and there is significant disruption to the non-event community. For example: an event that affects a principal transport route in Sydney or one that reduces the capacity of the main highway through a country town.

Class 2: is an event that impacts local traffic and transport systems and there is low scale disruption to the non-event community. For example: an event that blocks off the main street of a town or shopping centre, but does not impact a principal transport route or a highway.

Class 3: is an event with minimal impact on local roads and negligible impact on the non-event community. For example: an on-street neighbourhood Christmas party.

Class 4: is an event that is conducted entirely under Police control (but is not a protest or demonstration). For example: a small march conducted with a Police escort.

In March 1999, the City of Sydney, the NSW Police City East Region and the RTA announced a Traffic Management for Special Events process. It focused on large special events conducted in the Sydney CBD. A short time later, South Sydney Council reviewed the process and adopted it for events in their local government area.

Although the process worked well for large events in and around the Sydney CBD, it was too cumbersome for universal use. In March 2002, a task force assembled to review the existing process, identify its strengths and weaknesses, and provide direction for an improved process that would work in all Local Government Areas across NSW. The task force consisted of:

- NSW Police;
- Roads & Traffic Authority;
- Festival & Events Association;
- The Special Events industry;
- Sydney City and South Sydney Councils;
- 16 Country Councils;

- 24 Sydney Suburban Councils.

A Transport Management Plan (TMP) manages traffic and transport over a wide area. It includes one or more Traffic Control Plans. The TMP is applicable all over NSW and ensures a safe and successful event by:

- complying with the requirements of the Occupational Health & Safety Act 2000
- isolating the event space from traffic (Traffic Control Plans)
- managing the reduced capacity of the road system
- minimising the traffic impact on the non-event community and the emergency services
- minimising costs to the event organiser and agencies.

The best practice to match variable situation to proper traffic management, while local specialities may be taken into consideration.

2. Guidebook

The Guidebook is addressed to Event Organisers, Venue Managers, Police, Councils, RTA and anyone else with an interest in traffic and transport management for a special event and consists of:

- legislative background
- event categories
- responsibilities (even volunteers)
- training
- insurance
- information in advance (advertising)
- ad hoc actions (before, during, post event); TMP; maps of venue and adjacent areas; maps of traffic routes, closed routes; clearways; detour; bypass; pedestrians; cyclists; cars; PT; heavy vehicles; traffic signs (permanent and portable variable message signs); disabilities; parking; gates; WC; police; first aid; ambulance; fire; waste and recycling; safety and security; food; electricity)
- actions for further unexpected situations (accident, heavy storm, rain)
- additional information (direction, noise, entrance, tickets)
- reopening, recovery
- costs calculation for the actions
- post event evaluation.

For repetitive events it is enough to develop one plan. During event, a contingency plan is always needed.

From a traffic and transport perspective, a special event needs to:

- ensure the safe separation of event patrons, participants and volunteers from traffic;
- manage the reduced capacity of the road system;
- minimise the traffic impact on the non-event community & the emergency services;
- minimise costs;
- motivate the use of public transport.

4.5.5. Concluding remarks

Experiences from handling traffic during special events are relevant to DELTA, since strategies for handling traffic during event may also be applied to handling seasonally variable traffic.

Areas and regions that attract many tourists may also be attractive for arranging special events so there may be a requirement for handling both the seasonal variation in transport demand and transport during the events.

The traffic management strategies can be applied even for tourist seasonality and involve:

- Guidebook for local stakeholders
- Traffic and transport plan for special event
- Traffic management plan for different situations

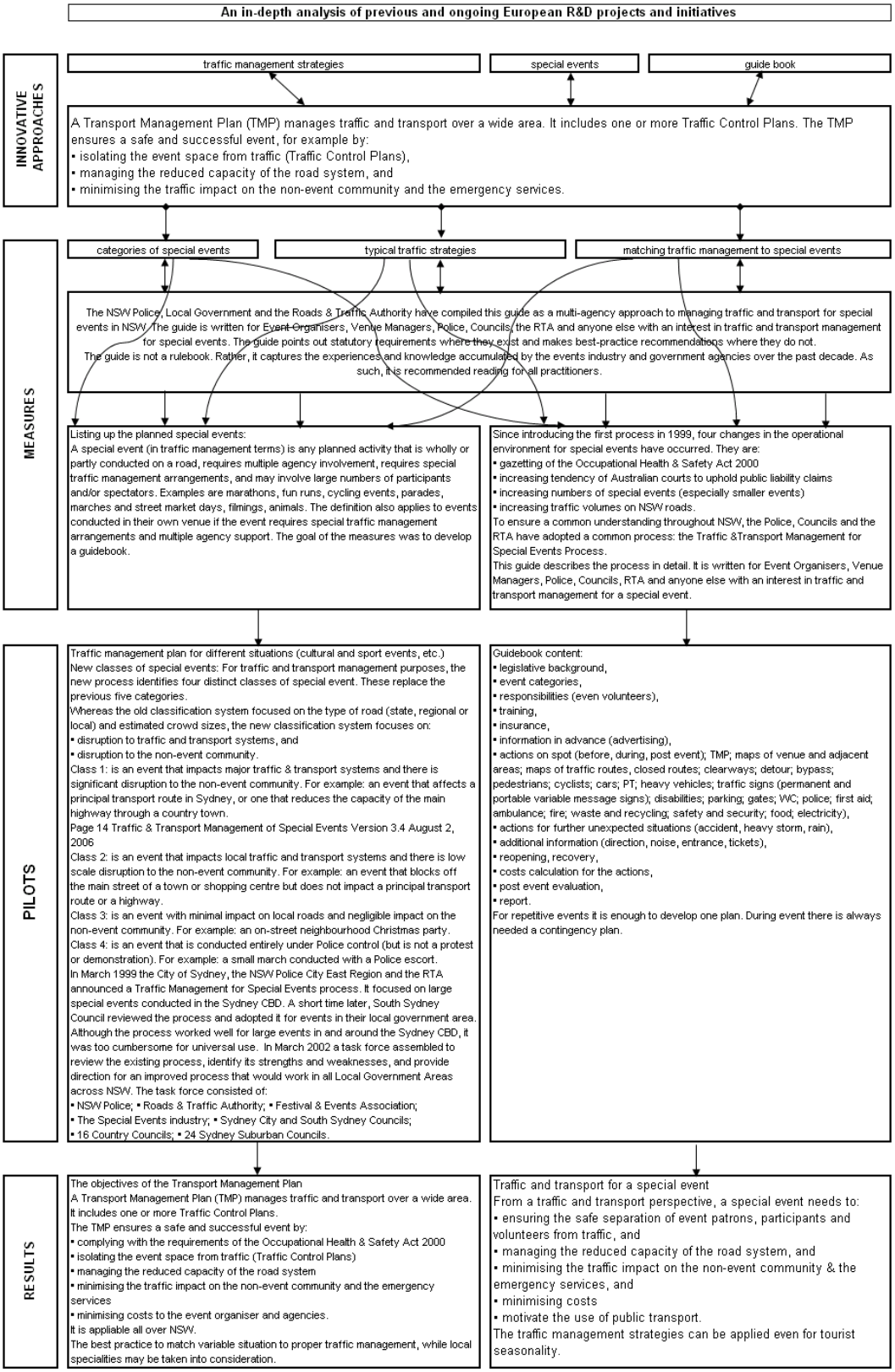

Figure 18: Matrix of Guide to Traffic and Transport Management for Special Events, Roads and Traffic Authority

4.6. Managing travel for planned special events

4.6.1. Introduction

Given the dynamic characteristics of planned special events, the Federal Highway Administration (FHWA) Transportation Management Center Pooled-Fund Study (TMC PFS) recognized the need to identify operations planning and program issues, derive operational strategies and plans, and examine successful interagency cooperation and communication techniques specific to planned special events.

4.6.2. Innovative approaches

The handbook derived for this purpose presents and recommends policies, regulations, planning and operations processes, impact mitigation strategies, equipment and personnel resources, and technology applications used in the advance planning, management, and monitoring of travel for planned special events. The handbook was written to assist responsible agencies in managing the ever-increasing number of planned special events impacting transportation system operations in rural, urban, and metropolitan areas.

4.6.3. Measures

The TMC PFS commissioned the development of a technical reference document that provides direction, guidance, and recommended practices related to the proactive management of planned special events. It builds on the state-of-the-practice in managing travel for planned special events and strives to complement and advance the present capabilities of TMCs in addition to that of traffic management programs in metropolitan, urban, and rural areas. This technical reference bridges the gap between the state-of-the-practice and state-of-the-art in managing travel for planned special events. Policy and strategy makers, local authorities, stakeholders, operators should be involved.

4.6.4. Pilots and results

1. Study on planned special events

- Categorization of Planned Special Event;
- Program Planning at Regional and Local Level;
- Event Operations Planning (including Initial Planning Activities, Feasibility Study, Traffic Management Plan, Travel Demand Management and Traveller Information);
- Pre-Trip Traveller Information (including Information Needs, Internet, Telephone Information Systems, Public Information Campaign, Event and Venue Transportation Guide, Other Technology Applications);
- Recruiting and training voluntaries.

Results:

Development of Planned Special Event Categories by Type:

- Major roadway construction and maintenance
- Planned special event

Development of Unplanned Special Event Categories by Type:

- Traffic incident (e.g., crash, disablement, spilled load, debris)
- Emergency road work
- Adverse weather (e.g., snow, ice, fog, heavy rain, sun glare)
- Emergency (e.g., severe weather, natural disaster, terrorism)

Categories of Planned Special Events:

- Discrete/recurring event at a permanent venue
- Continuous event
- Street use event
- Regional/multi-venue event
- Rural event

Event Permit Requirements

A number of communities with planned special event permit guidelines have also developed criteria to categorize various sizes of planned special events. As a result, one proposed special event may have to meet more stringent permitting requirements than other events based on its severity classification. Decision criteria include expected attendance and scope of street closure.

The following examples summarize the permit classification standards of several jurisdictions and the collective category thresholds specific to each jurisdiction vary by jurisdiction population:

- Alpine County, CA (pop. 1,208) specifies three planned special event category sizes:
  - Minor event – 75–100 people.
  - Mid-size event – 101–500 people.
  - Major Event – 501+ people: requires public hearing with the Alpine County Planning Commission.
- West Sacramento, CA (pop. 31,615) maintains three planned special event category sizes:
  - Category 1 event – 50 to 499 people.
  - Category 2 event – 500 to 2,999 people.
  - Category 3 event – 3,000 or more people: requires major police support and traffic control.

2. Event operations planning

- Travel Demand Management (including Demand Management Strategies, High Occupancy Vehicle Incentives, Event Patron Incentives, Bicyclist Accommodation and Local Travel Demand Management)
- Transit Service (including Public Transit Service Expansion, Express Bus Service, Charter Service, and Transit Service Marketing)
- Site Access and Parking Plan
- Pedestrian Access Plan
- Traffic Flow Plan
- Traffic Control Plan
- En-Route Traveller Information Plan
- Traffic Surveillance Plan
- Traffic Incident Management and Safety Plan
- Volunteer Training

Results - MM plans for different planned special events:

Successful application of Traffic Management Plan in several US States (IL, VI, CA, MA):

- Site access and parking
- Pedestrian Access
- Traffic Flow Control
- En-route traveller information
- Traffic surveillance and incident management

The City of Los Angeles DOT (LADOT) and Los Angeles Police Department (LAPD) maintain a database of planned special events scheduled to occur within the agencies' jurisdiction. The LADOT and LAPD assign an event impact level to each event to describe the general scope of each agency's involvement in advance planning and day-of-event traffic management. The event impact levels include:

- Level 1: Install and enforce temporary parking restrictions
- Level 2: Level 1 and deployment of traffic officers (LAPD)
- Level 3: Level 2 and engineering/ATSAC support (LADOT)
- Level 4: Coordinated major event response effort

Example: The parking and transportation management plan for Investco Field in Denver contains separate traffic management and operations plans, categorized under four attendance scenarios, for future planned special events occurring at the venue:

1. sold-out Denver Broncos (football) games.
2. other large events with an attendance of more than 60,000.

3. medium events with an attendance between 40,000 and 59,000.
4. small events with an attendance between 20,000 and 39,000.

The traffic management and operations plans for each scenario vary based on:

- event patron modal split prediction,
- site parking lot usage,
- Investco Field transit service, and
- level of personnel and equipment resources for traffic control in the vicinity of Investco Field.

3. Before implementation there is a simulation

Elements of a Stakeholder Simulation Exercise

- Identify the stakeholders who will participate in the exercise
- Distribute copies of the traffic management plan and implementation plan to participants
- Develop a script for the exercise, including surprise elements that may not be addressed in the traffic management plan
- Provide a timeline for the exercise to play-out (the exercise will probably take place in an accelerated timeframe compared to a real-life event)
- Identify reviewers who will watch the exercise and take notes
- Provide time to review the exercise
- Modify the plan based on what was learned during the exercise

Implementation

- Implementation Activities (including Implementation Plan, Review and testing, Personnel activities Organization of Day-of-Event Activities (Traffic Management Team, Communications, Traffic Monitoring) Volunteers have the same responsibility.

Results: Guide for implementation

Implementation Plan Checklist

- Command post operation
- Operations timeline
- Operations management
- Contact information
- Communications
- Traffic management team organization
- Equipment and infrastructure management
- Location-specific traffic and pedestrian control

- Post-event evaluation

While a simulation will bring weaknesses to light, it is important that all those affected become aware of those weaknesses and work together on how to modify the plan, prior to the day-of-event, to minimize the weak spots.

An important part of the simulation is the review that follows. All those who participated in the simulation now have an opportunity to: (1) go over the simulation step-by-step, (2) compare it to the traffic management plan which was developed, and (3) modify the plan as appropriate. There are several reasons why it is important that all participants have an opportunity to critique the simulation. First, a problem may only be observed by one individual, yet that problem could affect the entire operation. Secondly, if the plan is modified, it needs to be discussed by all those who are affected. In the same way it is important for all pertinent stakeholders to have a role in developing the traffic management plan, it is important also for everyone to be aware of necessary plan changes and to note how those changes may impact their agency's operation on the day-of-event.

A wide variety of equipment may be used to manage travel during a planned special event. This includes communications equipment and equipment in the field, which supports the traffic management plan and helps the traffic management team manage the event.

Equipment that may need to be tested includes:

- Center to center communications
- Center to field communications
- Changeable message signs (CMS), both fixed and portable
- Highway advisory radio (HAR)
- Closed-circuit television

While testing is no guarantee that equipment will work as expected, it is useful in identifying unknown problems and potential problems before the event. For example, if an event is taking place in a remote area, communication to field devices may be hindered by weak or nonexistent signals.

Example: The State of Wisconsin and the City of Los Angeles assign event impact levels for a proposed planned special event:

The organization of the Traffic Incident Management Enhancement (TIME) program in south-eastern Wisconsin includes a 40-plus agency Freeway Incident Management Team responsible for providing technical guidance toward TIME implementation. This group maintains a subcommittee on special events. The special events subcommittee proposed a concept of creating a special event traffic management planning tool applicable to any planned special event proposed in the greater Milwaukee metropolitan area.

TIME stakeholders planned to develop an action plan corresponding to each identified planned special event level. The action plan will listed recommended practices for stakeholders that regularly manage traffic during the occurrence of a planned special event, including the Wisconsin DOT –

District 2, county highway departments, law enforcement, and event venue personnel. These recommended practices would detail required staffing levels, on-call equipment, alternate route usage, traffic signal system modifications, available transit options, and other information.

4. Post event analysis

- Organization of Post-Event Activities (including Evaluation Framework, Participant Evaluation, Post-Event Debriefing, Post-Event Report)
- Operators will gain an understanding of the keys to successful planned special event transportation management.

Results: Evaluation of application, consequences

- A post event report includes:
- copy of original traffic management plan,
- chronology of event and team activities,
- analysis and summary of inter/external Measures of Effectiveness,
- operational cost analysis and funding issues,
- participant evaluation results, and
- list of recommended improvements.

Benefits of Successful Planned Special Events: Communities and regions have promoted and supported planned special events to boost tourism and fuel local and state economies. Examples include:

- The filming of "The Fast and the Furious 2," requiring extensive use of freeways and streets in Miami-Dade, Broward, and Palm Beach counties, brought an estimated $14 million to southeast Florida during the four-month filming.

4.6.5. Concluding remarks

As in the previous project, experiences and knowledge gained from handling traffic through the "Managing travel for planned special events" study could provide useful information and know-how to DELTA, since strategies for handling traffic during event may also be applied to handling seasonally variable traffic.

From the innovative measures of this study, the following are more relevant to the DELTA Project:

- Travel Demand Management (including Demand Management Strategies, High Occupancy Vehicle Incentives, Event Patron Incentives, Bicyclist Accommodation, and Local Travel Demand Management).
- Transit Service (including Public Transit Service Expansion, Express Bus Service, Charter Service, and Transit Service Marketing).

- Pre-Trip Traveller Information (including Information Needs, Internet, Telephone Information Systems, Public Information Campaign, Event and Venue Transportation Guide, Other Technology Applications).

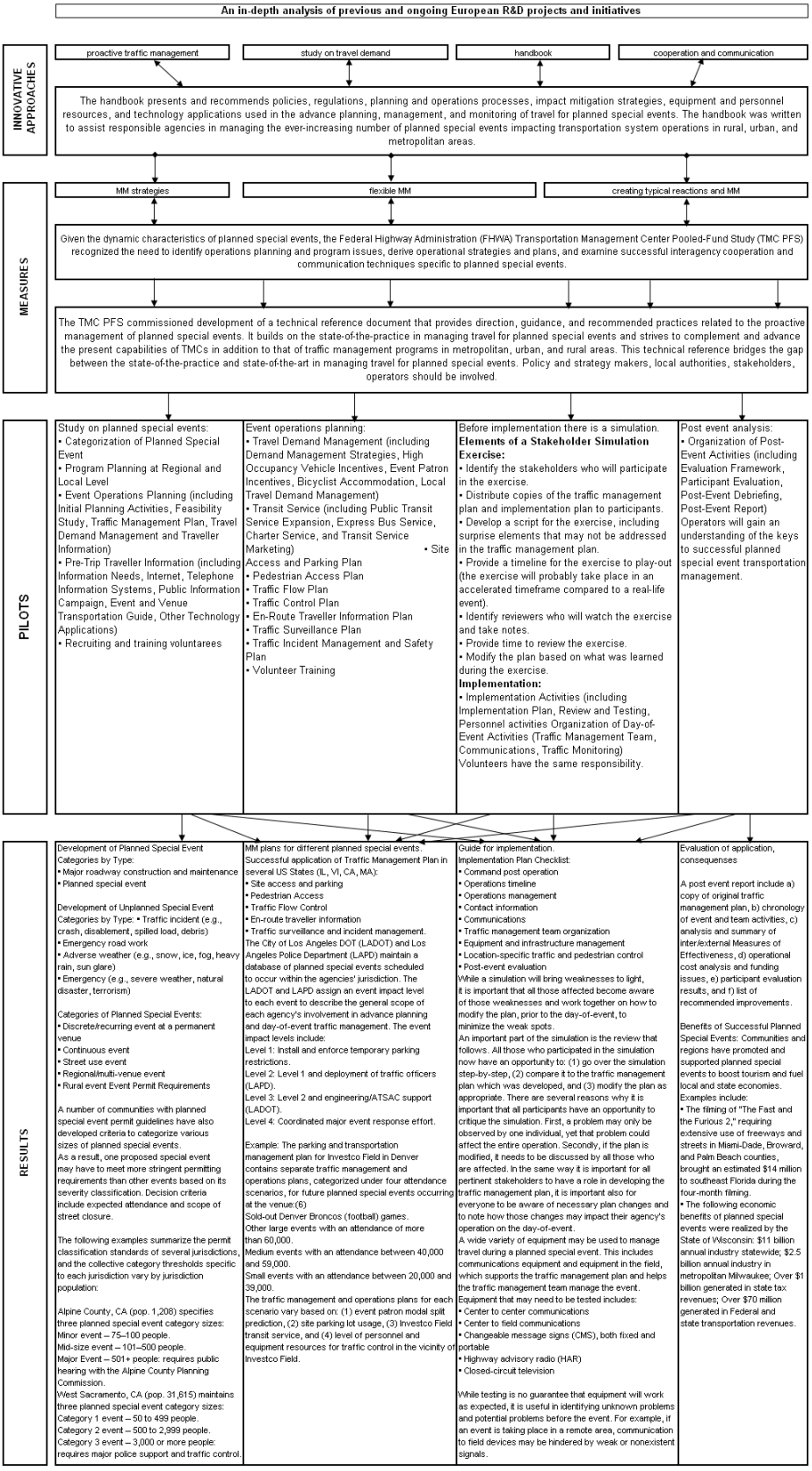

Figure 19: Matrix of Managing travel for planned special events

4.7. Cooperative Mobility Program (MIT)

4.7.1. Introduction

The Cooperative Mobility Program (CMP) is an international research program, established in 1995 by the joint initiative of MIT and the Auto Governors of the World Economic Forum. The program brings together transportation scholars from MIT and other universities with transportation specialists and sponsors to explore current and future issues of worldwide mobility.

CMP provides objective, empirically-based, thought-provoking insights on mobility issues to public policy makers, corporate executives, and concerned citizens, as well as the community of research specialists concerned with mobility issues. It focuses on transportation needs from a global, not an exclusively United States, perspective.

4.7.2. Innovative approaches

The program supports a new vision: a sustainable, multi-modal transportation system that will provide the mobility necessary to foster global economic development, while remaining compatible with social needs and environmental protection.

Innovative approaches:

- study on travel demand and travel behaviour
- transport technology
- traffic management

4.7.3. Measures

CMP is grounded in empirical research on travel behaviour, technological approaches, and public policies that affect mobility in both developed and developing countries. The program compiles an annual Mobility Observatory that tracks innovative developments in transportation policy, management, and technology. Whenever possible, the Cooperative Mobility Program's research is data-based, not speculative. It strives for objectivity and excellence to maximize both the value and credibility of its findings.

Effectively communicating research results within its own network of participants and, most important, to policy makers, corporate leaders, and other concerned citizens is a fundamental purpose of the Cooperative Mobility Program. The main target is to create more effective mobility by the measures like seasonal travel management, flexible road pricing and tolls, limited car use (occupancy and time) and intelligent parking management.

The travel demand management activities of the Innovative mobility management project include:

- Congestion (Road) Pricing

- Variable Tolls
- Value Pricing
- Regulatory Restrictions on Driving
- Seasonal/Recreational Travel Management
- Episodic Travel Controls
- Telecommuting
- Ridesharing
- Preferential Treatment of High Occupancy Vehicles
- Parking Management and Automation
- Miscellaneous Travel Demand Management Measures
- Incentives to Reduce Driving

4.7.4. Pilots and results

Indicative projects led by MIT to apply worldwide not only in the USA some of the above mobility management measures:

- *International Mobility Observatory*

The International Mobility Observatory has carried out a worldwide search, in which it has identified and documented over one hundred examples of innovative mobility strategies. Each strategy is written up as a one-page executive summary. The Observatory is updated on a periodic basis.

- *Mobility in Developing Countries*

The project examines basic differences in mobility issues between the developed and developing worlds, focusing in particular on mobility needs in India and China.

- *Predicting Global Demand for Mobility*

A forecasting model has been developed that predicts mobility demand for all modes of transportation through to the year 2050.

- *Mobility and Global Warming*

The research uses global demand forecasts to examine the mobility implications of various policies intended to affect global warming.

- *Mobility and Land Use*

The research analyzes situations in which, from both a mobility perspective and prospects for future land use policy aimed.

- *Mobility and Public Transport*

Strategic Planning for Mobility Strategies to develop multimodal transportation planning around the world are being analyzed, with an emphasis on intelligent transportation systems. The objective is to improve throughput and overall system efficiency for both passengers and freight.

Further research projects:

- forecasting future worldwide demand for mobility,
- implications of transportation trends for controlling greenhouse gas emissions,
- trajectories of motorization in developing countries,
- public policies to control transportation-related regional air pollution and greenhouse gas emissions,
- impacts of Intelligent Transportation Systems on mobility,
- land use policies to control and shape transportation demand,
- innovative public transit policies.

Results deriving from previously mentioned pilots:

- reasonable car use;
- more effective travel management (seasonally is also taken into consideration);
- higher car occupancy;
- reduction of single car driving;
- data-based Cooperative Mobility Program.

4.7.5. Concluding remarks

Significant input can be provided by the Cooperative Mobility Program of MIT to DELTA. The Mobility Observatory, the forecasting models to predict global demand for mobility and the Strategic Planning for Mobility Strategies to develop multimodal transportation planning are some important results directly related to the seasonal demand management. Thus, close links could be established between the two initiatives for the mutual benefit.

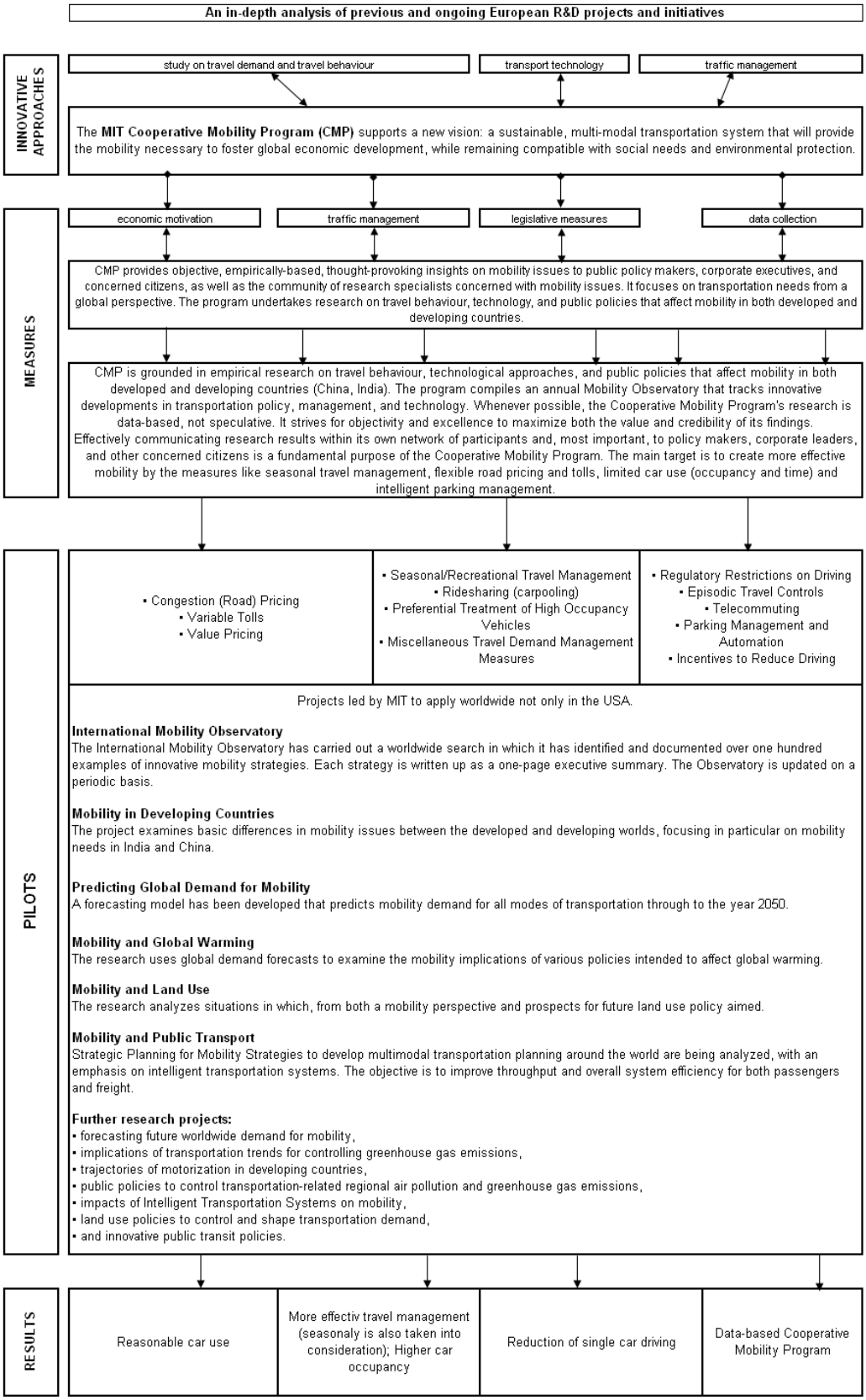

Figure 20: Matrix of Cooperative Mobility Program (MIT)

4.8. MAX

4.8.1. Introduction

MAX (Successful Travel Awareness Campaigns & Mobility Management Strategies) is the largest research project on Mobility Management within the EU's sixth framework programme and started in 2006. The MAX consortium with 25 partners served to extend, standardise and improve Mobility Management – it did so in the fields of quality management, campaigns, evaluation, modelling and land use planning.

In all of these fields, MAX has produced tools that can be of great support for Mobility Management practitioners in cities, including city officials and senior mobility managers of cities, companies and organisations. Anybody responsible for the mobility strategy, policy and measures in a city, organisation or company, can benefit by adopting the MAX-tools when developing, implementing or evaluating Mobility Management.

Many of the works of MAX were directly endorsed by the European Platform on Mobility Management (EPOMM) and continue to be supported by EPOMM – in order to provide a truly European extension, standardisation and dissemination of Mobility Management.

Four thematic Work Packages (WP) developed products of use to MM and TA practitioners:

- *WP A New approaches and innovative campaigns in MM*
- *WP B New behaviour change model and a prospective assessment tool*
- *WP C Linking MM to Quality management - leading to MM certification*
- *WP D Integrating planning and MM*

4.8.2. Innovative approaches

The overall objectives of MAX are to:

- advance knowledge in travel awareness and mobility management building on expertise and previous research findings and own investigations
- elaborate innovative communication strategies to achieve enhanced travel awareness and sustainable mobility behaviour
- further develop existing behaviour change models and assessment tools
- develop standardised schemes for mobility management in smaller cities
- elaborate integrated mobility management and planning approaches
- support the development, implementation and assessment of European transport policy
- European-wide dissemination and awareness raising activities including best practices

- efficiently and professionally plan, realise, manage and control the activities within MAX

4.8.3. Measures

There are four demonstrations in WP A: Lazio Region and Tallinn will investigate how to "campaign the campaign" among decision makers and PT operators and Almada and Zuerich will focus on the end-users. In WP C, one or two cities will be selected and invited to demonstrate the mobility management and quality management scheme as developed in WP C.

Lazio Region (Italy)

The demonstration realised for MAX will cover the Lazio Region with more than 5 mio inhabitants including Rome.

The project partner COTRAL will specifically address multipliers to promote campaigns for sustainable transport by "Campaigning the Campaign". Specific actions will be undertaken to stimulate decision makers and politicians of the following categories:

- Governmental bodies and Politicians
- Ministry of Transport
- Ministry of Environment
- Ministry of Social Policies and Welfare
- Ministry of Education
- Agencies for Mobility
- Transport Associations
- Mobility Managers Associations
- Municipalities
- Urban & Transport Planners

It will be investigated, how and when to address which multiplier in the optimal and effective campaign process stage. The campaign will be divided in the following main steps:

- Survey (on field research & desk research)
- Results elaboration and analysis
- Definition of ad hoc instruments and strategies to address the specific target group of the Multipliers addressed by the Italian demo
- Monitoring and assessment of the campaign
- Recommendations and lessons learnt

This demonstration will be carried out with the support of experts from the communication and marketing sector (both involving the COTRAL Marketing

Department and external expert/consultants). FIT Consulting – basing on its experience in the field and on the involvement in the European project TAPESTRY, MOST, STIMULUS – will support COTRAL in carrying out the Italian demo.

Tallinn (Estonia)

Tallinn has about 400.000 inhabitants. Recently, it has started activities in achieving sustainable urban transport - from 2005 onwards; Tallinn is one of the CIVITAS II cities implementing innovative initiatives in clean transport.

Nevertheless, awareness about alternatives to infrastructural and technological changes is still lacking, especially among multipliers and decision makers. This hampers:

1. the realisation of travel awareness campaigns or mobility management services, because money is not invested into these measures and
2. the smooth implementation of such initiatives, as the acceptance among the providers is not high.

This diminishes the success and impacts of such initiatives, as campaigns are not convincing, when someone is reluctant to mobility management services. He/she needs to be assured of the benefits and effectiveness of what is promoted and implemented.

This is why the demonstration will focus on "campaigning the campaign" or sustainable modes within MAX. Tallinn will contribute to the development of communication strategies towards politicians and multipliers in MAX and apply these to an own initiative to raise the awareness about sustainable mobility. A specific campaign will be planned and designed based on those principles in order to address the politicians and city administration. This could be for instance targeted advice notes which aim to increase public transport users in the inner city centre. The notes could highlight the positive cost-benefit ratio of mobility management, the increased attractiveness and quality of life in the city through the reduction of cars and the benefits that the politicians will personally earn (such as reputation, closeness to the citizens etc.).

The effectiveness of the chosen approach will be evaluated according to the methodology and assessment tool developed in WP B.

Zürich (Switzerland)

In September 2004, the Transport Planning of the city of Zurich has published for the second time (after 1998) the trendy multimodal mobility information package MAP Zurich (20'000 ex., 13€ sale price). It consists of two maps (Scale 1:15'000) and a booklet (90 pages) with information on all modes of transport in the city. On one map users find recommended cycling paths in the city, on the backside the whole network of public transportation, recommended walkways, car-sharing-stations and public parking spaces. A third map with

the complete network of fast trains in the bigger conurbation of Zurich has been stuck to the package.

Whereas mobility information is usually given to one specific mode of transport (by transport providers, interesting groups, etc.), MAP Zurich integrates all modes existing in the city of Zurich. Its principal aim is to promote combination of modes. Therefore, special attention is drawn to transport chains and intersections between modes. Target groups are people living and working in the city and persons recently moved to the city. Distribution channels of MAP Zurich are configured to hit the target groups.

Subject of the involvement of MAX in Zürich will be to evaluate acceptance of MAP Zurich among users and impacts on their attitudes. Investigations on its effectiveness should answer questions like: When, where and how do people use information in MAP? Does MAP draw traveller's attention to transport modes, they usually do not use? Does it have any effect on traveller's combination of transport modes? To what extent does it contribute to raise travel awareness? Does it provoke changes in mobility behaviour? Is a print product like MAP suited to raise awareness about combined transport?

Investigations will be undertaken by research experts with special background knowledge and experience in the field of product development and travel behaviour. Most possible method is a written questioning of users, who are known through the process of ordering MAP. Within the first two months of selling (since the end of September 2004), over 800 people have ordered MAP by mail. Several hundreds of users of the first edition of MAP could additionally be questioned. Other investigation methods are possible.

The development and acceptance of the mobility map in Zürich (CH) will be monitored and evaluated, but the implementation itself will not be co-financed in the framework of MAX.

Almada (Portugal)

In Almada, a new tramline is being built. This new tramline goes across the centre of the city and will connect it to a University, the main boat station to Lisbon and two train stations in the railroad between Lisbon and the South of Portugal that also carries suburban traffic to and from Lisbon.

Small focus groups representing different user groups (e.g. students, car drivers, retired people) will be set up within MAX, to pre-test communication strategies that build on the principles of effective campaigns of the non-transport area. Acceptance, changes in attitude and behaviour will be evaluated using the assessment tool developed in WP B.

It should motivate the people, especially car drivers, to start using the tram, particularly those who currently use their private cars, raising their awareness about the tram and its benefits to the city and, in particular, to the individual. This campaign should point out the personal benefits arising from the tram, for the inhabitants of the city. New pedestrian areas – leisure, more well being (improved health, more fitness), less noise, more space for the individual and for the family. In short a better city for its inhabitants – transmit a new

perception of the city and show the people that the improvements are being made for their own benefit.

The acceptance of the arguments put forward in this campaign will be evaluated according to the methodology developed in WP B, using the assessment tool that will be developed there.

WP C: Quality Management and Mobility Management for Smaller Cities

Kortrijk (Belgium)

The city has developed a plan to improve commuter traffic within the city. This plan is closely linked to the new parking policy, reducing the possibility for free parking in the city centre.

The city concludes contracts with all the schools by which the schools commit themselves to promote sustainable mobility. In return, the city invests in safety for the pupils and students.

Mobility management techniques are also used to support the general mobility policy, the improvements to public transport and the infrastructural measures the city has taken.

By introducing quality management in the overall mobility management schemes of the daily practice, the city can increase the effectiveness of activities. The city wants to make sure that a user friendly and service-oriented approach, an effective follow up and continuous monitoring is organised for all sustainable mobility projects that are put in place, in order to obtain a durable effect.

4.8.4. Pilots and results

Many different Mobility Management tools have been developed:

- MaxSumo, a paper based manual on how to plan and evaluate MM-projects. It will allow consistency in future evaluations and make it possible to compare evaluation data from different European countries. It will provide comprehensive guidance on how to conduct an evaluation. The tool can be used by practitioners involved in the implementation of MM programmes, either for self-evaluation or third-party evaluation. Standardisation of data collection offers an opportunity to compare results from a range of MM interventions, implemented in different contextual backgrounds.
- MaxSARA, a tool that gives the user support in both planning and follow-up. It will include patterns of measures for a number of mobility and road safety measures and is based on SARA, the national Swedish toll in this field. MaxSARA will be developed as a web-based toolkit including MaxSUMO, the interactive database and a DSG (Decision Support Guide).
- MaxEva, an interactive database with input and output modules based on MaxSUMO and MaxSARA. It accumulates results from different

projects evaluated using MaxSUMO and gives guidance on how to evaluate to make a benchmark with other projects and measures possible. The database will be designed to accommodate the required fields to allow a range of different types of individual and packages of MM measures as defined in the MAX MM definition. As such, specific input and output fields may only requirement inputs from users who have implemented specific measures or packages.

- MaxExplorer
- Max campaign handbook
- Max quality management system
- Max land use planning guide

4.8.5. Concluding remarks

Being the biggest research project dealing with travel awareness and mobility management, MAX will shape the research community as well as the implementers. Especially with its research in WP C, MAX will contribute to the development of national or international standards. MAX aims to prepare a certification of mobility management for cities according to an ISO-, CEN- or ÖNORM-standard. This is why the Austrian Standards Institute (ON) has been taken up as a partner in the consortium. However, it can only be decided during the course of MAX, which level of certification is best, whether this is at all a good approach or whether a simple labelling procedure would be advantageous. In any case, MAX will present the first self guiding scheme for mobility management, which will support cities to implement mobility management and to have their programmes assessed and certified.

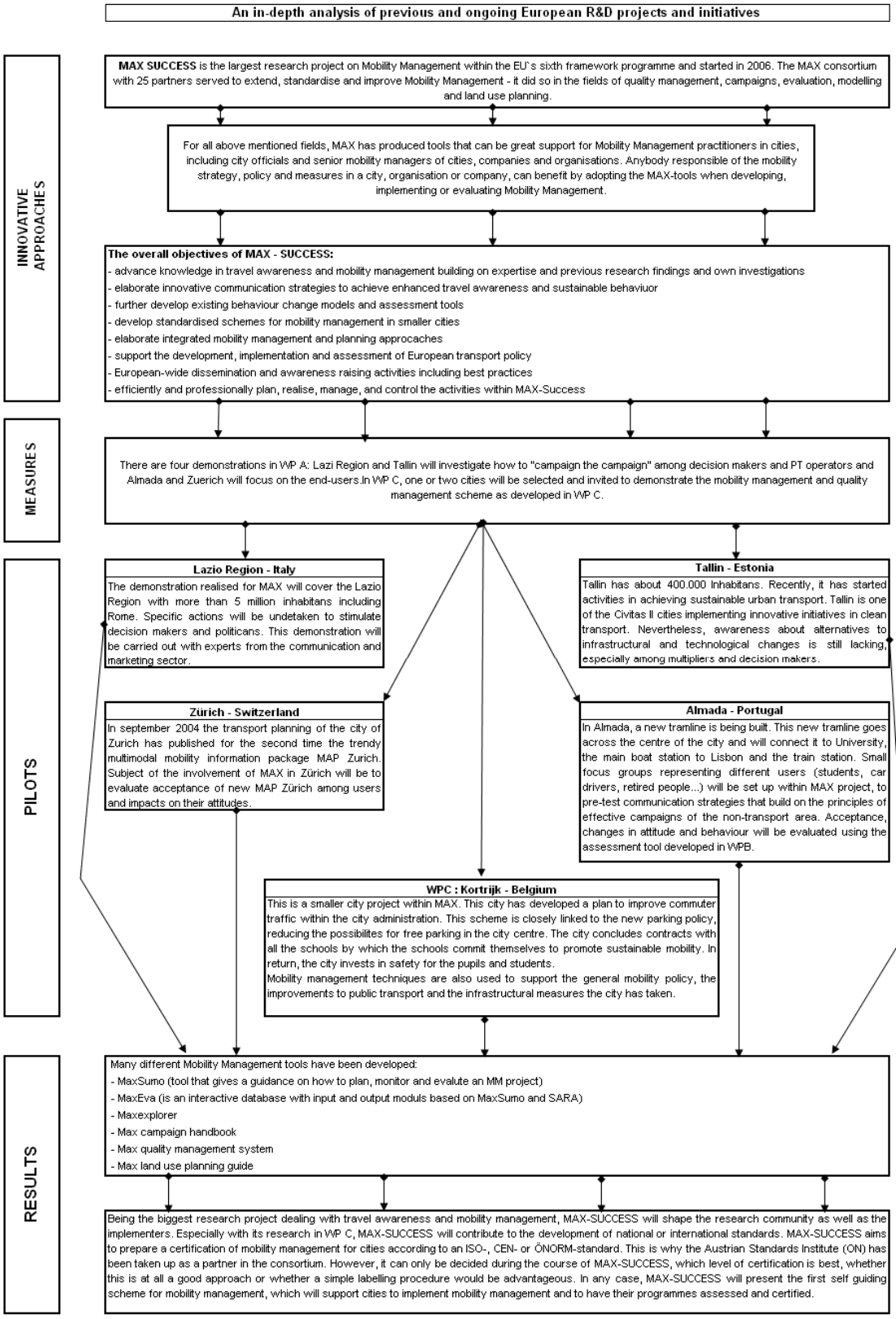

Figure 21: Matrix of MAX

4.9. MobilAlp

4.9.1. Introduction

Facing common mobility issues, Austrian, French and Italian territories gathered together in order to develop innovative sustainable mobility services for transport users at local and regional levels. The project encompasses all kinds of alpine mobility categories (work, tourism, business…) and involves different actors. It promotes a strong transnational cooperation through common approaches and experience exchanges. Practically, the project aims at setting innovative and sustainable mobility services and offers through pilot actions. It sets, develops and networks mobility centres.

4.9.2. Innovative approaches

MobilAlp represents innovative approaches (feasibility studies, development of pilot actions, supply and demand assessment, study of potential offers) for solution of MM problems (especially for week-ends in winter time) in combination with tourism, work and business in the Alps – it is a definition of intelligent, innovative, multimodal, economically and environmentally sound offers to promote sustainable mobility. The basic idea is the development of new transport systems and evaluation of existing systems in order to optimise their use.

4.9.3. Measures

One of the most important pilots was planned for France, where the development of public transport links between the tourist resorts of the Haute Savioe region and the railway stations and airports of the nearby cities has been proposed to create an alternative to car travel.

In Italy, a study on supply and demand patterns in the mobility sector was carried out, paying particular attention to the requirements of the tourist industry; new solutions for providing information on services and timetables were also developed, as well as undertaking a pilot action involving the hire of an electric vehicle in order to promote soft, ecologically-friendly mobility.

In Austria, the region of Pongau developed innovative proposals in the field of transport: in Werfenweng a specific shuttle service was planned, as well as a new marketing campaign for public transport. The "bus on call" lines were created in the areas where regular bus services can only be run at a loss.

4.9.4. Pilots and results

Pilot in France was planned as a creation of a new public transport service between Annecy and the Aravis resorts. Its objective was to incite the population of Annecy to go skiing in Aravis by bus and not by car. This road is very busy, especially the week-ends in winter. The services are direct without intermediate stops. There are 6 departures (one every 15 minutes) on

Saturdays and Sundays from January to March. The return is at 4 o'clock before the traffic jams. The price is very attractive: 27 euros for La Clusaz and 25 euros for Le Grand Bornand. This price includes the transport and the ski pass.

Results: The service wasn't very successful during the first season, but it was a little better afterwards (there was not sufficient public reaction).

Pilots in Italy were:

- Info-points for sustainable mobility were created in Friuli-Venezia Giulia Region. The city of Aosta carried out an analysis of transport supply and demand on the hills of Aosta and developed a bicycle hire service for tourists and local users.
- The Val d'Aosta Region planned to experiment with additional transport services in the time bands not already covered by transport services, and to carry out a feasibility study on a link between Aosta rail station and Aosta-Pila cable car.

The multimodal "*Journey Planner*" information system was made available via internet. This system permits easy access to information regarding public transport timetables in the area of the province, through a user-friendly search engine able to supply a journey plan using the various different means of transport available in the province.

Electric Vehicle - The activity consists of the use of an electric vehicle in the area of the Municipality of Belluno and in various other towns in the province of Belluno, with the aim of raising awareness among the general public and among the public administration concerning the use of sustainable means of transport.

"*Aosta-Bike-Tour*" with satellite tracking system - Creation of a multimedia route; Implementation of the route in digital format on an appropriate computer application so that it can be consulted from a palm computer to be placed on bicycles equipped for the purpose; Rendering the multimedia presentation usable both automatically, as visitors approach the point of interest, and manually, in order to allow the user to simply type in information to check his/her actual position on the digital map of the city at any given time; Trial of the service with at least four equipped bicycles.

Results of Italian pilots:

- Journey Planner - The web page was set up.
- Electric Vehicle - Setting up of an electric vehicle hire system and thousands of contacts made during the events, with users having the opportunity to try out the vehicle and thus discover the potential of a vehicle which runs on alternative energy.
- "Aosta-Bike-Tour" - Positive feedback by tourists.

Austria: In order to be able to offer at regional level comprehensive information on all tourist attractions, services, activities and places of public interest, an interactive map has been drawn up. Using a simple system, it is possible to explore the region and obtain a clear, detailed idea of the infrastructures, the communication routes and the tourist attractions. Each point is linked to accurate information on the places and the transport times of the communication network of the Styria region.

Rufbus - The "bus on call" lines have been created in the areas, where regular bus services can only be run at a loss. Because the service runs on request only, it is activated only when it is effectively necessary. In planning the routes and organizing the services, not only the local population's needs, but above all the demands of tourists, have been taken into consideration. The creation of the "bus on call" system has made it possible to cross the Hochtor mountain group without having to make complicated car journeys.

Results of Austrian pilots:

- The site has been activated, and the interactive map is continually being updated. The idea of extending the range of the site to the neighbouring regions and translating it into a number of foreign languages is being considered.
- Rufbus - Because it has been possible to maintain a public transport service in very outlying areas, the image created by this project is generally positive. It is presented as a potential alternative to the private car, and is an important support for the regular transport lines. With regard to tourism, the system is a fundamental ingredient of tour packages (routes through mountain passes, etc.).

4.9.5. Concluding remarks

MobilAlp project is one of the most relevant projects to DELTA, because it deals with different mobility solutions, such as: urban/interurban links, links within/between resorts, soft mobility, transport supply and demand, car pooling, hire of electric vehicle/bikes, bus on demand, info point for sustainable mobility, bicycle hire service, additional transport services, link between rail station and cable car, journey planner, satellite tracking system – creation of a multimedia route, shuttle service, etc.

MobilAlp represents innovative approaches (feasibility studies, development of pilot actions, supply and demand assessment, and study of potential offers) for solution of MM problems (especially for week-ends in winter time) in combination with tourism, work and business in the Alps.

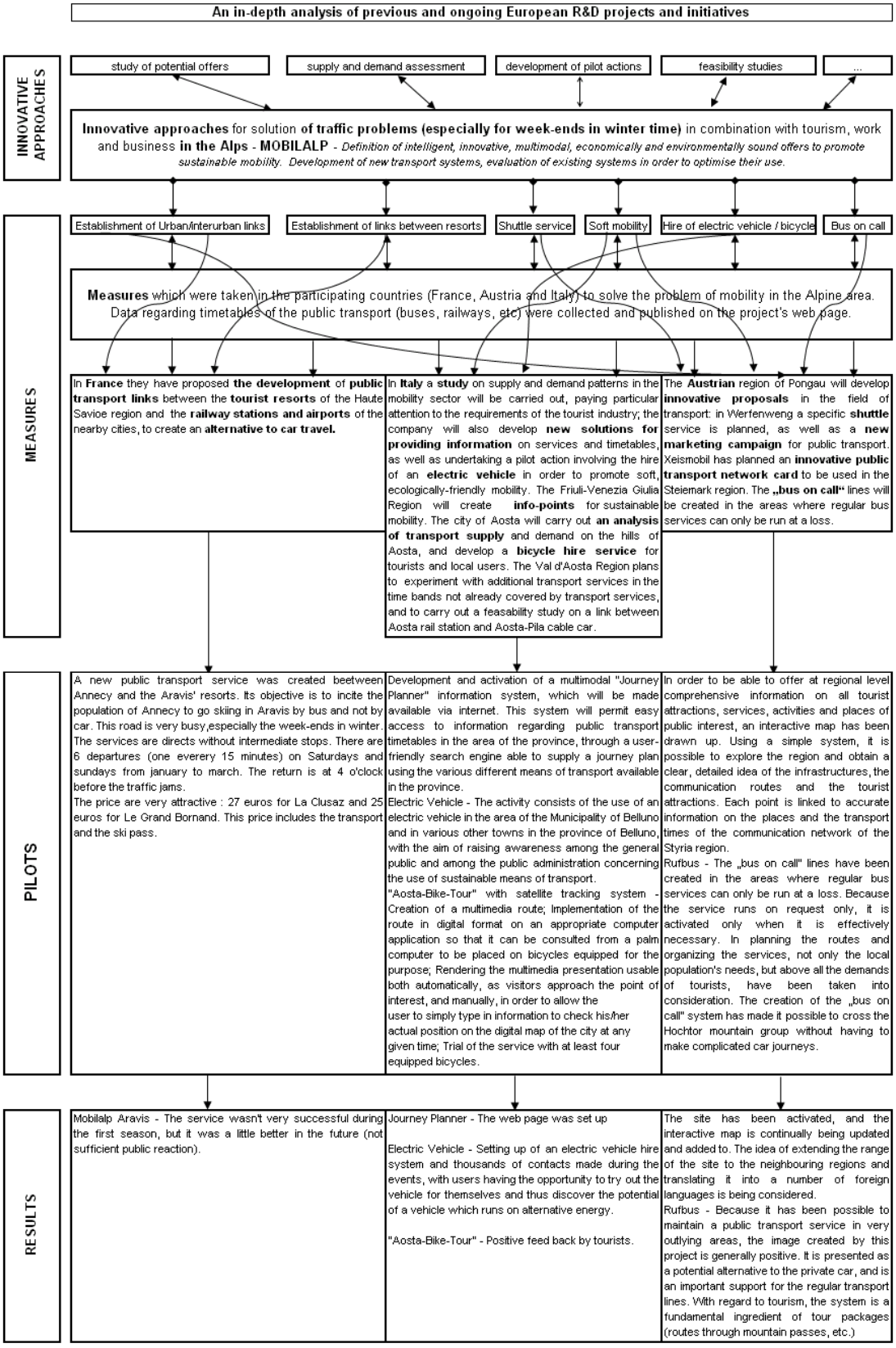

Figure 22: Matrix of MobilAlp

4.10. MOBINET

4.10.1. Introduction

The Mobility Centres Network (MOBINET) aims to create a European Network of know-how on sustainable mobility. The project is based on the creation of Mobility Centres in partner's countries. The purpose of the mobility centers will be the following:

- Approaching the public by establishing publicly accessible Info Points;
- Approaching schools and companies (industries and services), through actions and mobility management services offered by the Info Point.

MOBINET is still in progress and the results of activities and measures haven't been evaluated yet.

4.10.2. Innovative approaches

MOBINET promotes the establishment of Mobility Centers as a tool to foster alternative transport modes and intermodality (sustainable mobility in general). Mobility Centers could play an important role in handing seasonal demand, as they offer services that promote and strength use of alternative transport modes and intermodality.

Different Innovative approaches have been planned in the MOBINET project:

- Mobility surveys
- Operational plans
- Market research
- Establishment of Mobility centers (info-points)
- Study on state of the art on Mobility centers & info-points

4.10.3. Measures

In Spain, a Mobility Centre was established in the city of Aranda de Duero. An info-point was created in a central square of the city. The Mobility Center carries out studies to improve signalisation and bicycle infrastructure.

A Mobility Center was established also at the city of Asturia. The mobility center works as an Info-point. Moreover, it carries out studies and projects for promoting sustainable mobility: public transport for industrial areas (combining bus and train), public transport during night, single transport card, public bike system, transport to tourist areas, school-bus pooling.

A Mobility Centre was established also in Miranda de Ebro. The mobility centre work as an info-point and is emerged with the local Tourist Information Office. Moreover, the mobility centre participated in initiatives for promoting cycling and walking: creation of walking lanes, construction of bike parking lots, development of a rent-bike system, creation of walking zones.

In Italy, a Mobility Centre was established at the city of Biella, in the Province of Biella. An info-point for sustainable mobility was created at the centre of the city to serve the residents and the tourists. The Mobility Center has developed a car sharing system.

In Sweden, a Mobility Centre was established at the city of Eskilstuna. An info-point was created.

In Greece, a mobility point was established in Municipality of Kalamaria. The Mobility centre offers its services through an info-point and an online informative platform. The Info-point staff can be contacted on-site, by e-mail, by telephone and by fax.

4.10.4. Pilots and results

City of Aranda de Duero (Spain)

- *Info-point:* Establishment of an info-point in a central square of the city. The info-point offers the following services: urban bus itineraries, routes and ticket prices; taxi tariffs and taxi stations; interurban buses itineraries and timetables; railway itineraries and timetables; information on tickets selling points, offers and discounts; walking trails and pedestrian zones; information on sites of interest and how you can reach them using public transport; information on parking spaces; bicycle lanes and parking spaces; information on bike maintenance and repairing services; information on green vehicles; distribution of maps of the cities. The Services are offered on site, by e-mail and by fax.
- *Bikes lanes:* An open ideas competition for expanding the bikes lanes network all over the city, including the industrial area.
- *Signalisation:* Survey on available funds for improving the signalisation inside the city.

City of Asturia (Spain)

- *Info point:* The Mobility Center works as info-point as well. It offers the following services: information on public transport's itineraries and timetables; estimated time of journey; tickets prices and selling points; route planning; promotion of public transport use; elaboration of information material; collection of complaints and suggestions for public transport.
- *Public transport for industrial areas:* A frequent bus service (departures every 30min) for the industrial areas of Llanera. Good connection between the train station and the industrial area. A single ticket was created for travelling from home to job, using different transport modes (bus and train).
- *Public transport during night:* itineraries during night in 10 bus lines School-bus pooling: Possibility of individual commuters to share the school bus with students. Students are given priority in using the bus,

while individual commuters can use only the free spaces. The cost of one trip is €1,2; public transport cards are as well valid.

- *Children education:* Establishment of a web-site with educational material on sustainable mobility.
- *Eco-driving:* Courses of eco-driving for tourist and industrial vehicles drivers.
- *Transport at places of high tourist interest:* To protect the National Park of Picos, the lakes of Covadonga can be reached only by public transport during high season (Easter week). During the other days of the year the area can be reached both by public transport and by private car. Transport card: A transport card that works similar to a credit card and can be used for all public transport means from and towards Asturia.
- *Public Bike system:* Public bike systems have been developed in the cities of Gijon and Aviles. In Gijon there are bike stations all over the city. The user can pick-up a bike by showing its identity card. He can pick-up the bike in one bike-station and return it in another. In Aviles there are four bike-stations and the bike can be used up to 3 hours. The public transport card is valid as well for this service.

Miranda de Ebro (Spain)

- *Mobility Centre / Info-point:* The info-point offers the following services: urban bus itineraries, routes and ticket prices; taxi tariffs and taxi stations; interurban buses itineraries and timetables; railway itineraries and timetables; information on tickets selling points, offers and discounts; walking trails and pedestrian zones; information on sites of interest and how you can reach them using public transport; information on parking spaces; bicycle lanes and parking spaces; information on bike maintenance and repairing services; information on green vehicles; distribution of maps of the cities. Services offered on site, by e-mail and by fax.
- *Bike lanes/parking* - Cycling lanes that connect the principal green zones, education and sports areas of the city will be constructed. The cycling lanes will have minimum 3m width. Bike parking lots will be constructed as well.
- *Bike renting system* - A public bike-renting system based on software will be developed, which permits the use of magnetic cards for introducing user's data in a data base connected to a renting point.
- There are *100 public bikes*, 5 of which electric bikes and five renting points.
- *Cycling routes* - Suggesting optimal and safe cycling routes, signing of cycling routes and elaboration of information material and maps. Walking - Creation of pedestrian routes in the centre of the city.

City of Biella (Italy)

- *Info-point:* Establishment of an info-point at the centre of the city, in collaboration with the Local Tourist Agency. The Info-point offers the following services: selling of public transport tickets and passes (monthly/yearly tickets), information on bus and train itineraries and timetables, information on reaching monuments or tourist interest sites using public transport, subscription to the Car Sharing System, collection of client suggestions and proposals.
- *Car-Sharing System:* 7 vehicles in total, car stations located at the centre of the city. In order to use the service you should become a member. Subscription can be made at the info-point. Members can use the service 24 hours per day and they have to make a reservation in advance defining time of departure and arrival. The car should be brought back at the place of departure.

City of Eskilstuna (Sweden)

- *Info-point:* The tourist information office of the Municipality of Eskilstuna operates as mobility info-point as well.

Municipality of Kalamaria (Greece)

The services offered by the online platform and the info-point staff are the following:

- Information on Points of Interest (POIs), through a user-friendly Web-GIS interface.
- Information on urban bus services, municipal bus services: stops per bus line, digital mapping data of lines and stops as well as timetables for all bus lines per day; possibility to print the search results, to have a detailed overview map of each line and bus stop and to send the search results through email.
- Information on interurban buses, railway, ferries and taxis: details for each destination, arrival and departure timetables, disembarkation platforms, fare prices, booking telephone numbers, cargo services numbers and other available information, taxi stations, links to the service providers.
- Multimodal urban public transport routing research services. The search results are presented in digital maps including directions.
- Ticket information: information regarding ticket prices and ticket sales options for urban and the inter-urban bus operators and railways. Potential to interconnect with external (commercial) online ticket booking and buying services in the future.
- Communication and Complaint "e-form"- provides the citizens with the ability to communicate both trip queries and complaints to the staff of the Mobility Centre.

Future services

- Public Events Information & tickets provision: cinema's movies, theatre's plays, Municipality's Public events, others.
- Public Events Routing- Provision of route planning to and from the location of the events based on the event time.
- Parking places availability-interactive map providing information on parking spots and their capacity, hourly cost information, open hour's information etc.
- Parking zones information-Interactive map providing the parking zones information within the city center with hourly cost as well as hour's limitations.
- Park and go information- how to get close to a parking place and then continue their journey with public transports.
- Mobile platform- All the existing and any future services could be provided to the public over the mobile network. Such a service requires the development of all the appropriate applications and existing services for smartphones and mobile phones.
- SMS Platform -Any request made either for routing or any type of information would be available to the public over an SMS.
- Surveys - Complains about municipality's services Integration with other Municipality services.

During the period 22nd of July 2008 – 28th February 2009, 1.423 people visited the info-point (average185 people/month) and 1.743 inquiries were answered by the info-point staff. The online information platform was visited by 2.591 users (4.471 visits) during October 2008 - February 2009, which corresponds to an average of 30 visits / day. The 60% of the Greek users originate from the metropolitan area of Thessaloniki, 23% from Athens and 17% from other cities. The results are considered satisfactory considering the performance of other Mobility Centers during the first years of their operation. The Mobility Centre will continue to operate after the end of MOBINET project.

4.10.5. Concluding remarks

MOBINET promotes the concept of Mobility Centers, which could play an important role in handing seasonal demand, as they offer services that promote and strength the use of alternative transport modes and intermodality.

Creation of Mobility Centers and Info Points could be a useful tool in managing the high seasonal demand in the DELTA studied areas. MOBINET Project has carried out a survey on the services offered by the existing mobility centers and their info points. Based on this study, a list of services offered by Mobility Centers/Info points that could be suitable for tourist area, are: Information on available transport modes, timetables, fares, reductions and special discounts; Reservation and ticket selling for local, regional and

national transport; Personalized individual timetables and multimodal transport information, Best alternative intermodal route; Door-to-door luggage services for car-free tourists; Scheduled or dial–a-cab Collective taxis services; Car-pooling; Information on the availability of parking depots, routes and intermodal options for bicycle users; Bike hiring services, information on cycling, route planning for bicycles; Information on walking routes; Commissioning and coordination of regional transport systems; Event oriented management, Event Tickets coupled with transport tickets; Sustainable mobility coupled to leisure activities; General tourist information; Awareness raising campaigns, etc.

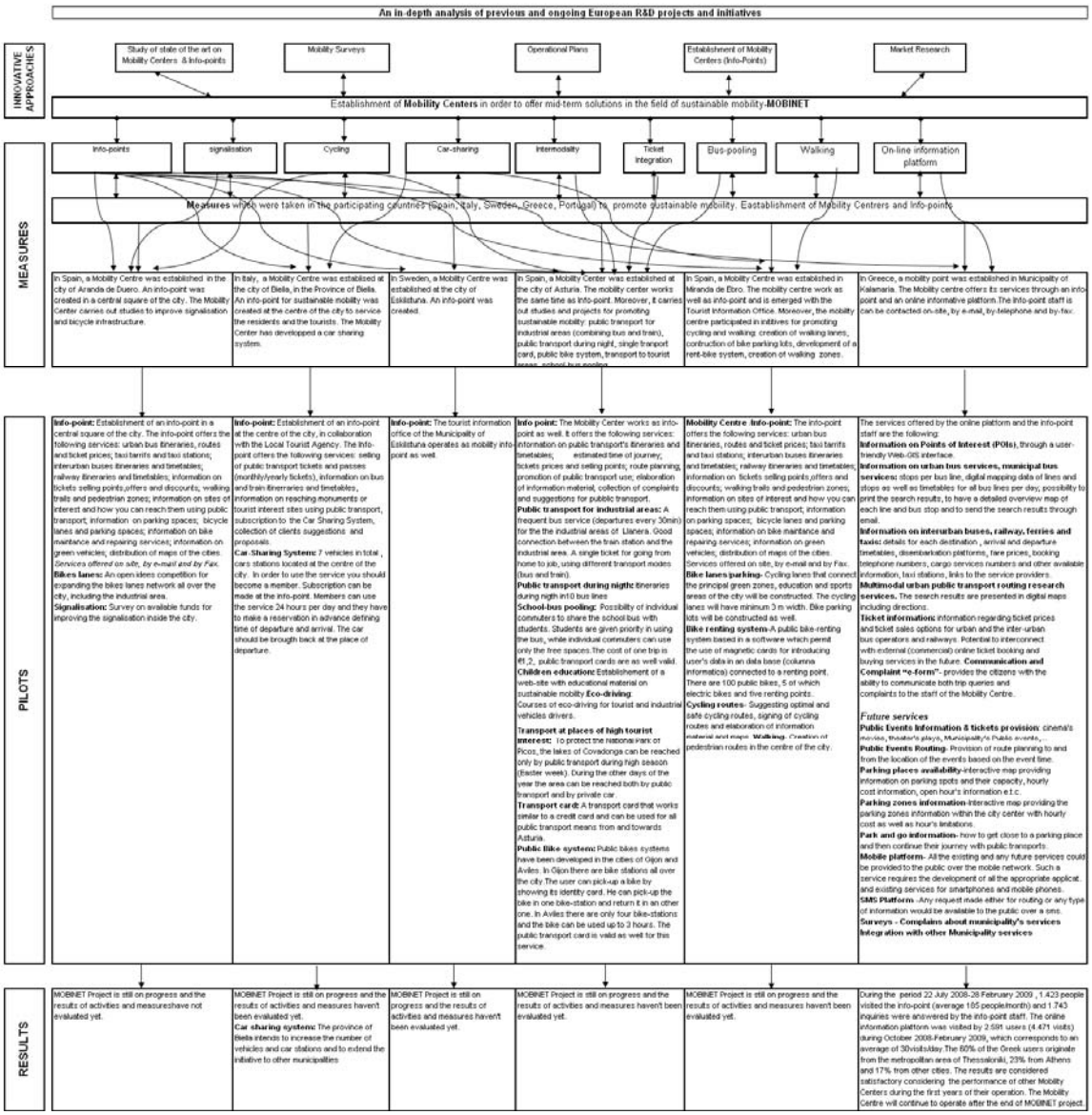

Figure 23: Matrix of MOBINET

4.11. Most & Most-Met

4.11.1. Introduction

Unlike previous research and demonstration projects, MOST has advanced beyond looking at traditional thematic fields and target groups for Mobility Management (e.g. education and employees) and has applied Mobility Management strategies to new thematic fields and target groups. New fields were for example tourism, temporary sites and site development. New target groups were for example the unemployed, disabled people and local residents. The demonstration sites have shown that Mobility Management can help increase the quality of mobility related services on demand can change attitudes and can influence modal choice towards sustainable alternatives.

Cluster 2 – "Tourism Mobility Management" and Cluster 5 – "Event Management" are the most important parts of Most & Most-Met project related to DELTA, because they include pilots dealing with different MM problems, including seasonal traffic overload. For this reason two Matrixes (one for Cluster 2 and one for Cluster 5) are prepared.

4.11.2. Innovative approaches

Cluster 2 – "Tourism Mobility Management"

Innovative approaches have been applied (Transport Baseline study & Evaluation, Tourist mobility surveys, Involving local stakeholders, Delphi interviews with experts, Mobility Management Plans, Pilot projects) to face the impacts of tourism in transport demand. Five pilot experiences are testing the validity of Mobility Management to solve traffic problems generated by tourist transport demand in very different scenarios and using a variety of approaches.

Cluster 5 – "Event Management"

Innovative approaches have been applied (Written surveys to major actors, Round Table Conferences, Assessment Panels, Working groups consisting of major actors, Event Coordination Groups consisting of major actors, Event Mobility Management Agencies) to solve traffic problems created by the increased number of visitors/tourists during events. Pilot experiences have been gained at three cities testing the validity of Mobility Management to solve traffic problems generated by tourist transport demand during major cultural, sports or religious events.

4.11.3. Measures

Cluster 2 – "Tourism Mobility Management"

In Spain, the Municipality of Málaga is trying to address the transport problems in the City of Málaga and the Costa del Sol region by combining the provision of infrastructure with Mobility Management measures. The following measures

are foreseen: web-site operating as virtual tourist mobility office, bus lines connected train station with tourist attractions, tourist maps and leaflets to promote intermodality, smart cards, construction of funicular for reaching the castle of Gibralfaro, and creation of a metropolitan transport authority.

The Islantilla, in Spain, has developed a network of cycling and walking paths, it increased the frequency of public transport, it produced information material and guides for the paths and the public transport and it extended the services offered by the tourist office, including mobility information, as well.

The objective of the city Sintra, in Portugal, was to implement solutions to meet the mobility needs of tourists (the target group), with a preference for using sustainable forms of transport. Access to sustainable transport was improved and intermodality was favourite, cycling and walking paths were created, information material for public transport, walking and cycling was elaborated, a web site in several languages was developed, car-sharing services was promoted and a mobility center was developed.

In Switzerland, the County of Zug aimed to promote sustainable tourism and leisure traffic in the Canton of Zug through the establishment of dedicated round trips feasible with sustainable modes and promoted by the use of "Action Days" and elaboration of informative material.

The city of Cambden, in UK, has created a mobility centre and has carried out mobility plans for council employees. Moreover, the city implemented several activities for reducing traffic congestion, noise and pollution.

Cluster 5 – "Event Management"

Different measures were taken in the participating cities (Porto-Portugal, Rotterdam-Netherlands, and Rome-Italy) to handle the increased transport demand created by tourists/visitors during major events (Cultural Capital of Europe, Jubilee year, Europe Football Championship).

Porto, in Portugal, was the Cultural Capital of Europe for 2001 (CC). In order to accommodate the transport of the visitors and tourists to sites and events in an efficient and sustainable way, a Mobility Centre, the "Loja da mobilidade", was planned. It served as the central contact point by giving information and advice on alternative modes or the accessibility of sites and events, and by booking reservations or selling tickets.

The City of Rotterdam aims to be the Festival City of the Netherlands, thus it hosts many festivals and events. Rotterdam was Cultural Capital (CC) of Europe in 2001, while hosted the European Football Championships for 2000. The following mobility measures were taken: tickets integration & special ticketing, public transport adjustments and special types of transport, establishment of Information Centre, real time information via web-site, city ambassadors for handling the crowd etc.

The measures taken to cope with the transportation demand during the Jubilee year in Rome, Italy, were based on 2 pillars: access restrictions for cars combined with providing extra parking lots (some of them linking up with local

public transport or express shuttle services) and additional bus lines, the so called "J-lines".

4.11.4. Pilots and results

Cluster 2 – "Tourism Mobility Management"

Municipality of Málaga (Spain)

- *Web-site* – Development of a web-site that will operate as a virtual tourist mobility office. The web-site is dedicated to mobility in and around the Malaga metropolitan area. It will contain maps and tables with timetables, frequencies, fares and itineraries of all urban and inter-urban transport services, orientated towards tourist mobility.
- *Tourist Bus* – Dedicated tourist bus services connecting train station with tourist attractions. The service will have two lines, one connecting the central railway station to the city's historic centre, the other connecting it to the Botanical Gardens on the outskirts of the town. The initiative has been successful, with an average of 6165 per month during the July 2001-May 2002. Of particular note is the growing level of tourist bus usage by hotel clients who are using special incentive tickets.
- *Tourist Maps and Leaflets* – Elaboration of a map illustrating tourist points of interest, walking itineraries, connections with the public transport system and public transport nodes, and the route of the tourist bus directly adjacent to public transport timetables and fares. Approximately 30.000 copies of the tourist leaflets were distributed at all tourist information points. 15.000 tourist maps were printed and distributed in August 2002. It has been reported that acceptance of the maps has been very high.
- *Smart Card Project* – This service has a number of Mobility Management benefits, including the ability to provide for the needs of specific user groups (such as the elderly, students, youth etc.), and the potential to enable integration of intermodal tariffs (the service was introduced only for the bus system initially), thereby encouraging intermodality. The use of the card has been a success, with data available from August 2001 to July 2002 showing that the number of cards in circulation has risen from less than 4.000 to over 140.000 during that period. The new system has also increased the speed of the bus fleet, as passengers are able to board the bus more quickly.
- *Gibralfaro Funicular* – The Gibralfaro castle is one of Málaga's most important and popular tourist attractions. At present, the transport options available are the public bus and taxi, while space for private cars is limited. The funicular has been proposed as a means of safe, regular and rapid, high capacity access from the base of the hill on which the castle is located to the top. If and when the funicular is built, it will result in increased intermodality and a reduction in vehicular traffic to the castle.

- *Metropolitan Transport Authority (MTA)* – Creation of a single government body with overall responsibility for the co-ordination of all modes of public transport in the region. The MTA will integrate fares, co-ordinate timetables, act as a single source for comprehensive public transport information and operate a Mobility Centre. It would enable the implementation of Mobility Management services on a regional rather than municipal level.

The Islantilla (Spain)

- *Walking and cycling network* - The municipality developed a network of walking and bike paths between sites of cultural and natural interests within the area.
- *Public transport* - The municipality negotiated with the local bus operator to increase the frequency of the service between Islantilla, Lepe and Isla Cristina. The operator also implemented a new and improved timetable (throughout the year, not just during the tourist season) and has provided new bus routes.
- *Guides for the network of paths* - The promotional and informative guides for the network of paths between tourist attraction points have several forms. One of this is a pocket sized guide to hiking in the area. Fold out maps are provided with a description of the hike and a summary of information such as distance and estimated duration depending on mode of travel (by foot, bicycle or even by horse). Another one is a pocket sized guide to short walks (less than 5 km). It is more tourism oriented than mobility oriented, but it does encourage tourism to use public transport modes.
- *Bus information brochures* - Brochures were prepared providing timetable, fare and route information, and distributed at local hotels, tourist offices and other locations. At present, efforts are being made to provide this information at electronic information points in real time.
- *Tourist office* - The services of the tourist office were expanded to provide more transport information, including the promotional and informative guides.

City Sintra (Portugal)

- *Improved access to sustainable transport* – A one day travel card for use on the region's bus and train services was created. To encourage intermodality, the council provided parking for bicycles at the public transport intermodal points. Information about these services was also provided at the public transport interchanges. Additional bus services for tourists were organized: one service connects Sintra's railway station with the town centre, while the other service follows a circuit beginning at the town.

- *Cycling and walking tracks* – System of cycling and walking paths that would enable access to public transport. Installation of signposts to characterize the paths and organization of a Rent-a-Bike service targeting to tourists.
- *Information and marketing campaigns* to encourage cycling and walking – Maps and guides of the cycling and walking paths.
- Improved information about *public transport* – Elaboration of a guide and of a schematic plan of the region showing transport links and trip times between the major towns. This information and the map have been made available at the Mobility Centres, tourist offices and hotels of the region.
- *Car Sharing Services* – Arrangement of a car sharing and transfer service provided by hotel operators. "Collective Taxis" for tourists wanting to travel at reduced costs by sharing the taxi with other tourists (i.e. from hotel to airport).
- *Mobility information on the Internet* – the web-site address is www.cm-sintra.pt. It presently provides tourist information in Portuguese, and a new web-site in English and French is currently under construction.
- *Mobility Centre* – Establishment of two centres in the Tourist Offices, one in the city centre and one at the train station, to provide personal tourist and mobility advice to visiting customers, and to operate a free telephone line providing tourist and mobility information in Portuguese, English, French and Spanish.
- *Bike Transportation facilities in public transport* – this service aimed to provide facilities to carry bicycles on buses and horse drawn carriages.

County of Zug (Switzerland)

- *Round trips* - Four round-trips were developed, including attraction points such as playgrounds, parks, and restaurants with small zoos attached. The sustainable transport modes that could be used to access these sites ranged from train and bus to bicycle, foot and boat. A total of 452 people participated in the round trips using public transport services, which was lower than expected. Nonetheless, the popularity of the round trips is demonstrated by the fact that some people undertook them on days other than the Action Days (see below).
- *Action Days* - For the active promotion of the round-trips, Action Days were selected. On these days, special activities such as free rental of in-line skates, organised races, and excursions to nearby attractions such as farms or nature reserves were organised at each of the attraction points with the participation of local partners (restaurant owners, etc). For each of the four round-trips, two Action Days were held.
- *Promotional Brochure* - A brochure on the round-trips was prepared, containing the following: information about each round trip; 4 stamp

cards for children (one for each route), with questionnaires to parents relating to mobility behaviour on the back of the cards; information about the project; information about the entire public transport network in the region of Zug.

City of Cambden (UK)

- *Mobility Centre* - Creation of a Mobility Centre which provides public transport tickets, sales, tourist venue tickets sales, travel information, tourist information for Cambden and London.
- *Camden Green Travel Network* - reducing the impact of motor vehicles and related pollution through the development of a Mobility Management network and encourage local employers to develop Green Travel Plans.
- *Camden Clear Zones Project* – Develop traffic free areas and low emission zones; Improve access through walking, cycling and public transport; Develop car free lifestyles and improve the quality of the public spaces; Encourage sustainable development based on continuing social and economic vitality; Improve environmental quality and enhance quality of life. Target groups: local people, visitors.

Cluster 5 – "Event Management"

Porto (Portugal)

The Loja is located in the city centre using the same room as the tourist office. The following services are provided for-free:

- Personal information about individual route planning, accessibility of places of interest, changes in the transport system (due to road works or strikes) and alternatives to the service.
- Material to be distributed: public transport and national railway timetables and fare information and maps with public transport network. A transport guide in English and Portuguese raises the awareness of alternative modes (including taxis) and informs enquirers about mobility management, the public transport networks and fares. There is also a map available indicating car parking location, fares, capacity and zones for loading and unloading, which is in heavy demand.
- The only tickets, that were sold in the Loja so far were the 3-day public transport - pass and the special Nicolau-ticket (special offers before Christmas), and the single ticket, where a reservation is provided for the airport bus. The acquisition of tickets for the fast train can be made via automatic tellar machines.
- Claims and suggestions concerning mobility in Porto can be submitted at Loja.

From 22 September 2001 till the end of 2001, 11% of the people visiting the tourist center, visited Loja. This percentage was increased to 15% between January-March.

So far, there are hardly any requests by phone or email (between 1 and 3 per day), and only recently citizens of Porto have started to use Loja.

Almost 8% of the 3-day Tickets for public transport in Porto are sold by the Loja. However, the number of reservation for the airbus is very low, mainly due to lack of an automatic teller machine in Loja.

Due to its success, the temporary mobility service was turned to a permanent one and is planned to expand its services: information of bike paths, bike rental service, information on historic walks and operation as a mobility observatory.

City of Rotterdam (Netherlands)

The measures taken concern special event tickets that combine entrance fees with a public transport ticket. It has a special design and costs even less than the already reduced day-ticket.

The Rotterdam Card (not only focusing on the CC (Cultural Capital) 2001) offers free access to some of the best places in Rotterdam, discounts at restaurants and free public transport within the city (trams, metro, city bus).

Special arrangements: an overnight - stay at a hotel, entrance fees to several events or places of interest of the CC 2001 and a reduced ticket for public transport in Rotterdam.

Adjustments to public transport: The route of the historical circle tram has been adjusted to encompass most of the important CC event locations. This also meant keeping them out of "normal" public transport, thus reducing the burden on existing capacity.

Information Centre, the Calypso, was the CC headquarters, whose main task was to provide programme and event information. Additionally, visitors could get information on public transport, tickets and travel information for special events. The Calypso has actually been a temporary institution, which has only been in operation during the CC.

The measures for the European Football Championship 2000 included special time schedules, special types of transport (like shuttles, group taxi's), special ticketing, dynamic route guidance, designated routes for public transport and taxis, detour routes for normal transport, clear and safe walking routes including good signage, special embarking facilities, real time information via the web site, info brochures for the public as well as the own personnel, 200 city ambassadors at strategic locations like stations or airport and infotainment centres (they were trained to handle large crowds and could speak different languages).

Results in Rotterdam:

- Periodical surveys showed that most visitors of the Calypso highly appreciated this service. Almost all contacts resulted in the provision of transportation information. Due to the nearby railway station, ticket sales in general were not very high.
- Ticket integration: Combined tickets were well-accepted, especially when they are acquired automatically with the entrance fee to an event or other attraction.
- Public transport in all its manifestations was most popular: about 40% of the tourists to the cultural capital came by train, tram/bus/metro or taxi, 32% used the car. Another 10% used motor cycles or scooters.
- Public transport use: Public transport in all its manifestations was most popular: about 40% of the tourists to the cultural capital came by train, tram/bus/metro or taxi, 32 % used the car. Another 10% used motor cycles or scooters.
- Transport arrangements: The number of visitors to the CC never created problems for accessibility or the transportation situation. Only one event, which ended late at night, made additional measures necessary: Extra trams and buses were provided to operate at this time of the day.

Rome (Italy)

Restricted access for bus in the inner city: Buses had to check-in at a check point, where they were assigned free parking lots closest to their destination and received guidance to get there. The parking lots could be reserved in advance. Buses were only allowed to enter the inner city area in order to pick up guests at hotels in cases where they had a permit.

Newly established J lines - The 8 newly established J lines were dedicated urban express lines that ran "Jubilee" itineraries with only a few stops, linking Romans and tourist to the most interesting sites of the city. They are very comfortable new buses with air conditioning, which makes their use very attractive.

Special Event "Youth Jubilee" (19th - 20th June 2002): For the Special Event public transport has been enlarged with 1,530 more vehicles, 1,400 special trains and 25,000 volunteers, who provided all kinds of information to the 2 million visitors (including public transport) and guided the crowds in finding their way.

Results in Rome:

Tourist bus management: on daily average, 300 buses checked in with a peak during May (600 buses daily) and 140 used the parking lots (600 in May). During the holy year, there have always been enough bus parking spaces except for the Youth Jubilee - but as its location has been outside the city centre, this has not caused too many problems. Nevertheless, enforcement by the "urban police" would have limited the number of buses not respecting the access limitation in the centre of the City.

J-Lines: Statistics reveal that the J-Lines were hardly used in the beginning of their operation until a profound marketing campaign in March helped to increase their use. In the same period it was agreed that people could use the "normal" Public Transport ticket in the J-lines. This helped to solve the problem of finding J-lines ticket because no vending machine had been installed. Originally, the J-lines service has been established to manage mobility patterns of pilgrims and tourists only for the Holy Year. Nevertheless, in 2001 after the end of Jubilee Year 3 of the 8 J-lines are still operating. However, for similar future events, the bus-lines routing and service will be planned more carefully in order to best fit tourist's needs, and the accompanying advertising campaign would be wider.

4.11.5. Concluding remarks

For the DELTA project, Cluster 2 – "Tourism Mobility Management" and Cluster 5 – "Event Management" are the most important parts of the MOST project, because they include pilots dealing with different MM problems, including seasonal traffic overload.

In Cluster 5, this project considered the important role in strengthening a city's economic base and quality life that temporary sites and events have (Festival, fairs, large sports, and cultural events).

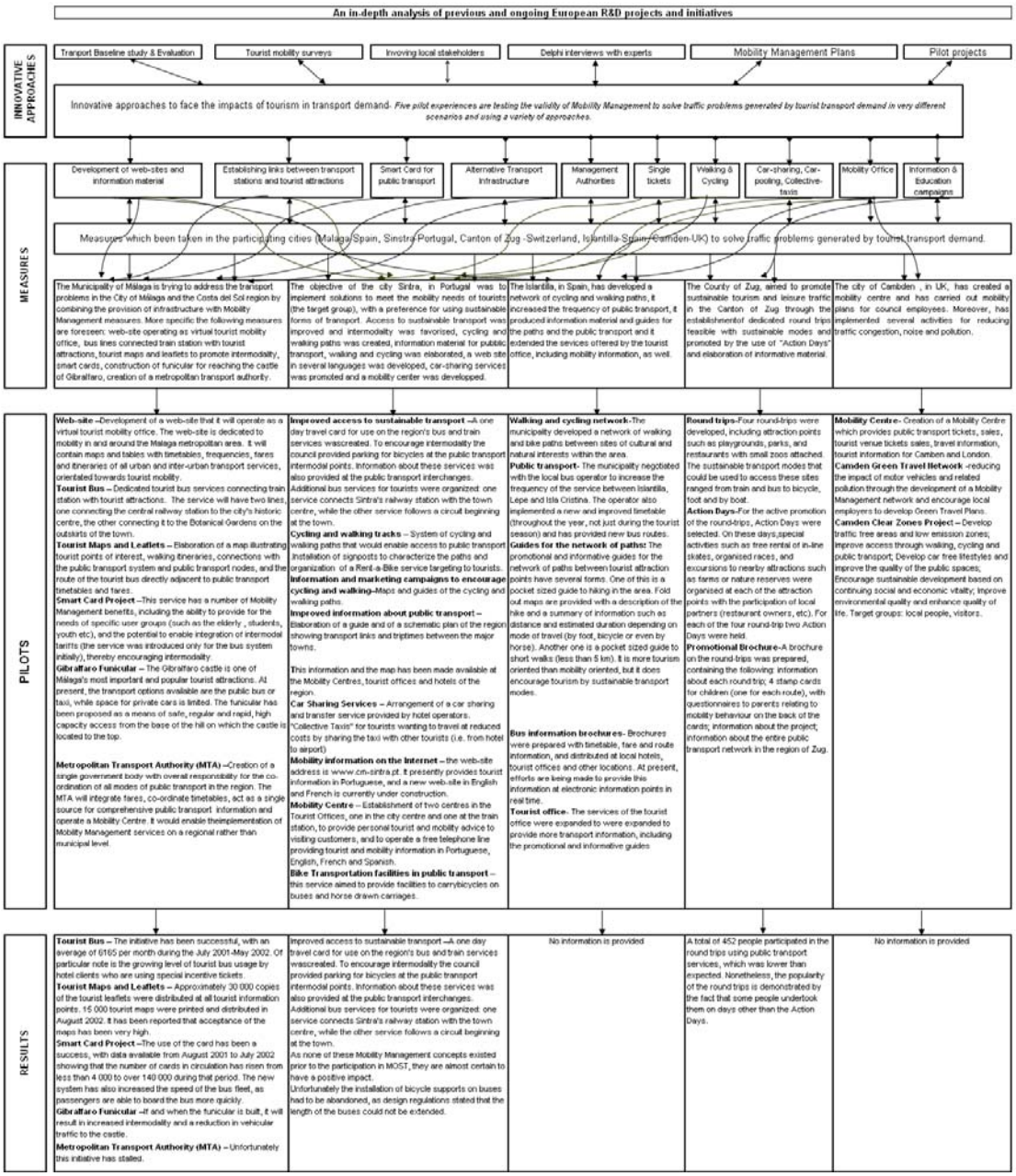

Figure 24: Matrix of Most & Most-Met - Cluster 2: "Tourism MM"

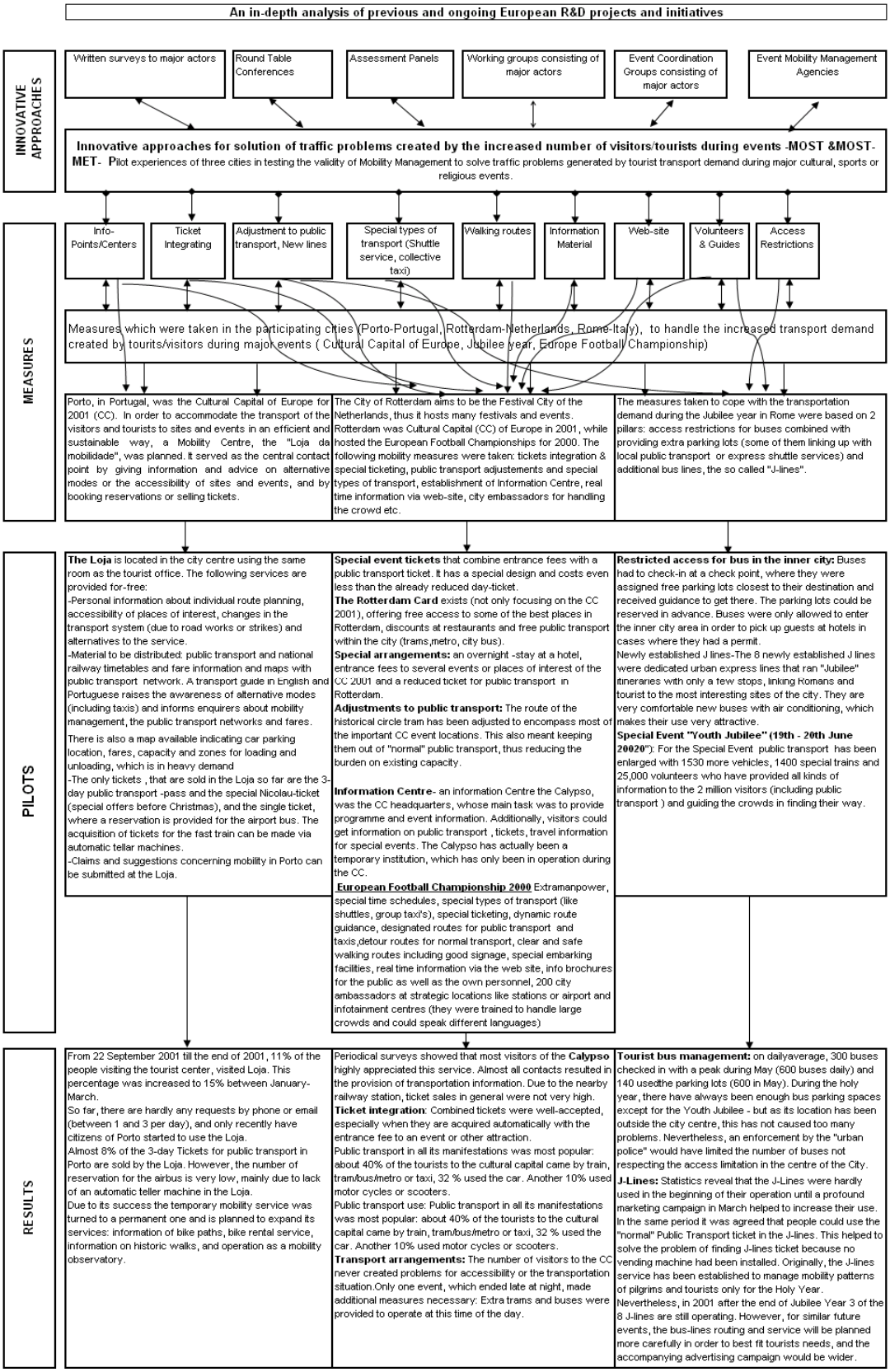

Figure 25: Matrix of Most & Most-Met - Cluster 5: "Event Management"

4.12. Niches+

4.12.1. Introduction

NICHES+ is an ongoing project, which will end in April 2011. It will look into the specific needs and expectations of potential users, while exploring emerging themes and innovative concepts of mobility management. The project will work directly with its main target group, i.e. local and regional authorities, to develop implementation scenarios for the integration of innovative concepts in existing urban transport policies.

4.12.2. Innovative approaches

The project looks into the details of 12 innovative measures, structured in 4 thematic areas:

1. *Innovative concepts to enhance accessibility*

- Travel training for public transport
- Neighbourhood accessibility
- Tailored traveller information for users with reduced mobility

2. *Concepts for Efficient Planning and Use of Infrastructure and Interchanges*

- Passenger friendly intermodal interchanges
- Innovative cycling facilities for intermodal interchanges
- Infrastructure for innovative bus systems

3. *Traffic Management Centres*

- Finance models for traffic management centers
- Mobile travel information services for the public
- Using environmental pollution data in traffic management

4. *Automated and Space Efficient Transport Systems*

- Cybernetic Transport Systems
- Personal Rapid Transit
- Advanced City Vehicles

4.12.3. Measures

Measures will be taken in the participating cities: Artois-Gohelle (FR), Burgos (ESP), Worcestershire (UK), Warsaw (POL), Cork (IRL), Daventry (UK). From all used approaches in this project five of them are relevant to DELTA.

Passenger friendly intermodal interchanges

In this concept, the micro-scale aspects of interchange design are at the centre of attention. Possible advantages of the measures are: minimising overcrowding, congestion, and conflicting flows, optimising of positioning key facilities, fine tuning of development proposals to balance capacities, and efficient use of space. Under micro-scale, the monitoring of passenger flows, and the design of pathways and community areas are understood. The components of the measures are straight pathways, avoiding level differences and dark corners etc.

Innovative cycling facilities for intermodal interchanges

The concept contains measures to make a station easy to approach by bicycle, thus adding a sustainable, non-motorized travel choice. The measures give complementary functions to the intermodal interchange, such as bike-maintenance, repair, guarded storage and rental.

Infrastructure for innovative bus systems

Innovative bus systems are focused on bus lane and bus rapid transit system, which combine the cost and flexibility of buses (in suburban and lower density areas) with the reliability and performance of light rail passing through congested zones on schedule, and between far-away areas. There is a potential of high variability, since there are guided and non-guided solutions, supported and not-supported with ITS.

Using environmental pollution data in traffic management

This concept seeks to make use of the potentially large amounts of pollution data that are becoming available in many urban areas.

There are many types of pollutant evident in urban areas, most of them by-products of transport activities. The ability to gather, manage and process pollution data enables a local authority to fully understand the impact of transport in the city. Provision of such data in meaningful formats can be used to make policy decisions, and can be presented to the public to help them make appropriate travel decisions.

As data gathering management and processing becomes more sophisticated, the data that emerges becomes more comprehensive and precise. This provides the opportunity for detailed environmental profiling, for example the location of pollution hotspots, which can ultimately inform other

policy areas e.g. health. There will also be the possibility to react to short term situations, e.g. freak meteorological conditions with appropriate policy responses.

In many cases research institutions or project consortia have led the way in developing data gathering technologies. They are supported by local authorities, who assume a lead role as the technologies become more mature. Other key actors are transport operators, their staff and costumers, local business, pedestrians, motorists and policy-makers.

Mobile travel information for the public

Mobile travel information services aim to provide comprehensive information for a trip-maker during a trip.

Currently great priority is given to pre-trip information, whether using the Internet or more conventional timetables or telephone services. On-trip information services have existed for many years in the form of on-board announcements on buses and trains, whilst for the motorist variable message signs and radio travel broadcasts are increasingly commonplace.

This concept seeks to encourage improved use of on-board and at- station information for public transport users, but also seeks to utilize contemporary mobile device and Internet technology to provide integrated, multi-modal, real-time travel information and alerts to an individual's mobile phone or PDA. Such information can also be tailored to an individual's particular needs.

Mobile travel information services provide extra flexibility and control for the traveller; and as such can contribute to the convenience of public transport travel and enhanced user confidence. Schemes generally develop from local authority, government department or transport operator initiatives, in collaboration with technology providers and passenger groups. Key stakeholders therefore include transport operators, local authorities, technology providers, passenger groups, and data owners.

4.12.4. Pilots and results

Pilots will be taken out in selected cities: Artois-Gohelle (FR), Burgos (ESP), Worcestershire (UK), Warsaw (POL), Cork (IRL), Daventry (UK). Through the pilot applications, NICHES+ will help to find answers to crucial questions relating to innovative and sustainable urban transport policy making.

4.12.5. Concluding remarks

From the 12 innovative measures of the NICHE+ project, the following are relevant to the DELTA project (with examples):

Passenger friendly intermodal interchanges

Examples:

- The Birknhead Bus Station in Liverpool, UK
- The Port Authority Bus Terminal, New York, US

Innovative cycling facilities for intermodal interchanges

Examples:

- Bike station at the station Chamery in France
- Finsbury, London, UK
- Multimodal transport interchange, Lund, Sweden

Infrastructure for innovative bus systems

Examples:

- Quality bus corridors, Dublin, Ireland
- Improvement of bus routes, Tampere, Finland
- PHILEAS Bus rapid transit, Eindhoven, Netherlands
- Greenways, Edinburgh, Scotland

Mobile travel information for the public

Examples:

- 5T, Torino, Italy
- ITS4Mobility, Gothenburg, Sweden
- iBus, London, UK

Using environmental pollution data in traffic management

Examples:

- Area traffic control, Leicester, UK
- MESSAGE, Project, London, Leicester, Cambridge and Gateshead (UK)
- Rome, Berlin, Leicester, Rotterdam and Paris – the HEAVEN (Healthier Environment through Abatement of Vehicle Emissions) Project (2000-2003)

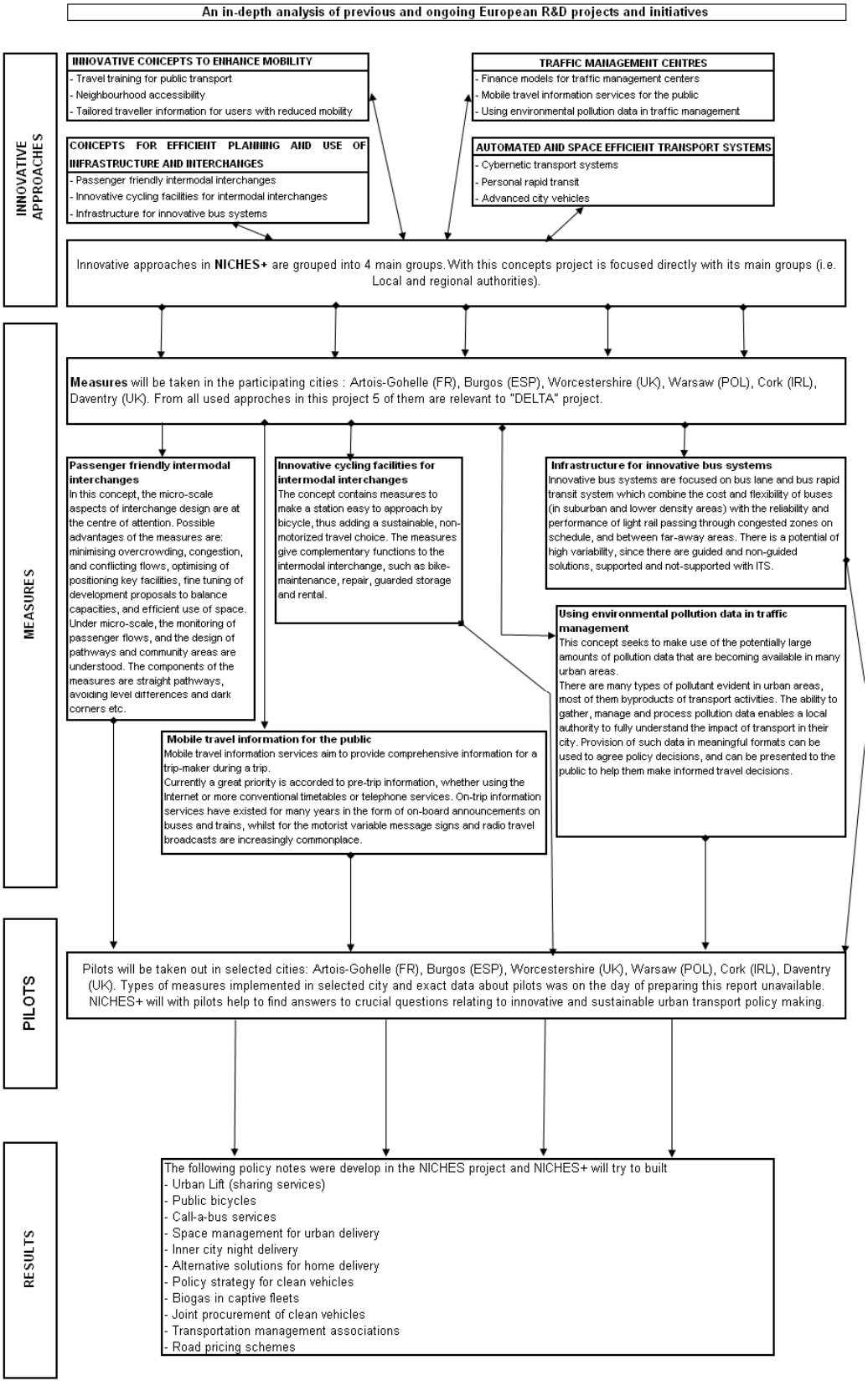

Figure 26: Matrix of Niches+

4.13. Optimum2

4.13.1. Introduction

"Optimal Planning through Implementation of Mobility Management" (OPTIMUM2) is a European project that aims to improve the accessibility of frequent venues in urban areas by taking a uniform approach to mobility management. In this project, eight partners from the UK and the Netherlands take an identical approach to solving the problems related to the accessibility of venues, such as:

- Business areas, where staff mostly travel by car during rush hour;
- Hospitals, visited by many incidental persons at various hours of the day.

Lessons learned from taking a uniform approach in ten British and Dutch projects are due to be collected in a digital European mobility-management "Cookbook". Many business premises and parks, hospitals and heavily frequented venues suffer from poor accessibility. MM focuses especially on such bottlenecks in urban areas. In many cases, the solution can be found in reducing car use by encouraging the use of public transport, as well as commuting by bicycle, moped or scooter. Mobility management's target groups consist of staff, customers and visitors who participate in commuter, business and social/recreational traffic. In order to cope with the growing traffic load in the UK, the Netherlands and the rest of Europe, it will become increasingly important to employ MM.

The aim of OPTIMUM2 is to use MM to offer a successful and innovative approach to the issues related to the accessibility of heavily frequented venues in urban areas. This will be achieved by attaining the following objectives:

- Testing the user-oriented OPTIMUM2 approach.
- Achieving major improvements in mobility management in Europe.
- Working out the practical details of 10 mutually co-ordinated local projects.
- Developing means and methods that can also be used in other regions.
- Monitoring and assessing the results.
- Composing a "Cookbook" with guidelines for the practical application of the user-oriented approach.
- Building an extensive European network of partners who will apply the OPTIMUM2 approach.
- Determining where else, beyond the UK and the Netherlands, the OPTIMUM2 approach can be tested, possibly also at other types of venue, such as amusement parks, (sports) events and museums.

4.13.2. Innovative approaches

Several innovative approaches are proposed in OPTIMUM2:

- Discount on public-transport ticket for staff.
- Carpool vans can use bus lanes.
- Special shuttle service between hospital locations.
- Bicycling to work generates bonus points that staff can used for purchase of products.
- Private minibuses that pick up and leave off staff at home.
- Mobility card (financed by advertising) for staff for access to different modes of transport (bus, parking space, loan bicycle).
- Mobility management as a permanent factor within plan making (integrated in the planning concerning development of new construction sites).
- Incentive and enforcement measures (force companies to map their transport and traffic use; temporary fiscal arrangements e.g. reducing tax; easy reaching of public transport together with reducing of parking spaces; reduction of parking spaces results in more room for office buildings; reducing car use by making staff pay for parking permits; paid parking for visitors).

4.13.3. Measures

In ***Amsterdam*** (**Netherlands**) they have introduced shuttle buses, car-pool vans and an integrated transport pass (Zuidoost Pass) to face the traffic problems to be created during major road reconstruction and maintenance works. Moreover, they have developed a computer programme that generates travel advice for all modes of transport ("Destination Work") and a helpdesk, called "travel facility point".

In ***Hilversum*** (**Netherlands**), at Media Business Park, they have promoted cycling, developed an accessibility web-site, introduced an integrated transport card "Mobility Card" and employed a Mobility Manager to meet the increase of travel demand.

In ***Essex*** (**UK**), at Colchester General Hospital, they have developed a Travel Management System to promote the alternative to car travel.

In **Lancashire** (**UK**), at Lancashire Teaching Hospitals, they have introduced a shuttle bus system, park and ride facilities and travel management system to improve accessibility to the hospital. Moreover, they have promoted cycling and parking management.

In ***London*** (**UK**), at Southwalk Business Areas, they have developed a Street Audit Tool and a Travel Information Tool to promote the alternative to car travel.

In ***Exeter*** (**UK**) they have introduced fiscal arrangements, applied measures to promote cycling and established a travel bureau and info-points to improve accessibility to five hospitals.

In ***Apeldoorn*** (**Netherlands**) they have introduced a shuttle bus service and parking management measures and they have established a Mobility service Desk to improve accessibility to Gelre Hospitals.

In ***Ede*** (**Netherlands**) they have developed minibus and shuttle bus systems, they have created a web-site and established a mobility facility Point, while they have taken measures to promote cycling, in order to improve accessibility to Business Areas.

In ***Gooda*** (**Netherlands**) they have introduced a bus shuttle system, they have created a central parking area and take measures to restrict parking and circulation in the study area, they introduced an integrated mobility card, they took measures to promote cycling and they have established a Travel Facility Point.

4.13.4. Pilots and results

Amsterdam (Netherlands)

Shuttle buses were launched. The buses were highly popular and were part of the Zuidoost Pass.

Carpool vans - These vehicles are classified as scheduled-service busses, allowing them to use the bus lane and in the event of traffic congestion to use the emergency lane. They have a transmitter on board to open barriers. The driver is one of the staff members. Should problems arise, a stand-by driver, a taxi and a helpdesk are available. The vans are equipped with a microchip, allowing them to be monitored (tracking and tracing).

Zuidoost Pass - The passes gave to workers bearer access to existing public transport as well as to any extra, chartered transport capacity (shuttle buses), as well as OV-fiets (loan bikes). Both the companies and the Ministry of Transport have made funds available for this (€ 59.50 per Pass). The Zuidoost Pass was made available as a supplement to regular transport allowances and it was valid during the period that transport work was implemented.

51% of the *Zuidoost Passes* have actually been used. After ending of the works the pass lost validity. About 5-6% of the pass users structurally switched to public transport.

Destination Work – This is a computer program that generates travel advice for all modes of transport, including costs and travel times and tailored to the place of residence and work of an individual employee and the travel arrangements of his company. If employees want to experience public transport, they are offered a 2 month public transport card in exchange for their travel allowance.

Important side-effect of the personalised travel advice is the more it will be used the more insight will be gained on the origin and destination of employees (traffic flows), and the more demand-driven transport solutions can be developed and supplied.

Travel facility point - A helpdesk for van pooling. In 2006, the helpdesk was extended to serve other issues as well.

Hilversum (Netherlands)

Cycling - A bike plan has been set up including extending parking facilities for bikes, adding signposting of cycling tracks and rented bikes ('OV-fiets') on several locations.

Accessibility Website - The main feature of the website is a personal travel planner, based on the postal code of the visitor. The planner shows visitors the different opportunities for their trip, presenting four means of transport: bike, public transport, car and a combination of public transport and car. Moreover, the website provides background information about different means of transport. In the bike menu for example, visitors find information about the OV-fiets (type of rented bike) and fiscal advantages of buying a bike, the car menu includes information about current traffic jam and planned road works and the public transport menu shows information about bus and train schedules and current departure times. The website is highly successful: during the first two months, the travel planner was used over 27.000 times, an average of more than 400 travel advices a day. On average, the website attracts 60 visitors a day.

Mobility card - The mobility card gives free access to the Shuttle service and to other means of public transport and the OV-fiets (rented bikes).

Mobility manager - The mobility manager is responsible for the planning, implementation, evaluation and promotion of mobility management measures.

Essex (UK)

Get There – A Travel Management System (TMS) that provides detailed travel and journey planning information (by all modes), including information on parking and the internal layout of the site. The information can be accessed on the internet, by mobile phone or the kiosks placed at bus/rail stations, public libraries and hospital reception areas. The system brings together a range of information to assist in journey planning including: public transport services, real time information, information on special fares, cycle and walk routes, car sharing schemes, alternative transport (by shuttle/taxi), parking, park and ride, hospital site layout, outpatient booking, etc.

Lancashire (UK)

Shuttle Bus - Shuttle bus service between the Park & Ride grounds, and the hospitals; Real time information display board installed;

Park and Ride facilities - Two Park & Ride facilities 2km and 1km far away from the hospital respectively. Staff uses the local bus service as a shuttle to and from the site free of charge and pay a discounted rate to park on the Preston Business Centre site.

Cycling - Improvements to cycle storage area; Cycle bins have been provided around the hospital sites; Cycles maps have been produced; Pool

bike scheme introduced; Bike Maintenance available on site for individual staff bikes and pool bikes.

Parking management – Installation of variable message signage to the entrances of the hospital sites, advising of the location of the car parks and the available spaces. This information is also repeated at each barrier entrance.

Travel Management System – It offers: personal journey planning; site specific multi-modal transport information; car Share System; community transport schemes; Real Time Bus service Information; Information Kiosks (in main reception areas); Links with the regional travel information service.

London (UK)

Street Audit Tool - Methodology for use by employees to examine the pedestrian environment of an area local to their workplace. The aim was to encourage more walking and to identify barriers to walking in the local area, such as personal security problems and excess street furniture and litter.

Travel Information Tool - Tailor made map with link to a whole range of local transport information sources. This includes cycle and car parking and key local facilities.

The various improvements that have been identified from the implementation of the above are: enhancement to streetscape design, including discrete areas where people can sit and secure bicycles, planting of trees, plants in themed planters and works to bus stops; New lighting, brick cleaning and bridge painting.

Exeter (UK)

Fiscal arrangements - The personnel was offered a substantial discount on the cost of a season ticket for public transport. The cost of using the Park & Ride for staff is free of Charge, providing they are in possession of a Park & Ride permit, which is charged for at half the rate of a full on-site permit.

Cycling - Increased cycle storage around the hospital sites and further secure cycle storage facilities; Working on specific cycling map showing access routes to the hospital from other parts of the city.

Travel Bureau - This office advice is available on alternative travel means, including timetable information. Supplies of timetables for all local services are available, either in hardcopy or accessed via the internet. Information is available on: Site specific car parking information; Alternative travel information, including timetables; Car Share Scheme; Cycle information.

Infopoints - Infopoints have been placed at the main entrances, where people can make, free of charge, calls to the Travel Bureau office, Trainline, Stagecoach, Travelline, Exeter Airport, a local taxi company, for travel and other information.

Apeldoorn (Netherlands)

Shuttle Service - A shuttle service was implemented for transport employees between the different locations of Gelre Hospitals. It connects the three locations of the Gelre ziekenhuizen 13 times a day. Each employee is offered an employee card which enables them to make free use of the shuttle bus. In March 2005 a plastic, credit-card sized timetable was introduced.

Parking management - Regulating parking for all staff, visitors and patients, as well as paid parking for visitors and patients. Car poolers are privileged to park close to the entrance of the hospital.

Mobility service desk - Through the mobility service desk company bikes and pool cars can be arranged. Each reception is able to arrange meetings at that location that is most convenient for each participant and adapt meeting times to the time schedule of the shuttle bus.

Ede (Netherlands)

Djopper system - Minibuses pick up workers at their homes and bring them back again, for the same fare as public transport. The system's strength lies in the fact that the company employees pick each other up on the way to and drop each other off on the way from work. This makes transport cheap, fast and comfortable. However, employees have showed a limited interest in the Djopper. Also, research has shown that the Djopper has been evaluated at 5.2, the lowest score of all activities within OPTIMUM2.

Shuttle bus system - A new shuttle bus was implemented which has a good connection to the intercity trains at station De Klomp (Veenendaal). With this, the accessibility of the business areas of Ede has substantially increased. After a wavering start, the shuttle is increasingly used by commuters. Research shows that the shuttle bus is best valuated (7,7) by the employees of all measures that have been implemented within the context of OPTIMUM2.

Cycling – A flexible and innovative biking system was implemented offering pool bikes to commuters on 7 different locations. 20 pool bikes are available at two railway stations, at the other locations (bus stops and other public transport junctions) bike lockers have been installed with capacity for 4 bikes each. It is possible to collect and leave the bike at different locations.

Website - A website has been developed which offers on-line mobility information.

Mobility facility point - The mobility facility offers services and products in the mobility field for companies and their staff. The mobility facility point is staffed by an accessibility agent. The facility point can be contacted by phone during week-days. The mobility service point has been highly evaluated and by employees. Also, half of the employers think it is important to continue the mobility service point.

Gooda (Netherlands)

Goudse Poort Expresse - A shuttle bus system with the following characteristics: the bus leaves every 15 min during peak hours and every 20 min during off-peak hours, comfort enhancement, improvement of public perception, a bus or minibus is the chosen option, 3 bus stops renewed, and 2 DRIS systems operational.

Central parking area - Characteristics: restricting car traffic inside the Goudse Poort area; limiting the number of parking spaces in the public space; tangible measures (bollards) to prevent illegal parking; rewarding desired parking behaviour by lowering fares and allowing a higher standard parking value; a comfortable walking route from the central parking area to the businesses; the travel time from the parking area to the businesses must not exceed two minutes; a mobility card will be needed to access the parking area; an interactive reservation system, which will be accessible through the Internet.

Cycling - Cycle routes, short and of high-quality, from Gouda Central Station to Goudse Poort; Cycle paths parallel to every car route; Connections to cycle routes outside the Goudse Poort area.

Mobility card - Provides access to all modes of transport (bus, parking space, loan bicycle, pool car/van). The central parking will also be accessible through the mobility card.

Travel facility point - The facility point is responsible for the co-ordination of mobility services, and will take care of communication, administration and financial settlement. The facility point's duties include the handing out of the mobility cards and the co-ordination of central parking.

4.13.5. Concluding remarks

OPTIMUM2 is a European project that aims to improve the accessibility of heavily frequented venues in urban areas by taking a uniform approach to mobility management.

OPTIMUM2 is interesting for DELTA, because many business premises and parks, hospitals and other heavily frequented venues suffer from poor accessibility. MM focuses especially on such bottlenecks in urban areas. In many cases, the solution can be found in reducing car use by encouraging the use of public transport, as well as commuting by bicycle, moped or scooter.

Certain measures, for example temporary fiscal arrangements e.g. reducing tax or charge, and private minibuses that pick up and leave off tourists at hotel/camping could be of relevance to DELTA.

Other interesting MM measures proposed in OPTIMUM2 sites are: shuttle buses, carpool vans, zuidoost pass, cycling – bike plan, accessibility website, mobility card, mobility manager, "get there" – a travel management system, park and ride facilities, street audit tool, travel information tool, fiscal arrangements,

travel bureau, info points, parking management, mobility service desk, djopper system, central parking system, etc.

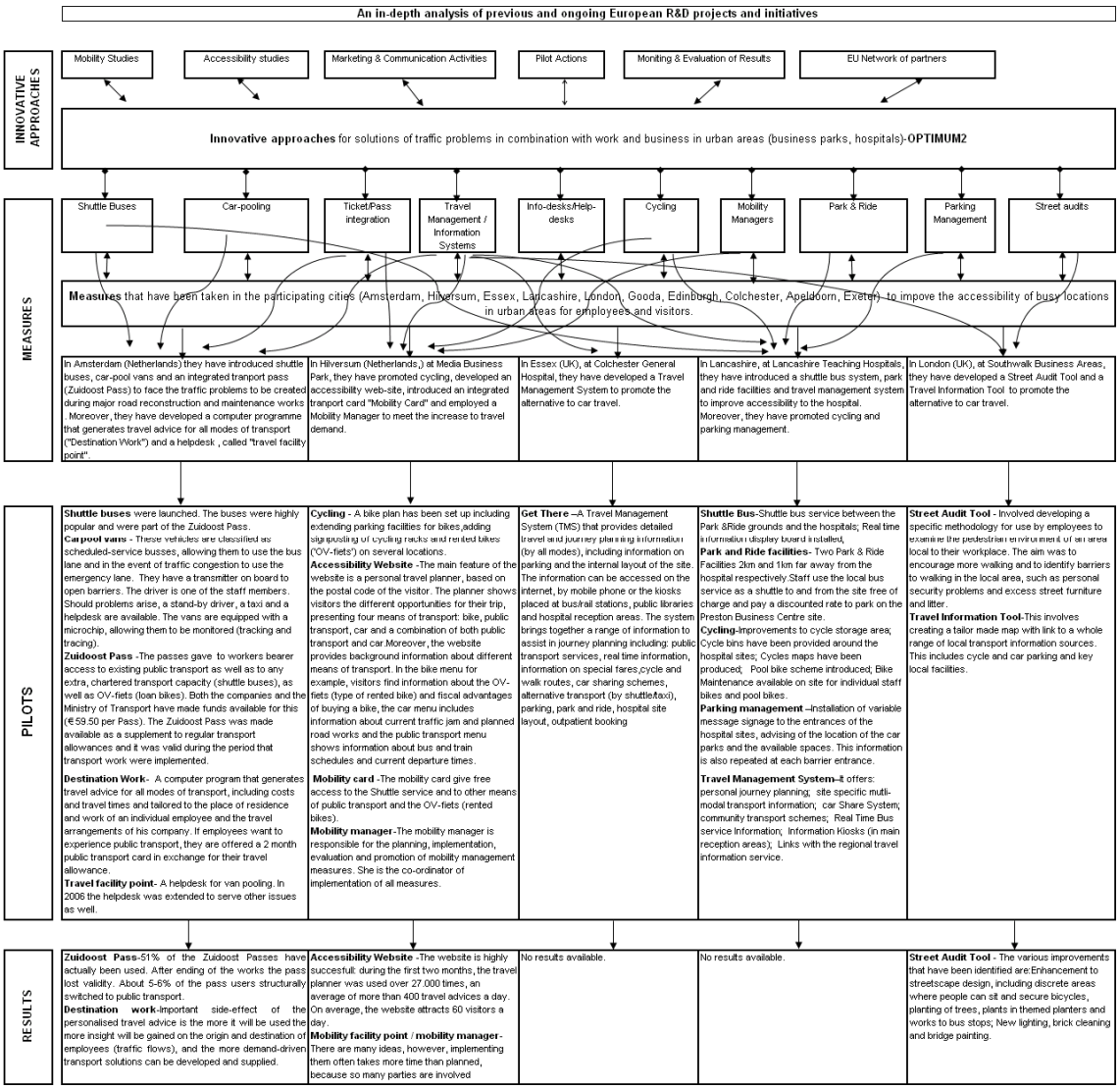

Figure 27: Matrix of Optimum2 (Part1)

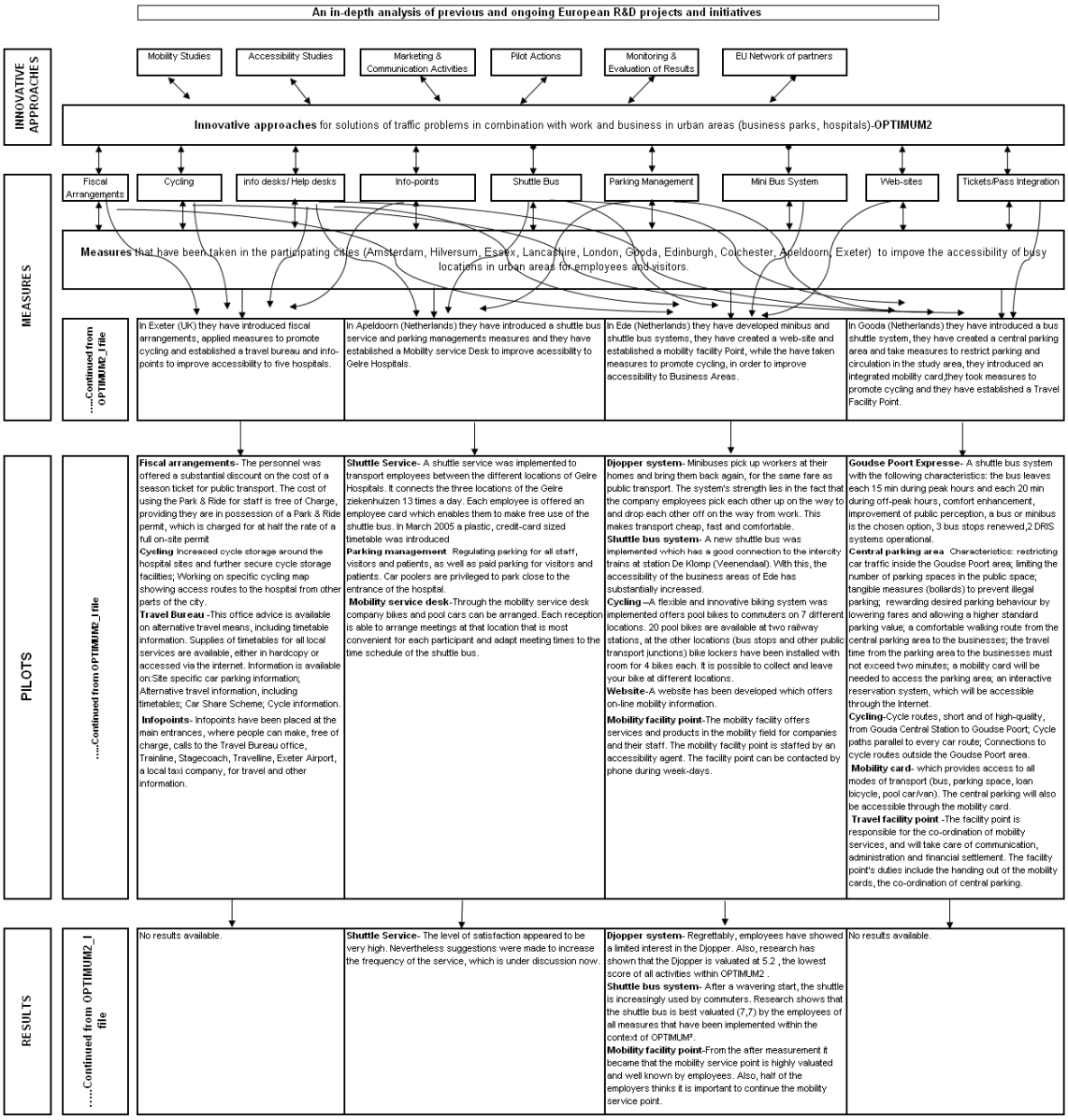

Figure 28: Matrix of Optimum2 (Part2)

4.14. PIMMS

4.14.1. Introduction

PIMMS (Partner Initiatives for the development of Mobility Management Services) is a network operation focused on the exchange of best practice information between the eight project partners as well as between them and their regional partners. The core concept is that successful examples of mobility management are based on Critical Success Factors (CFS) that can be applied in other circumstances. So PIMMS benchmarks good practice throughout Europe, and uses this as the basis to organise a series of study tours

and staff exchanges so that key decision-makers in the partner organisations can see examples of success and be encouraged to transfer them in their own region.

4.14.2. Innovative approaches

PIMMS aimed to achieve change by empowering regional decision-makers to extend the use of mobility management, primarily through a series of study trips and staff exchanges to other cities or regions within the partnership and selected destinations throughout Europe. The project methodology contains several components, including EU-wide benchmarking and 'Self-benchmarking' (Clean vehicles, Individualised Travel Marketing, Policy and Integration, Road Pricing, Road Safety, School Travel, Travel Awareness, Travel Plans). The top CFS is political support and long-term commitment, public awareness, stakeholder engagement, integrated policy and funding (national, EU).

4.14.3. Measures

Measures already applied in the participating cities (Terrassa, Graz, Stockholm, Treviso, Frankfurt, Almada, Serres, Bromley-London) or to be applied based on the information and experience obtained through study-visits or through best practices survey involve the following:

- In Spain, the city of Barcelona has integrated tickets, imposed parking restrictions, developed park and ride schemes, and improved public transport to discourage use of private cars during 1992 Olympics.
- The city of Girona has a network of green paths used for leisure purposes and to travel between different activity centers.
- The city of Teressa encourages intermodality between train and bicycle (BICIZOOM) and walking (creation of a pedestrian streets network). Moreover, it uses information systems to monitor freight movements, to provide information on existing transport alternatives and to promote car-pooling.
- The city of Graz in Austria has applied innovative measures to improve the image of public transport. Graz runs a Mobility Centre and has a strong cycling policy.
- The city of Stockholm in Sweden has created closed bike parking facilities and has developed a road-pricing system.
- The city of Treviso in Italy is planning to develop a network of cycling paths and a rent-a-bike system and to integrate cycling with urban planning.
- The city of Frankfurt in Germany has already a very flexible bike-renting system "call a bike system" and a Mobility Centre giving information on transport alternatives. It is planning to promote cycling for commuter

mobility and to apply transport technologies used in Finland, like transport information available, to download on users mobile phones.

- The city of Almada in Portugal uses a bottom-up approach based on Local Agenda 21 in its travel marketing campaign.

4.14.4. Pilots and results

Spain

Barcelona, *1992 Olympics transport strategy* - Promotion of integrated tickets (discounts and pre-sales) for public transport; improved public transport provisions, severe parking restrictions; dedicated Olympic road, park and ride schemes; underground bike parking system (Biciberg). These measures provided a dramatically increased modal shift to public transport during and after the games; 50% road traffic reduction in 1992 compared to previous years; Low demand for cycling – geographical factors – but new initiatives e.g. "Bicing"; "Biciberg".

Girona, *Green Paths* - Green Paths are understood as communication infrastructures that have been developed along old/expired railway lines and nowadays constitute important ecological areas. Non-motorized vehicles, pedestrians, cyclists or people with reduced mobility, may use those paths for leisure purposes and to travel between different activity centres. Main characteristics: low incline (max. 3% or zero), exclusivity for non-motorized vehicles; separation from motorized transport system; reduced number of intersections with public roads; homogeneous signage in order to follow the path safely, whether on the intersections or merging pathways. The Green Paths have appealed to a wide range of people on a daily basis, as they provide convenient access to places of work, schools, universities and leisure centres. The relative flatness of the Green Paths provides an easy route for walkers and cyclists of all states of fitness. The services and continuous maintenance also contribute to the success of the project, as well as the promotional campaigns.

Terrassa, *BICIZOOM* - Encourage the inter-modality between train and bicycle. Establishment of a continuous multi-service area for bicyclists at the FGC (train) station at the city centre of Terrassa. The main objective is to start up a fleet of bicycles to be used by students, teachers and staff to go to the university (campus UPC Terrassa) from the train station. The final aim is to implement a shared bicycle service in the urban centre of Terrassa, open to all the inhabitants of the city. The maintenance of the fleet will be contracted to an external specialist company. During the first 4 months of the pilot phase (November 2004 – March 2005), the 6 bikes have been constantly used by 12 people with different schedules and destinations. The present low level of bicycle use is due to a poor image of the bicycle as a transport option. In order to promote its use, it is necessary to increase its use by developing infrastructures and promotional campaigns to engage users.

Network of pedestrian streets - Creation of a network of pedestrian streets, which connect central points of the city. Special labelling and creation of special itineraries for the protection of children and elderly people.

Information Systems - The city has developed a GIS scheme to monitor freight movements to minimise impact on city centre. A mobility portal has been developed for the workers of an industrial park situated in the southern part of the city which provides information about their existing transport alternatives. A web based car pooling (sharing) service was piloted on council staff.

City of Graz (Austria)

Improving the image of public transport - Innovative marketing activities, door-to-door information on the web and "mystery shoppers". Introduction of entertainment in public transport: e.g. musicians playing for passengers, a mobile birthday party, TV-trailers and a raffle with the chance to win a ride with friends in the Cabriobus, special leisure tickets. A web page for stop-to-stop travel planning was established, making it much easier to find complete real-time travel information, including tips on the best leisure trips by public transport. Since January 2006 door-to-door planning is available, complete with distance and time estimates and downloadable maps showing the route to take on foot from door to stop. So-called "mystery shoppers" have been used for quality controls on-board buses and at stops. Operators were contacted where cases of poor service were identified.

Mobility Centre - It is strategically located and it offers the following services: information on timetables, routes and public transportation nodes; ticket purchase; different operator's trip combination; regional travel information. The service is popular and the number of users has increased steadily, from 64.000 customers in September 2003 to 260.000 in June 2005.

Cycling Policy - Strong policy to promote cycling with more than 500km of cycle networks, cycle streets and cycle parks at the train station.

City of Stockholm (Sweden)

Bike parking - Creation of closed (not open air) bike parking facilities close to stations.

Road-Pricing: Stockholm has implemented a pilot project for congestion charging to access the city centre (18 control points). The tariffs vary during the daytime hours (6:30 - 18:30) and some vehicles (such as Eco vehicles, taxis, ambulances) do not have to pay. This measure is also complemented by improvements in public transportation, such as: 20 new bus lines, 20 improved lines and 12 new Park&Ride (from a total of 35) stations.

City of Treviso (Italy)

Cycling - Treviso used the lessons learnt from Lyon's Velo'V bike-share project to develop a network of cycle paths and initiate a similar bike-share scheme

in 10 municipalities within the province of Treviso. It aims to integrate cycling with urban planning (strategic projects such as development of cycle paths along the river bank) and public transport (bicycle racks near bus and tram stops).

City of Frankfurt (Germany)

Call a bike system - A very flexible system of bicycle renting.

Mobility Centre - Information on transportation alternatives: bus, train, tramway, car-sharing, velotaxi or bicycle; ticket purchasing; tourist information; in the future integrated events and transport tickets will be available as well. The Mobility Centre serves more than 300.000 users daily.

Bike and business – Promotion of cycling for commuter mobility: Extending the current cycling network that connect Frankfurt with neighbour Municipalities to 2.600 km (in the total region Frankfurt/Rhine-Main); new and safe parking facilities for bicycles near the public transportation stops; itineraries' information at all public transport stations; communication campaigns in order to improve the public perception of cycling.

Transport information to download to mobile phones - Frankfurt considers to incorporate in its own transport strategy technologies used in Helsinki - Finland, like transport information available to download on users mobile phones.

City of Almada (Portugal)

Travel Marketing Campaign - Almada's travel marketing campaign is based on Local Agenda 21, with emphasis on local, democratic participation to influence policy for sustainable living. Representatives from many different sectors and backgrounds have been involved in public forums (Forum 21), workshops and opinion surveys, while a 'Children's Parliament' ensures that the whole community is informed and consulted on proposed initiatives.

4.14.5. Concluding remarks

The project aimed to create a thematic network for the optimization of scientific networking, management, co-ordination, monitoring, exchange of information and exploitation and dissemination activities in the fields of integrated land-use and mobility planning from the research community to local experts in the cities of Europe. The methodology and findings of the project regarding co-ordination, networking, information exchange mechanisms and successful implementation of dissemination activities could be taken into consideration by the DELTA project.

PIMMS is highly relevant to DELTA, because it includes different MM measures, which could be also used for the DELTA project in solving the problem of seasonal variation of transport demand. The exchange and benchmarking of best practices throughout Europe is also an area where DELTA could benefit from PIMMS.

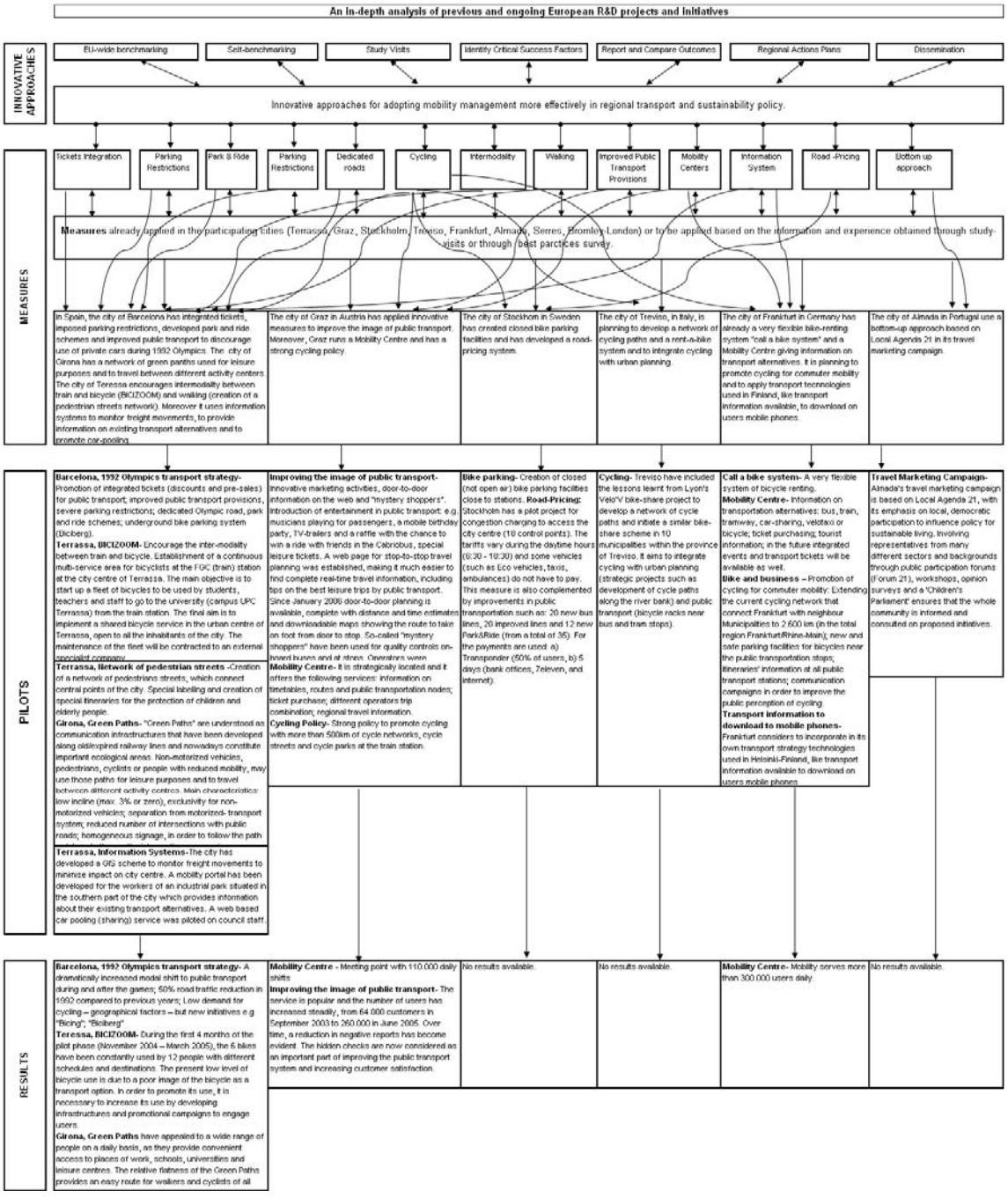

Figure 29: Matrix of PIMMS

4.15. Smash Events

4.15.1. Introduction

The SMASH-EVENTS project aims at developing a standard for integrated environmental management for large events like cultural events, music festivals, exhibitions, etc. More particularly, it aims to address the aspect of mobility management to already existing practices in reducing the environmental impact of large events.

The direct objectives are to:

- decrease the short term negative impact of an event on the environment: by reducing the effect of the festival on the natural environment during the event, mainly by decreasing noise, nuisance and vehicle emissions;
- decrease the long term negative environmental impact by reducing vehicle emissions, production of waste, and the lasting impacts on the natural environment.

4.15.2. Innovative approaches

Innovative approaches used in the project Smash Events are:

- Innovative cycling facilities
- Study of potential offers
- Development of pilot actions
- Innovative bus systems
- Feasibility studies

4.15.3. Measures

Multimodality is facilitated through shuttle buses, combined tickets for public transport and entrance, carpooling etc. One of the key methodological aspects of the project is to carry out field tests for different types of events in 4 different countries:

- Belgium: music festivals (one day events in main rural areas but close to village centres).
- Germany: skating events in the streets of the city of Nürnberg.
- Austria: 'Provincial Exhibition Styria' (long lasting event in a small urban environment).
- Italy: 'Dolomiti Bellunesi National Park' (traffic generating events in a protected rural area that attracts eco-tourism all year round).

4.15.4. Pilots and results

The Sfinks festival in Belgium - The Sfinks festival near Antwerp is a live world music event. About 50.000 visitors attended this four day event, among which a significant number of families with children. The target group is considered to be open towards mobility and environment management measures. Therefore the festival organisers happily welcomed the Smash-Events initiative.

The measures implemented in this site include additional night busses, combined ticket for bus and entrance fee, signposting for cyclists and public transport users, guarded cycle storage facilities, carpool service, extended information on the festival stand, etc.

The Nite-Skates in Germany - The Nite-Skates are a series of single-night events in the summer season. Usually 3-4 Nite-Skates take place per season; in 2002 this series was replaced by a large single Nite-Skate during the Inline-Hockey World Championship, hosted by the City of Nürnberg. Funkhaus Nürnberg took over the local preparation for the demonstration. The Hitradio N1 Nite-Skate 2002 took place on Saturday, 27th July 2002.

The measures implemented in this site include a huge guarded Bicycle-Park right behind the central stage, promotion with spots as well as interviews and reports, improved information about sustainable transport on the website, car-pool matching system.

Provincial exhibition of *Styria*, Austria - The exhibition under the motto 'Energy at your fingertips' has been running in the cities of Weiz and Gleisdorf from the 27th of April until the end of October 2001. Approximately 143,700 persons visited the exhibition. At the exhibition itself, about 76 sub-events took place, too. As part of an initiative of the Province of Styria, a lot of these events were carried out under the theme 'G'scheit feiern' (celebrate clever). The guidelines of 'G'scheit feiern' include waste management (waste prevention, use of eco-dishwashers etc.), the use of rural organic products and mobility management (feeder buses, carpooling, etc.). Within the frame of the Austrian Smash-Events demonstration project 8 events (3 festivals and 5 trade fairs) realised environmentally friendly measures.

The measures implemented in this site include shuttle services, special offers for public transport and bicycle users (refreshments and participation in a raffle for free), communication by mass media, information on the accessibility via Internet and other communication carriers.

"Dolomiti Bellunesi National Park", Italy - The Italian demonstrations all took place in the surroundings of the "Dolomiti Bellunesi National Park", a popular leisure destination in Italy. The main demonstration site was the Artisan Fair in Feltre. During this fair the historical centre of the medieval town of Feltre was closed and stands for artisans were established as old shops. To access the town centre, visitors had to pay an entrance ticket. The fair site was reachable by car - a lot of parking spaces were available -, by train and by local public transport (low frequency during week-end).

The measures implemented in this site include combined ticket transport plus entrance fee, mass communication campaign for a special train offer and

the combined ticket, remote parking with park and ride facilities, guarded bicycle storage facilities, soil protection at events in fields or in parking lots by banning cars from the site.

4.15.5. Concluding remarks

The Smash Events project is not directly related to DELTA, but there is a number interesting methods, which could be used for seasonal demand in DELTA project and the regions participating in the Smash Events project could be involved in the network of cities/regions with seasonal demand problems.

Indicative mobility management methods used in this project and could be examined in the DELTA cases are:

- *combined tickets*
- *carpool service*
- *cycling*
- *bicycle park*
- *special offers for public transport and bicycle users*
- *info via internet*
- *mass communication campaign*
- *remote parking with park and ride system*

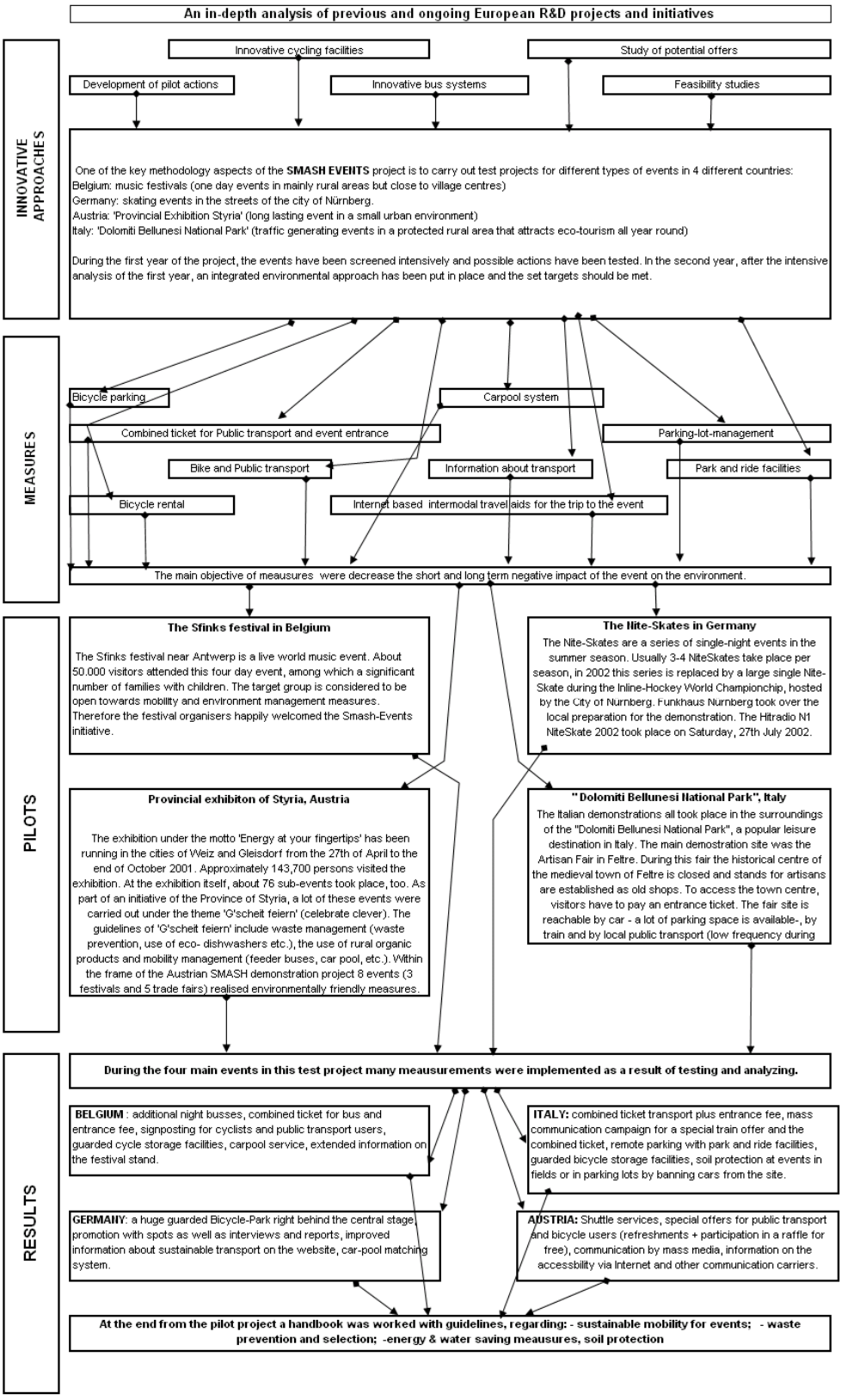

Figure 30: Matrix of Smash events

4.16. Target2

4.16.1. Introduction

The aim of the project was to develop, implement and evaluate a package of mobility management activities to promote, facilitate and encourage the use of alternatives to the car. Mobility management included the provision of information, incentives, new services and products, coordination and planning activities, with the aim of encouraging people to shift to more sustainable transport modes, having thereby a positive impact on both the environment and the quality of life of the users. The project supported sustainable transport by raising awareness and by providing a range of viable choices for work, school and leisure journeys.

Activities were delivered through five Work Areas: Workplaces, Mobility Education, Transport and Leisure, City Living and Transnational Exchange.

Workplaces:

The aim was to reduce car journeys for travel to work (causing traffic congestion resulting in longer travel times for staff, suppliers and customers) and for business travel by innovative public transport ticketing developments and promotion of the use of car sharing and car pooling, effective travel plans and the use of greener fuels.

Mobility Education:

Target2 developed a travel awareness strategy to address young people's travel habits and behaviour, by bringing together all the influencing groups including teachers, partners, public transport operators, local education authorities, the police and the children themselves.

Transport & Leisure:

Target2 developed solutions to reduce urban-rural car dependant tourism by providing and promoting a range of information and transport options. These alternatives also address broadening the social diversity of visitors, the promotion of health benefits, greater environmental protection and ultimately contribute to local, regional and rural economies.

City Living:

The city living work area focused on integration of different transport modes in order to offer a range of transport options to meet the needs of city dwellers.

4.16.2. Innovative approaches

The innovative approaches used in this project are:

- Workplace travel planning across the region
- CNG (compressed natural gas) renewable fuels for fleets
- Promoting SafeMark - safe public transport to schools
- Safe routes for children

- Access options from urban areas to tourist locations
- Bike bus strategy
- Improving transport access to work for job-seekers
- Establishing a Car Club - Public transport integration
- Car-sharing
- New ticketing system supporting rail travel for work trips
- Bus users get free travel for commuting/business travel
- Improved travel information for visitors
- Established carpool and bike pools for work trips
- Improved travel information for visitors
- Introduction of lump sum payments for pedestrian and cyclists

4.16.3. Measures

Different measures were used in the project. Some of them are:

- Alternative travel modes of public transport (bicycles or walk)
- All-inclusive tourist card
- Reopen of local rail line
- Introduction of bike bus
- Promotion campaigns
- Park and Ride, parking station / free bus ticket scheme

4.16.4. Pilots and results

Bremen

Botanika edutainment centre: Botanika is an indoor botanical house two km from the town centre, with more than 220.000 visitors annually. The mobility management system adopted to encourage visitors to use alternative travel modes of public transport, includes bicycles or walk: a pedestrian guidance system between the park entrance and tram stops, an electric timetable in the park showing visitors information about tram and bus services, increased frequency of the bus No. 20 during weekends in summer months, combined entrance and public transport ticketing, new bike racks located at Botanika entrance.

Smart 'all inclusive' Discovery Card: it's an all-inclusive Tourist card that combines public transport access with 120 leisure and tourist attractions in Bremen and the Northwest region of Lower Saxony. The electronic chip card can either be purchased separately or be stored on a normal bankcard. Venues range from swimming baths, museums, leisure parks and sailing trips to the island of Helgoland.

Moorexpress: to facilitate tourism in the north-east of Bremen, an area known as 'devil's moorland', the local tourist agency and the rail company developed a plan to reopen the local rail line. In 2000, Moorexpress reopened for weekend tourist trips to the region during summer weekends.

Bike bus strategy: one of the most attractive nature reserves and rural region north of Bremen to Berne has no rail link. Tourists and cyclists often visit the area by car creating enormous traffic problems. The introduction of bike bus intends to attract cyclists away from car travel.

Yorkshire Dales transport and visitor management, Yorkshire and Humber

The Yorkshire Dales National Park is extremely popular in walkers, cyclists and tourists, with over 8 million annual visitors. An estimated 90% of these visitors travel to the Park by car.

The project was directed at promotional and consultancy work: promotional campaigns to encourage use of public transport, cycling and walking, production of walking and cycling maps, bus poster campaigns, tourism and travel leaflets, a sustainable travel website was set up (www.traveldales.org.uk), and a special Dales Bus logo and discount scheme launched. The scheme has been cited as an example of best practice by central government Department of Transport Travel Awareness Campaigns report. Also a series of taster trips were initiated. An integrated ticketing pilot scheme involving the local rail lines linking the main conurbation to the soothers Dales will enable public transport users to buy a single ticket for both rail and bus travel.

'City Focus' mobility plan in the City of Brugge

Car parking facilities in the historical street pattern are limited. Visitors and citizens alike will be encouraged to use alternatives for a healthier city.

Initiatives include a new park and ride scheme that encourages car drivers to use one of the six parking zones outside the city and are supported with ecological transport modes - bus and bikes that are used as ongoing transport options into the heart of the city. Both buses and bikes have separate lanes to car traffic.

Zealand coast express feasibility study

The coastal zone in the province of Zealand is well established tourist destination in Holland, although there is a very limited public transport service. Most tourists arrive by car. A feasibility study for sustainable transport identified the need to: centralise parking areas accessible from the inland main road with links to the coastal destinations; encourage bicycles, public transport and walking only on coastal roads; link the five main areas to the ferry crossing and links with local towns; investigate a coastal tram system that offers frequent and useful connections. Market research showed positive responses, with 65% of tourists agreeing to the value of a tram and associated

sustainable measures. At the end of the project the tram line was under discussion with the local authorities.

4.16.5. Concluding remarks

The project investigated a wide range of mobility management activities that promote, influence and encourage a change in travel and mobility behaviour.

The Work Area of TARGET2 most relevant to the DELTA project is 'Transport & Leisure', which is focused on providing solutions to reduce urban-rural car dependant tourism by providing a range of alternatives:

- reduce the impact of private car use at both urban and rural venues
- encourage the use of public transport, bicycles and other forms of green tourism
- promote integrated packages for public transport, accommodation and activities
- develop 'all inclusive' electronic technology
- improve travel information and logistics
- congestion and parking prevention measures
- support sustainable travel options with a range of promotion materials

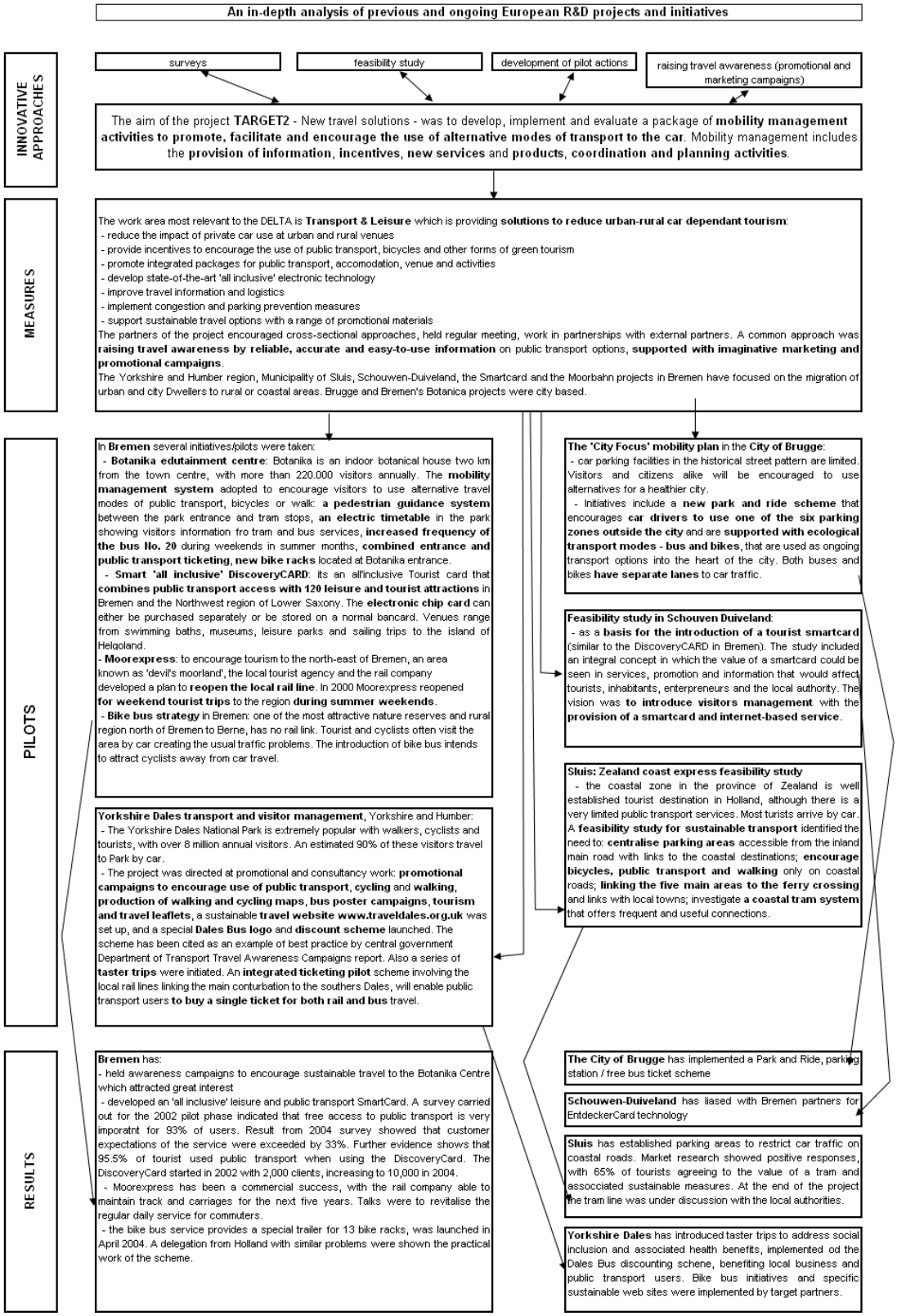

Figure 31: Matrix of Target2

4.17. TDM Encyclopedia

4.17.1. Introduction

The Transportation Demand Management (TDM) Encyclopedia is a comprehensive source of information about innovative management solutions to transportation problems. It provides detailed information on dozens of demand management strategies, plus general information on TDM planning and evaluation techniques. It has been produced by the Victoria Transport Policy Institute to increase understanding and implementation of TDM. TDM Encyclopedia is an online tool that can be found at: http://www.vtpi.org/tdm.

4.17.2. Innovative approaches

The TDM strategies presented in this Encyclopedia have been structured in four major categories according to how they affect travel:

1. **Improved Transport Options**, including Bus Rapid Transit, Park & Ride, Car sharing, Cycling, Light Rail Transit, Pedways, Ridesharing, Shuttle services, Taxi services and many others.
2. **Incentives to Use Alternative Modes and Reduce Driving**, including Carbon taxes, Congestion pricing, Fuel taxes, Multi-modal navigation tools, Road pricing, Vehicle use restrictions and many others.
3. **Parking and Land Use Management**, including Bicycle parking, Car-free parking, Connectivity, Land use density and Clustering, Parking pricing, Shared parking, Smart growth reforms and many more.
4. **Policy and Institutional Reforms**, including Asset management, Car-free planning, Contingency-Based Planning, Regulatory Reform, and others.

4.17.3. Measures

TDM Encyclopedia provides a complete archive of mobility management measures classified in the above four categories. Each measure is presented in terms of:

- Short description
- Implementation provisions
- Travel impacts
- Benefits and Costs
- Equity impacts
- Applications
- Relationships with other TDM strategies
- Barriers to implementation
- Best practices

- Case studies and Examples
- References and resources for more information

Through the above description, the reader can obtain a complete picture about a specific transportation demand management measure and strategy.

4.17.4. Pilots and results

TDM Encyclopedia is not an R&D project, but an online encyclopaedia. So there are no pilot applications and thus no associated results. However, the Encyclopedia presents several interesting case studies as examples of the use of strategies and measures of transportation demand management. Some indicative ones closely related to DELTA are provided below.

TDM Strategy: Cycling Improvements

Internet-Based Bicycle Route Guidance System (www.msrc-cleanair.org), Project Is Part of MSRC Effort to Take Cars off the Road

Diamond Bar, CA., - There are several reasons why more people don't ride their bikes to work – 1) they're fearful of busy intersections and riding on main boulevards, 2) it's inconvenient, takes too much time and there are no shower accommodations and 3) bicyclists often have a difficult time figuring out exactly how to get from point A to point B on their bike.

In an effort to eliminate some of these obstacles, the Mobile Source Air Pollution Reduction Review Committee (MSRC), a government group who funds transportation-related clean air projects, has earmarked $400,000 to fund an interactive, internet-based bicycle route and map system. The system will provide real-time bike route information based on point of origin and destination markers, as well as identify bike facilities and accommodations such as drinking fountains and restrooms along the way. Once a user inputs their origin and destination, the system will provide directions in a turn-by-turn format. If there is no designated bike path, the system will suggest a route based on considerations including traffic volume, posted speed limits and avoiding steep grades. Bike routes for the entire South Coast Basin covering Los Angeles, Orange, San Bernardino and Riverside County will be included.

Velib Paris Bicycle Rental (www.velib.paris.fr)

In 2007, the city of Paris launched a new self-service bicycle rental system called Velib. The system provides approximately 20,000 rental bikes available at approximately 1,400 stations located around the city. To access the bikes, riders can purchase a one-day card for 1 euro, a weekly card for 5 euros, or an annual card for 29 euros. For each trip, the first half-hour of use is free, the second half-hour costs 1 euro, at third half hour costs 2 euros, and each addition half-hour after that costs 4 euros. Example: a 25 minute trip = 0 euros, a 50 minute trip = 1 euro, an hour and 15-minute ride = 3 euros. This price

structure is designed to encourage frequent use of the bikes for short trips. Each Velib' parking station is equipped with muni-meters to purchase one and 7-day passes and to pay any additional charges once the bike is dropped off. The Velib' meters also provides information on other station locations. Paris also has over 371 km (230 miles) of cycling lanes.

TDM Strategy: Bike/Transit Integration

Los Angeles MTA

The Los Angeles Metropolitan Transportation Authority is installing front-mounted bike racks on its buses. Each rack holds two bicycles, and features an easy-to-use spring-action latch that allows the mounting and dismounting of a bicycle in about 30 seconds. Within four years the entire 2,200 MTA bus fleet should be bicycle compatible and newer buses will come equipped from the factory with the bike racks. The MTA is working with the LA County Bicycle Advisory Group, the LA Bicycle Advisory Committee and several other bike organizations to determine the most appropriate bus routes to select. Studies indicate that the most likely users of bus bikeracks are cyclists who are a mile or two away from a bike route. MTA expects the bicycle racks will attract a new market of riders.

Nottingham Tram and Bicycle Integration Study

The city of Nottingham, UK, has a new tram system. A research project at the University of Nottingham aims to identify ways of minimizing risks for cyclists and encourage the integration of bike and tram transport. The project will report on three main issues: safety implications; bike-and-ride; bike carriage on trams. The project is jointly-funded by the Department of Transport, in partnership with Nottingham City and Nottinghamshire County Councils. Research will focus on recent UK experience of trams, (including Sheffield, Croydon, West Midlands and Manchester), but will also look at European practice. The results of the research are intended to inform revised guidelines on integrating bikes and trams. The 12-month project will run until January 2002. A website has been established to help publicize the project. This can be found at: www.nottingham.ac.uk/sbe/research/current.htm.

TDM Strategy: Carsharing

San Francisco Bay Area Station Car Demonstration (www.stationcarinfo.com)

The San Francisco Bay Area Station Car Demonstration was a field test sponsored by Bay Area Rapid Transit (BART) and Pacific Gas & Electric from 1995 to 1998, using 40 prototype electric vehicles. The project had total funding of $1,486,000. It was implemented to determine the viability of EVs for making short, everyday trips in a variety of settings: between home and BART station; between BART station and work site; and pool cars used at worksites.

The station car was a two-seat battery-powered electric vehicle (EV) made by the Norwegian firm, Personal Independent Vehicle Company. Charging

ports were installed at selected BART stations. During the demonstration, the station cars were driven 154,802 vehicle miles of travel (vmt) and produced 179,470 passenger miles of travel (pmt). For the participants, internal combustion engine automobile use decreased 94%. Use of BART by participants increased by 125,222 (56%) during the demonstration, providing approximately $18,464 in increased fare revenue.

Based on this evaluation of the Demonstration, which shows the potential of the station car concept, the authors recommend that BART proceed with more complex and technically challenging demonstrations and field tests. These tests should include electronics for vehicle access by multiple users and electronics for tracking the vehicles and communicating with the drivers. Reservation and billing systems should be tested. Other participants from the mobility industry (i.e., car makers, rental car agencies, and electronics firms) should be invited to participate in and contribute to these tests. In addition, market research is needed to determine how and where station car use can be maximized. A study by Nelson/Nygaard (2003) found that station cars increase BART ridership and fare revenue, and that it provides overall benefits to consumers and society.

Car Modal – New Service For Organised Passenger Transport In Private Cars (www.tellus-cities.net)

This project will develop and demonstrate new vehicle use and ownership options, including carsharing, dynamic ridematching and collective taxi services using cell-phone and computer technology. This will enable travellers to match vehicles and travelers to specific destinations, with payment using direct cash transfer via cell-phone. This pilot project involves:

- Designing the overall system.
- Developing hardware and software for data and billing.
- Building a customer organisation.
- Marketing.
- Integration with public transport and traffic management centres.

4.17.5. Concluding remarks

TDM Encyclopedia is a very-well organized and structured archive of transportation demand management measures, policies and strategies. Furthermore, it provides comprehensive and useful information about each strategy enabling the gaining of sound insight about transport transportation demand problems and possible solutions.

This archive is very useful to DELTA, since many of the transportation demand management strategies presented in the Encyclopedia can be further examined in the seasonal demand management problem tackled by DELTA. The best practices of TDM Encyclopedia strategies are also quite helpful.

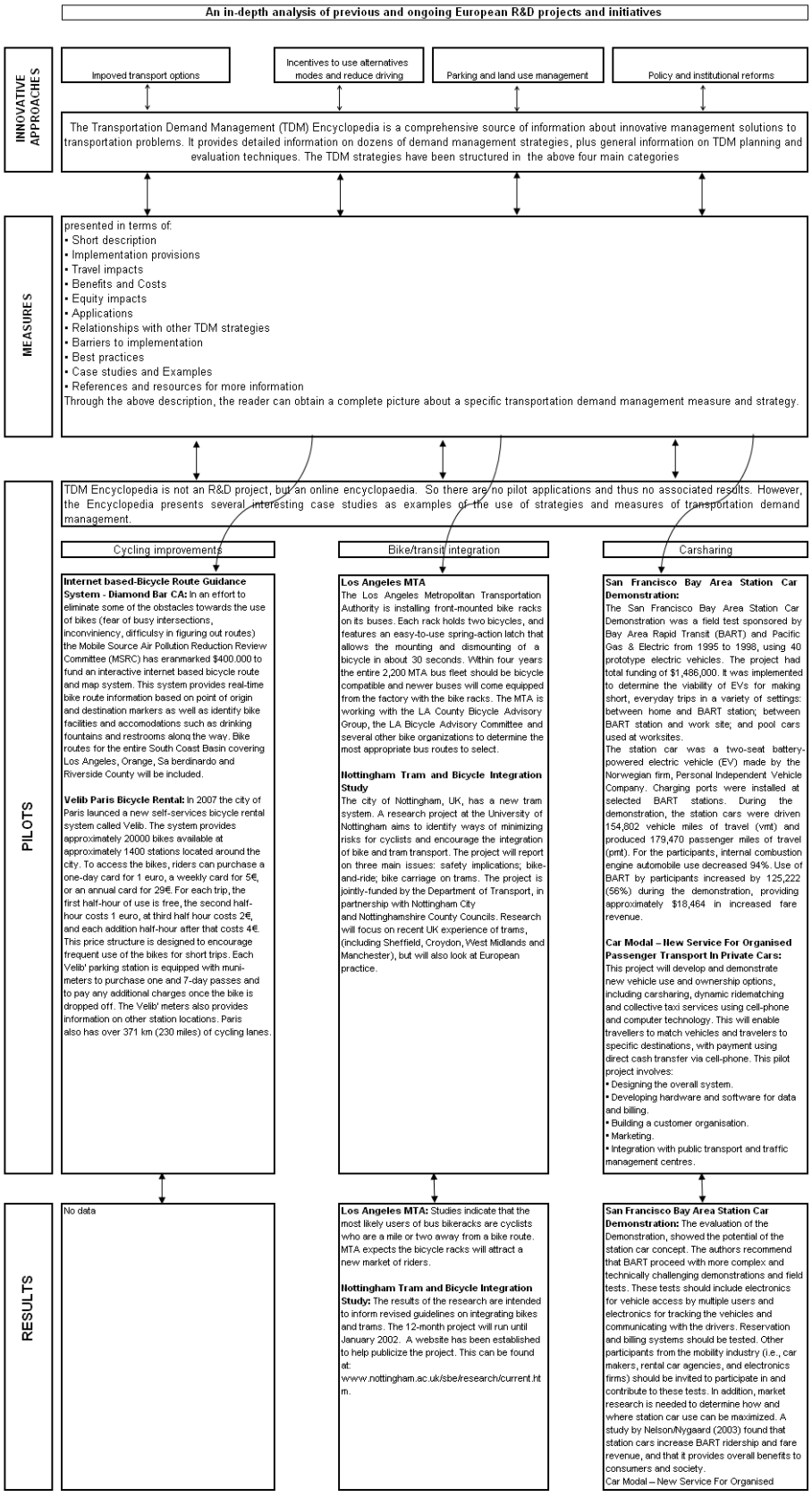

Figure 32: Matrix of TDM Encyclopedia

5. CONCLUSIONS

The Deliverable D2.1 "State-of-practice in seasonal demand management" provides the results of a wide inventory and the in-depth analysis of previous and ongoing European R&D projects and other international initiatives addressing the theme of transportation demand management.

In order to conclude to the above, a two-stage approach was adopted: first a long list of 79 projects and initiatives was reviewed for their relevance to DELTA. Then 16 of them with medium and high relevance to DELTA were further analyzed. Innovative approaches, mobility management measures, pilot applications and their results were examined.

The review verified that the issue of mobility management has been extensively addressed by many projects and initiatives and at different levels. The review identified libraries, system architectures, feasibility and pilot studies of innovative mobility measures, technologies, organization schemes, policies and strategies in an attempt to effectively address traffic peaks and encourage citizens and visitors to change their mobility habits and shift from private cars to more green transport modes. Many projects and many cities/ regions participating in these projects defined and applied mobility strategies varying from traditional and well known mobility schemes (e.g. park & ride, car sharing, car pooling, etc.) to more innovative strategies, such as all-inclusive tourist cards, incentives for the use of renewable fuels for fleets and less car-dependent lifestyles, mass communication campaigns, bike-renting systems, and many others. Emphasis has also been placed on multi-modal interfaces through the application of measures for combining local public transit with other modes (e.g. bicycles) or park & ride systems.

A very important finding of the projects' and initiatives' review is that no projects directly addressing the problem of handling seasonal traffic peaks were identified. Only few projects have examined seasonality from a peripheral perspective and only marginally. This finding clearly demonstrates both the gap in the existing knowledge on the issue of handling seasonal variations of transport demand and the innovative character of DELTA, which addresses a scientific field in which minor attention has been paid so far. Local authorities need this knowledge and the associated tools that will help them to better handle their strong variation of transport demand. This gap exists not only in practice but also in research. DELTA aims to close this gap through a series of technical and promotion actions.

However, there has been a considerable number of different projects and initiatives with quite interesting mobility management methods and approaches, which aim to solve traffic problems in big cities (urban environments), around tourist attractions/resorts and special events. DELTA could learn from these projects and initiatives. All these innovative, intelligent and emerging mobility management methods/schemes, which are placing particular emphasis on issues related to multimodality and connection between cities and tourist areas could be taken into consideration when dealing with seasonal demand management.

Another interesting finding of this review is the isolated initiatives and actions taken locally in some touristic regions. The review conducted in the DELTA participating countries demonstrated that the local governments of only few regions experiencing seasonal traffic peak problems have applied measures and actions to effectively handle these peaks. Furthermore, these attempts are totally isolated without any scientific justification, without the support of a national mobility plan and without long term perspectives. The existence of a mobility management guidebook adapted to the needs of these regions and moreover the creation of a network of regions for sharing experiences and knowledge could be of major assistance.

In conclusion, all project pilots, all participating regions and all success and failure stories examined in the in-depth analysis could influence DELTA in its future developments, especially regarding Task 3.3 (Success and failure stories analysis), where a further comprehensive analysis of selected success and failure stories will be performed in the direction to identify the critical parameters and measures taken by the respective cases to successfully or unsuccessfully handle the seasonal traffic peaks or other mobility management problems. This process will also lead to benchmarks for future initiatives in regions with seasonal transport demand problems (Task 3.4). Of course, the results of this state-of-practice will be extensively used in the development of the DELTA Decision Support Instrument (DSI), since many of the interesting mobility strategies identified here could be integrated in the DSI and proposed through the DSI to the regions suffering from seasonal traffic peaks.

REFERENCES

Projects' reports and material

1. MIDAS: Measures to Influence Transport Demand to Achieve Sustainability (2007). Deliverable 2: Report on Land-use Strategic Plans and Soft Measures Potential, UK.
2. MOST Project – Mobility Management Strategies for the next decades, Competitive and Sustainable Growth' Programme (2005). "Implementation and Evaluation Results", Deliverable 5 -Part B, Austria.
3. Alps Mobility: Transnational Pilot Projects for Environmentally Sound Travel Logistics Linked with Electronic Booking and Information Systems in Alpine Tourist Regions (August 2001). Project report, Vienna, Austria.
4. MAX: Successful Travel Awareness Campaigns and Mobility Management Strategies (2007). Comprehensive State of the Art Report, Austria.
5. Mobilalp: Project Alpine Mobility Management (2006). Newsletter N° 0, Italy.
6. Mobilalp: Project Alpine Mobility Management (2006). Newsletter N° 1, Italy.
7. Mobilalp: Project Alpine Mobility Management (2007). Newsletter N° 2, Italy.
8. Mobilalp: Project Alpine Mobility Management (2007). Newsletter N° 3, Italy.
9. MOBINET Project-Mobility Centre Network, Intelligent Energy Europe Programme (2008). "Plan Operacional para la Oficina de Movilidad Aranda de Duero", Spain. Retrieved by: http://mobi-net.eu/images/stories/Plan%20operacional%202-MOBINET_Aranda%20de%20Duero.pdf.
10. MOBINET Project-Mobility Centre Network, Intelligent Energy Europe Programme (2008). "Plan Operacional para la Oficina de Movilidad de Asturias", Spain. Retrieved by: http://mobi-net.eu/images/stories/Plan_operacional_MOBINET_ASTURIAS.pdf.
11. MOBINET Project-Mobility Centre Network, Intelligent Energy Europe Programme (2008). "Operational Plan: Kalamaria Mobility Centre", Greece. Retrieved by: http://mobi-net.eu/images/stories/OPERATIONAL%20PLAN%20rev.pdf.
12. MOBINET Project-Mobility Centre Network, Intelligent Energy Europe Programme (2008). "Plan Operacional para la Oficina de Movilidad de Miranda de Ebro", Spain. Retrieved by: http://mobi-net.eu/images/stories/Plan%20operacional%202-MOBINET_Miranda%20de%20Ebro.pdf.

13. PIMMS Project - Partner Initiatives for the development of Mobility Management Services, North East South West Interreg IIC Programme (2008). "Mobility Management: Transferring Good Practice between Regions of the EU", Final Report, UK. Retrieved by: http://www.pimms-eu.org/downloads/reports/PIMMS_Final_Report.pdf.

14. PIMMS Project - Partner Initiatives for the development of Mobility Management Services, North East South West Interreg IIC Programme (2006). "Mobility Management Performance in partners regions and in the EU", UK. Retrieved by: http://www.pimms-eu.org/downloads/reports/PIMMSBestPracticereportv1.2.pdf.

15. PIMMS Project - Partner Initiatives for the development of Mobility Management Services, North East South West Interreg IIC Programme (2005). "Newsletter 2, Visit Cycle A", UK. Retrieved by: http://www.pimms-eu.org/downloads/newsletters/PIMMS_newsletter_2.pdf.

16. PIMMS Project - Partner Initiatives for the development of Mobility Management Services, North East South West Interreg IIC Programme (2006). "Newsletter 3, Visit Cycle B", UK. Retrieved by: http://www.pimms-eu.org/downloads/newsletters/PIMMS_newsletter_3.pdf.

17. PIMMS Project - Partner Initiatives for the development of Mobility Management Services, North East South West Interreg IIC Programme (2007). "Cycle A Visits, Terrassa, Graz and Stockholm", Power Point Presentation, UK. Retrieved by: http://www.pimms-eu.org/downloads/visits.html.

18. PIMMS Project - Partner Initiatives for the development of Mobility Management Services, North East South West Interreg IIC Programme (2007). "Cycle B Visits, Serres to Terrassa", Power Point Presentation, UK. Retrieved by: http://www.pimms-eu.org/downloads/visitsb.html.

19. PIMMS Project - Partner Initiatives for the development of Mobility Management Services, North East South West Interreg IIC Programme (2007). "Cycle B Visits, Terrassa to Frankfurt", Power Point Presentation, UK. Retrieved by: http://www.pimms-eu.org/downloads/visitsb.html.

20. PIMMS Project - Partner Initiatives for the development of Mobility Management Services, North East South West Interreg IIC Programme (2007). "Cycle B Visits, London to Barcelona", Power Point Presentation, UK. Retrieved by: http://www.pimms-eu.org/downloads/visitsb.html.

21. OPTIMUM2 Project, Interreg IIB North West Europe Programme (2007). "Optimum2 COOK BOOK", Retrieved by: http://www.optimum2.org/cookbook/index.html.

22. Target 2: Travel Awareness Regional Groups for Environmental Transport (2005). Final report, UK.

23. Reduction of traffic in Julian Alps (2009). Final report (Cipra Slovenia and Mlekuž consulting).

24. Traffic reduction in Alpine valleys (2006). Final report (Cipra Slovenia and Kranjska Gora Municipality).

25. Premier's Department NSW (2006). Guide to Traffic and Transport Management for Special Events, Version 3.4, Australia.

Websites

- http://www.alpsmobility.net, accessed 5/2/2009.
- http://www.biosire.eu/, accessed 17/2/2009.
- http://www.citymobil-project.eu, accessed 9/2/2009.
- http://www.civitas-caravel.org/, accessed 10/2/2009.
- http://www.civitas-initiative.org/project_sheet?lan=en&id=8, accessed 10/2/2009.
- http://www.civitas-initiative.org/project_sheet?lan=en&id=2, accessed 10/2/2009.
- http://www.civitas-success.org/, accessed 10/2/2009.
- http://www.trendsetter-europe.org/, accessed 13/2/2009.
- http://www.civitas-initiative.org/project_sheet?lan=en&id=6, accessed 13/2/2009.
- http://www.civitas-initiative.org/project_sheet?lan=en&id=7, accessed 14/2/2009.
- http://www.concept3c.org, accessed 9/2/2009.
- http://projectapps.vtt.fi/Connect/portal/alias__Rainbow/lang__en/tabID__3401/DesktopDefault.aspx, accessed 13/2/2009.
- http://www.transport-pricing.net, accessed 11/2/2009.
- http://www.e-atomium.org, accessed 17/2/2009.
- http://uitp.org/knowledge/projects-details.cfm?id=442, accessed 18/2/2009.
- http://www.eltis.org, accessed 18/2/2009.
- http://www.epomm.org, accessed 19/2/2009.
- http://www.frame-online.net, accessed 20/2/2009.
- http://www.linkforum.eu, accessed 20/2/2009.
- http://web.mit.edu/ctpid/cmp/cmact.html, accessed 24/2/2009.
- http://www.macimed.org/ENG, accessed 23/2/2009.
- http://www.mascaraproject.com/index.php, accessed 23/2/2009.
- http://www.max-success.eu, accessed 10/2/2009.
- http://mediate.euregio.net/, accessed 9/2/2009.
- http://www.midas-eu.com, accessed 11/2/2009.

- http://www.mobilalp.eu/en, accessed 17/2/2009.
- http://mobi-net.eu, accessed 17/2/2009.
- http://mo.st/, accessed 19/2/2009.
- http://www.move-project.org, accessed 11/2/2009.
- http://www.iclei-europe.org, accessed 11/2/2009.
- http://niches-transport.euregio.net/, accessed 23/2/2009.
- http://www.niches-transport.org/index.php?id=203, accessed 23/2/2009.
- http://www.osmose-os.org, accessed 14/2/2009.
- http://www.optimum2.org, accessed 13/2/2009.
- http://www.pilot-transport.org, accessed 24/2/2009.
- http://www.pimms-eu.org, accessed 25/2/2009.
- http://www.eukn.org/urbanmatrix/themes/Urban_Policy/Urban_environment/Land_use/PLUME---PLanning-and-Urban-Mobility-in-Europe_1230.html, accessed 25/2/2009.
- http://www.progress-project.org, accessed 24/2/2009.
- http://cordis.europa.eu/data/PROJ_FP5/ACTIONeqDndSESSIONeq112362005919ndDOCeq1454ndTBLeqEN_PROJ.htm, accessed 25/2/2009.
- http://cordis.europa.eu/transport/src/quitrep.htm, accessed 6/2/2009.
- http://cordis.europa.eu/telematics/tap_transport/research/projects/samplus.html, accessed 6/2/2009.
- http://cordis.europa.eu/telematics/tap_transport/research/projects/sampo.html, accessed 6/2/2009.
- http://www.smash-events.net, accessed 6/2/2009.
- http://www.smile-europe.org, accessed 14/2/2009.
- http://www.steps-eu.com, accessed 23/2/2009.
- http://www.iee-stream.com, accessed 25/2/2009.
- http://www.eu-target.net, accessed 25/2/2009.
- http://www.vtpi.org/tdm, accessed 26/2/2009.
- http://www.transplus.net, accessed 23/2/2009.
- http://www.treatise.eu.com, accessed 11/2/2009.
- http://www.villemizero.eu/hp.asp, accessed 17/2/2009.
- http://www.innovativemobility.org, accessed 17/2/2009.
- http://www.rta.nsw.gov.au/usingroads, accessed 25/2/2009.
- http://ops.fhwa.dot.gov, accessed 14/2/2009.
- http://www.alert2000.de/, accessed 27/2/2009.
- http://www.ischionbus.it, accessed 3/3/2009.

- http://www.mobilito.at, accessed 3/3/2009.
- http://www.unisa.it/situs-tp, accessed 3/3/2009.
- http://www.spitsmijden.nl, accessed 5/3/2009.
- http://www.strimtp.it, accessed 7/3/2009.
- http://www.conduits.eu, accessed 9/2/2010.
- http://www.eurforum.net, accessed 9/2/2010.
- http:// www.itourproject.com/web/, accessed 12/2/2010.
- http:// www.i-travelproject.com, accessed 16/2/2010.
- http:// www.stadium-project.eu/site/, accessed 19/2/2010.
- http:// www.transpower-rp6.org, accessed 24/2/2010.
- http:// www.viajeo.eu, accessed 26/2/2010.
- http:// www.wisetrip-eu.org, accessed 26/2/2010.