



Successful Travel Awareness Campaigns
& Mobility Management Strategies



Project no.: **518368**

Project acronym: **MAX**

Project title: **Successful Travel Awareness Campaigns and Mobility Management Strategies**

Integrated Project

6.2 Sustainable Development

1.6.2 Sustainable Surface Transport Objective

3.1.1.1.3 Advancing Knowledge on innovative measures in urban transport

Title of Report:

Integrated report on the results of the investigations (Deliverable D 4.1)

Period covered: 1.10.2006 – 31.10.2009
Start date of project: **1 Oct. 2006**

Date of preparation: **November 2009**
Duration: **37 months**

Version: **1.1**

Prepared by: **Karl-Heinz Posch**

Checked by:

Verified by:

Status: **Draft, revised after review**

Dissemination level: **PU (public)**

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2008)

Table of Contents

Executive summary 5

General Facts on MAX..... 5

The contents of this report..... 6

1 Introduction..... 7

 1.1 *MAX: the project and its objectives* 7

 1.2 *What is mobility management and why is it important?* 7

 1.3 *Why should you be interested in MAX?*..... 8

 1.4 *What has MAX produced and how does it link together?* 8

 1.5 *Project organisation*..... 9

 1.6 *MAX research* 10

 1.7 *Summary of MAX reports*..... 11

2 MAX and mobility management tools..... 12

 2.1 *Why MAX has produced tools* 12

 2.2 *The integration of the mobility management tools in MAX*..... 12

 2.3 *Maintenance of the MAX web portal of mobility management tools*..... 13

 2.4 *MAX – translations and MAX-names*..... 14

3 MaxExplorer – a decision support guide for MM measures..... 16

 3.1 *Main findings and results*..... 16

 3.2 *Description of MaxExplorer*..... 17

 3.3 *How to use MaxExplorer*..... 17

 3.4 *Benefits of MaxExplorer*..... 19

4 MaxQ - Quality Management tool for Mobility Management 20

 4.1 *Main findings and results*..... 20

 4.2 *Description of MaxQ*..... 20

 4.3 *How to use MaxQ*..... 21

 4.4 *Benefits of MaxQ*..... 22

5 MaxTag - Travel Awareness Campaign guide 23

 5.1 *Main findings and results*..... 23

5.2	<i>Description of MaxTag</i>	23
5.3	<i>How to use MaxTag</i>	24
5.4	<i>Demonstrations</i>	25
5.5	<i>Benefits of MaxTag</i>	26
6	MaxLupo - Guidelines for integration of MM and planning	27
6.1	<i>Main findings and results</i>	27
6.2	<i>Description of MaxLupo</i>	28
6.2.1	MaxLupo Guidelines	28
6.2.2	Training material and summaries that accompany MaxLupo	29
6.3	<i>How to use the materials</i>	30
6.4	<i>Benefits of MaxLupo</i>	30
7	MaxSumo - guidance on how to plan, monitor and evaluate mobility projects	32
7.1	<i>Main findings and results</i>	32
7.2	<i>Description of MaxSumo</i>	32
7.3	<i>How to use MaxSumo</i>	33
7.4	<i>Benefits of MaxSumo</i>	35
8	MaxEva - online evaluation database	36
8.1	<i>Main findings and results</i>	36
8.2	<i>Description of MaxEva</i>	36
8.3	<i>How to use MaxEva</i>	36
8.4	<i>Benefits of MaxEva</i>	37
9	MaxSem – behaviour change model	38
9.1	<i>Main findings and results</i>	38
9.2	<i>Description of MaxSem</i>	38
9.3	<i>How to use MaxSem</i>	39
9.4	<i>Benefits of MaxSem</i>	40
10	Description of MaxImise and the possible future development of MaxEva and a prospective assessment tool (PAT)	41
10.1	<i>Development of the demonstration assessment tool - MaxImise</i>	41
10.2	<i>Specification of a future fully functional European Prospective Assessment Tool</i>	44
10.3	<i>Conclusions and Recommendations</i>	46
	Annex: List of the other main documents of MAX and where to find them	46

Executive summary

General Facts on MAX

MAX ran from 2006 to 2009 and was the largest research project on Mobility Management (MM) within the EU's sixth framework programme. The MAX consortium, of 28 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. Much of the work was directly endorsed by the European Platform on Mobility Management (EPOMM) and continues to be supported by EPOMM – in order to provide truly Europe-wide expansion, standardisation and dissemination of Mobility Management.

The work has resulted in several products and services that can be downloaded via www.epomm.org.

For more information, please visit www.epomm.org or www.max-success.eu

Max Partners

Austrian Mobility Research, FGM-AMOR (project leader) – Austria

Mobiel 21 – Belgium

ILS Institut für Landes- und Stadtentwicklungsforschung gGmbH – Germany

Eric N. Schreffler, Transportation Consultant – USA

Equipo de Tecnicos en Transporte y Territorio, ETT – Spain

FIT Consulting – Italy

Lyle Bailie International Limited – United Kingdom

synergo – Switzerland

Timo Finke Consult Aachen – Germany

Traject – Belgium

Austrian Standards Institute – Austria

Trivector – Sweden

Universities

University of Piraeus Research Centre – Greece

University of Maribor, Faculty of Civil Engineering – Slovenia

Cracow University of Technology – Poland

Aristotle University of Thessaloniki – Greece

University of Lyon – CNRS-LET – France

Edinburgh Napier University – United Kingdom

University of Central Lancashire – United Kingdom

Otto-von-Guericke-University of Magdeburg – Germany

University of Giessen, Institute for applied and empirical social research – Germany

Vilnius Gedimas Technical University – Lithuania

Demonstrators

Almada Municipal Energy Agency, AGENEAL – Portugal

Almada Municipality – Portugal

Lazio Transport Company COTRAL – Italy

Kortrijk Municipality – Belgium

Tallinn Municipality – Estonia

Munich Municipality & MVG – Germany

London Borough of Hammersmith and Fulham & TfL – UK

Lund Municipality - Sweden

City of Sint-Truiden - Belgium

The contents of this report

This report is largely contained in the final report of the MAX-project – for a full picture including dissemination plan and recommendations we recommend to read the MAX final report, downloadable from the EPOMM-website: <http://www.epomm.org/index.phtml?ID1=2181&id=2181>.

The project has produced seven direct usable tools to enhance the work with MM. These tools are all presented on the MM-tools part of the EPOMM-web site. Besides these tools directed to the MM practitioner, scientific research has broadened and deepened the understanding of how MM could play a vital role in creating a sustainable transport system. These research reports are all available on the MAX-website.

This integrated report on the results of the investigations is the final product of WP4 of the MAX project. The report deals mainly with the tools of the MAX project and accompanying guidelines and training materials, and the expected outcome of these.

To get a quick overview, first read the introduction chapter. In the second chapter you will find further details regarding the integration of the tools including details of the languages into which the tools are translated as well as how new definitions for specialist terms were created in a number of languages.

The seven main MAX tools are then described in the following chapters, including the main findings, a section on how to use the tool and a description of the expected benefits of each tool.

A one page annex provides an overview where the MAX-tools, reports and other materials can be found.

1 Introduction

1.1 MAX: the project and its objectives

MAX (www.max-success.eu) ran from 2006 to 2009 and was a large and important multinational research project on Mobility Management (MM) and Travel Awareness (TA) in transport, funded by the EU 6th Framework Programme. MM and TA are both innovative ways to manage the demand for transport to help reduce congestion and local and global pollution. The key objectives of the project were as follows:

- To find out what works in behaviour change campaigns – and then how these lessons can be applied to transport.
- To develop a new theoretical model of travel behaviour change, and then integrate this with various tools to select, plan, predict the effects of and evaluate MM measures.
- To adapt quality management principles to MM, and then prepare a certification procedure for MM, to increase its status and credibility.
- To provide advice on and examples of better integration of mobility management with land use planning – as the planning process is a key “leverage” point to secure mobility management for new buildings, housing areas and other types of development.

MAX was different from previous framework research projects in this topic area in several ways:

- It looked at both travel awareness and mobility management together; they had been studied separately in previous projects.
- It focused less on demonstration projects and more on developing outputs that can be applied widely across the EU.
- It tried to pay particular attention to the context and needs of new member states (NMS) of the EU.

1.2 What is mobility management and why is it important?

MM is a concept to promote sustainable transport and manage the demand for car use by changing travellers’ attitudes and behaviour. At the core of MM are “soft” measures like information and communication, organising services and coordinating activities of different partners. “Soft” measures can enhance the effectiveness of “hard” measures within urban transport (e.g., new tram lines, new roads and new bike lanes). MM measures (in comparison to “hard” measures) do not necessarily require large financial investments and may have a high benefit-cost ratio.

For example, a programme of mobility management measures in Darlington, England, cost a total of €923,000 for the financial year 2006/07. Evaluation (using pre-post-sample-control-group techniques) found a reduction of 12.8 million car km across the target area in one year due to reductions in journey distances and shifts to walking and cycling (although not public transport). Assuming a vehicle operating cost to the individual of around €0.50 per km (petrol, insurance etc – based on UK Automobile Association figures) and an average external cost (pollution, accidents etc) of €0.12 per km, the total benefit was about €7,936,000, giving a rate of return of around 860% (or BCR of 8.6:1) in year one alone – and this figure excludes health benefits from the switch to active travel. In comparison, road and rail schemes will rarely yield such a BCR over a period of 30-60 years; 4:1 would be considered high (Darlington case study from DfT (2007); external costs from www.webtag.org.uk)

To give an impression of what MM means in practice: in a city where MM is implemented:

- you would notice campaigns and promotions for walking, cycling and public transport;
- you could be offered personalised travel assistance to help you see where and how you might be able to reduce your car use;

- your employer might pay your public transport tickets to encourage you not to drive to work;
- at home, you might have a car-sharing service available on the street outside your house,
- at your children's school, there could be a mobility plan organising safe walking for the children's trip to school,
- for leisure trips by public transport you would have the option of using the consulting services of the local mobility centre;
- building permits might be connected to certain requirements to minimise the mobility impact of the new development, for example the development of a mobility plan for employees, visitors, and goods transport around the building site or limiting the number of parking spaces provided.

These are the types of measure MAX intended to make easier to implement, and more common. Typically, MM measures are rarely isolated, instead they come as a bundle of measures, such as information campaigns combined with infrastructure, pricing policy or regulations.

1.3 Why should you be interested in MAX?

There are very good reasons to be interested in the results of MAX, whether as an expert concerned with results, or a practitioner concerned with managing transport in towns and cities in Europe. MAX is the product of experts in the field, but also of practitioners with many years' experience of implementing MM programmes and measures; this includes not only the project partners themselves, but also the experience of experts who have attended workshops and meetings to provide input to and feedback on the research and outputs as they developed. In addition, a significant number of MAX partners were involved in earlier framework research on MM, so the learning from these previous projects has been carried over into the new one. MAX has addressed research gaps that have not been addressed before, such as how to model the behaviour change dynamic; and, as the next section shows, MAX has also produced a large number of integrated tools making it easier for practitioners to implement high quality MM measures.

MAX and the MAX-tools are supported by EPOMM, the European Platform on Mobility Management.

1.4 What has MAX produced and how does it link together?

A key benefit of MAX is the tools that it has produced. These will be described in more detail in subsequent chapters but are briefly introduced here.

- **MaxExplorer is a web-based decision support guide.** It defines, describes and helps those preparing MM to choose the right measures to include in MM projects. (addressed in MAX-work package (WP B))
- **MaxQ provides a Quality Management Scheme for Mobility Management.** It describes the elements of the scheme, together with a user manual and code of practice, thus giving MM practitioners a common quality framework to follow in developing and implementing MM policies. (WP C)
- **MaxTag – Travel Awareness campaign guide,** which helps to design and implement better travel awareness campaigns informed by the results of earlier experience and research. It is available as a simple web tool and as a paper guidebook. (WP A.)
- **MaxLupo provides guidelines for integrating land use planning with sustainable transport planning and for integrating MM with the planning and building permit processes of a new development.** These guidelines are user-friendly tools that encourage planners to build MM into the land use planning process so that users of new buildings will find MM measures available there, from the day the development opens. (WP D)

- **MaxSumo is a detailed evaluation format.** It aims to standardise the evaluation of MM measures and programmes at the European level and should help in planning, monitoring and evaluating Mobility Management projects. (WP B)
- **MaxEva** is an interactive online database, into which users enter data on MM projects in the MaxSumo format – it thus complements MaxSumo. The more that MaxEva is used, the more results will be available in the benchmarking section, which allows practitioners to compare their results with others and use it in planning new MM projects. (WP B)
- **MaxSem – the Max Self-Regulation Model** is the new – integrated model of mobility related behaviour change, going beyond previous models used in MM by explaining how and why people move from one stage of behaviour change to another. (WP B)

There are many links between these different products: for example, MaxSumo and MaxEva could be applied to help achieve the requirements of the MaxQ, or to help monitor MM measures implemented as part of the land use planning process. Chapter Two of this report elaborates on these links in more detail.

1.5 Project organisation

MAX worked in four content-related work packages, as follows:

- WP A New approaches and innovative campaigns in MM
- WP B Development of a new behaviour change model and a prospective assessment tool
- WP C Linking MM to Quality management - with the potential for MM certification
- WP D Integrating planning and MM

These four content related works packages were supplemented by the work packages 1 – 5, which have integrated the research efforts – for example, WP2 produced a comprehensive research plan (CRP) that set out the research objectives for the rest of the project. MAX started in October 2006, the State of the Art analyses were completed in April 2007 and the main research was carried out over the subsequent two years.

1.6 MAX research

MAX went through three research phases:



Figure 1: MAX project phases

In the preparation phase, the state of the art in each field was researched, and over 300 case studies and projects were analysed. The state of the art served as a basis for identifying the research gaps and for developing a research plan. An important result of the State of the Art survey was identifying the need for writing a common definition of Mobility Management and Mobility Management measures. Therefore the MAX project developed a common definition which was used throughout the project and has been adopted by the European Platform on Mobility Management (EPOMM).

In the **main phase** of MAX, in-depth investigations were carried out according to the research plan. All work packages organised task forces (subgroups) that researched specific topics in detail. For example in the work package covering campaigns there was one task force called ‘campaigning the campaign’ – investigating how to best “sell” a campaign to a decision maker. The management coordinated the work of the work packages to ensure that work products were integrated with other parts of MAX and that deadlines were met. The research formed the basis for developing the tools. These were tested in demonstrations. The results of this research are presented in a series of task force reports, demonstration reports and annexes to these reports (downloadable in the download centre (<http://www.epomm.org/index.phtml?ID1=2365&id=2365>) of EPOMM). These are useful for learning how the MAX tools and guidelines were developed.

In the **finalisation phase**, all the results were brought together and integrated into one final report for each content-related workpackage as well as in two overall final reports – one for general publication (the one you’re reading) and one for the Commission with all administrative details included.

1.7 Summary of MAX reports

As outlined in the previous section, MAX produced:

a series of reports:

- Comprehensive State of the Art Report – with the four annexes for each of the work packages A, B, C and D.
- Comprehensive Research Plan – it detailed the research plan for each of the four work packages, A, B, C and D and identifies the synergies between them. It also contains a common definition of Mobility Management that has now been translated into 14 languages.
- The final reports for the WPs A-D
- The final report you're reading

All reports are available in the download centre of EPOMM
(<http://www.epomm.org/index.phtml?ID1=2365&id=2365>)

2 MAX and mobility management tools

2.1 Why MAX has produced tools

In many European countries Mobility Management is becoming an accepted approach for addressing different kinds of transport related questions such as congestion, modal shift and emissions. This means that the demand for structured ways of identifying, implementing and evaluating different kinds of mobility management measures is becoming more significant.

Furthermore, the use of common methods and routines will make comparisons between countries easier, and will also make introduction of mobility management easier in countries where the potential of mobility management is not widely known.

From the beginning of the MAX project, the demand for easy-to-use guidelines, checklists, web-based assistance etc. was recognised. During the course of the project, the different work packages have increasingly focused on producing easy-to-use tools. The result is that MAX has created 7 integrated tools for practitioners designed to make it easier to implement high quality MM measures.

2.2 The integration of the mobility management tools in MAX

As this report indicates, the MAX project covers a variety of mobility management issues, including:

- Innovative approaches in campaigning
- Behaviour change models
- Assessment tools
- Quality management for mobility management
- Integrating mobility management and planning

This means that MAX investigated many aspects of Mobility Management and developed tools for all parts of the Mobility Management process. A key challenge was organising these tools into a structure that makes them easy to use and effective. This is especially important because many of the MAX tools can be used in several different phases of the MM planning process. Therefore MAX decided to use the 4-stage structure of:

- Policy
- Planning and strategy
- Implementation
- Monitoring and evaluation

The MAX tools are presented using this structure, since it easily shows the practitioner where the specific MAX tools can be used in the process of implementing Mobility Management.

As shown on the screen-shot below, the MAX tools are presented on the Web portal of MM-tools on the EPOMM-website, using the 4 stage planning process as the organising structure.

The web portal contains all the different tools, presented in an easy to use way, see example below. There are four main choices: Policy, Planning & strategy, Implementation and Monitoring & evaluation. Clicking on the different choices will guide you to relevant tools.

The screenshot shows the EPOMM website's MM-Tools portal. At the top, there is a navigation bar with links for 'What is Mobility Management', 'Countries', 'ECOMM', 'MAX MM-Tools', and 'Case Studies'. Below this is a sidebar menu with a search bar and various tool categories. The main content area features a circular diagram with four stages: 'Policy', 'Planning & strategy', 'Implementation', and 'Monitoring & evaluation'. A yellow callout box points to the 'Monitoring & evaluation' stage, containing the text: 'Design and improve your Monitoring and Evaluation with MaxSumo' and 'Register results with MaxEva'. Below the diagram, there is a heading 'Tools to extend, improve and standardise your Mobility Management' and a welcome message: 'Welcome to the Mobility Management tools part of the EPOMM website. Most parts of'.

Figure 2: Screenshot of the portal of the MM-tools part on the EPOMM-website in this screenshot, “Monitoring and Evaluation” is highlighted – leading to the tools MaxEva and MaxSumo. Clicking on one of the other three stages would bring up descriptions and links to tools appropriate for that stage.

2.3 Maintenance of the MAX web portal of mobility management tools

EU projects such as MAX normally produce a website as one important end product, but a common problem is that no one supports the website after the project ends. In MAX we are producing tools that we hope will be used by many people, for a long time. To meet this goal there needs to be a body to maintain the tools and website. This has now been solved in that EPOMM, within the new EPOMM-PLUS project, will do this work. The MAX tools and additional material are included in the EPOMM website and maintained by EPOMM.

2.4 MAX – translations and MAX-names

The MAX consortium strongly supported translating MAX products and information into as many languages as possible. As MAX had a limited budget for translation, the MAX management team decided to expand available budget for translation as far as possible. The translations required extensive editing by the whole MAX-team and partly, for languages not covered by MAX, of partners of the EPOMM-PLUS team – as many specialist terms had to be defined in some languages for the first time.

The following translated MAX products are available on the EPOMM-website (all in the download part but also at appropriate other parts of the website).

	Czech	Dutch	Estonian	French	German	Greek	Hungarian	Italian	Lithuanian	Polish	Portuguese	Slovene	Spanish	Swedish
Definition of MM	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Max Final Brochure	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MaxLupo		x		x	x					x	x		x	x
MaxQ		x		x	x					x	x		x	x
MaxSumo		x		x	x					x	x		x	x
MaxTag		x		x	x					x	x		x	x
Fact Sheet MaxEva	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fact Sheet MaxExplorer	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fact Sheet MaxLupo	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fact Sheet MaxQ	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fact Sheet MaxSem	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fact Sheet MaxSumo	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fact Sheet MaxTag	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Table 1: Overview of translated documents

The translated documents form a very important basis for further dissemination of Mobility Management and the MAX products. Specific benefits include:

- In some countries, the MAX products represent the first time that Mobility Management has been defined in that language.
- Users will not be limited to the few persons that have a good command of English – the MAX tools will also be usable in national workshops and national trainings.
- The national networks for Mobility Management planned in EPOMM-PLUS will have working materials in their own language right from the start.
- The networking with other EU-projects planned in EPOMM-PLUS will be greatly eased as translated documents are already available.
- The branding approach used in the naming convention for MAX-developed tools (MaxTag, MaxLupo etc.) will greatly assist connections across themes and language barriers.

- Translations that could not be implemented (such as MaxEva, MaxExplorer) due to lack of resources within MAX, will in the future be easier since the terminology has been defined.

The consortium believes that this translation effort will remain one of the major achievements of MAX.

In the final part of the project, the team decided that all seven main tools should have an easily recognisable name, giving them a sort of MAX-family brand. This resulted in the names: MaxEva, MaxExplorer, MaxLupo, MaxQ, MaxSem, MaxSumo and MaxTag. The next seven chapters describe each of these tools in detail.

3 MaxExplorer – a decision support guide for MM measures

MaxExplorer aims to give decision makers and MM practitioners guidance on selecting suitable MM measures while taking into account specific target group characteristics and project location. MaxExplorer is primarily designed to suit less experienced users, i.e. those who have decided to introduce a MM programme but are not sure about the best measures to implement.

3.1 Main findings and results

MaxExplorer helps users to

- select and find out more about suitable measures for their organisation and situation,
- further develop projects and schemes at the local level with reference to the characteristics of the target group,
- benefit from the experience of MAX experts in choosing appropriate measures.

The idea to develop a decision support guide of MM such as MaxExplorer resulted from the finding that MM measures appear to be more effective when they are tailored to the particular needs of target groups. As there are many different MM measures, MaxExplorer supports practitioners assessing in advance which measure may be most useful to induce the desired travel behaviour. Decision support tools have only been developed for companies or single sites, there has not been a comprehensive tool that addresses various types of MM measures, user groups and locations, based on a uniform methodology. Another important reason for developing a decision support tool is the need for user-friendliness, clarity, and comprehensibility in the whole decision making process of MM, to which the MaxExplorer tool is expected to contribute.

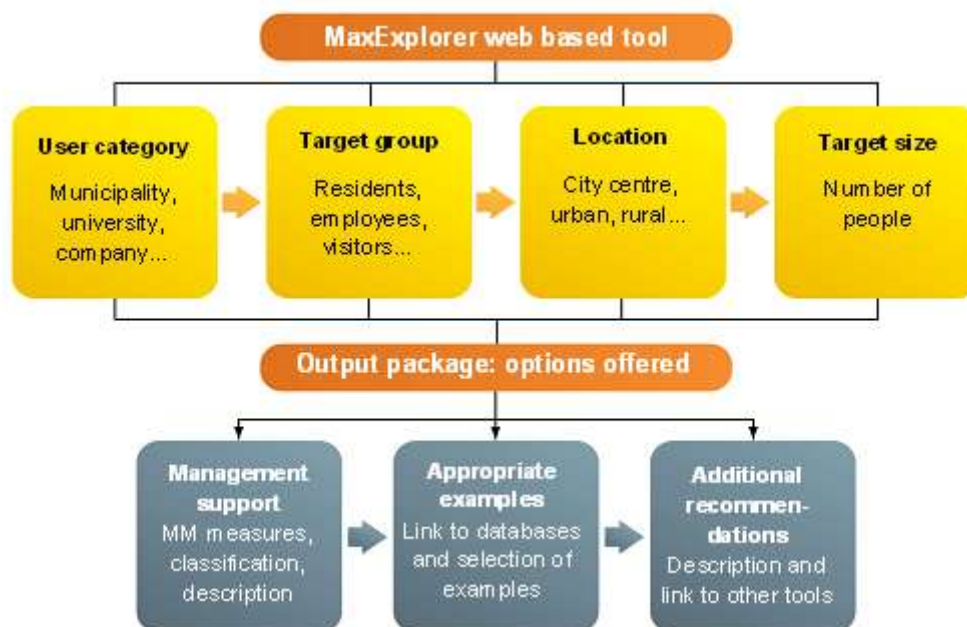


Figure 3: Conceptual illustration of MaxExplorer

3.2 Description of MaxExplorer

MaxExplorer is an interactive internet application that helps decision makers and MM practitioners select suitable MM measures for specific situations in regard to type, size and location of the target group. MaxExplorer was developed using data from a Delphi survey process carried out as part of the MAX project. In this survey experts were asked to rank the effectiveness of different MM measures in different situations for different user groups and in different locations.

MaxExplorer is designed to be used by newcomers and less experienced users from all around Europe. In contrast to existing guides, it is designed for users with different organisational backgrounds and offers guidance to companies, municipalities, schools, PT operators and public services (e.g. hospitals) working with a variety of target groups.

Advertising & other promotion actions	Offering integrated fares
Car Parking Management	On-Demand Public Transport services
Car Pooling	Park and Ride
Car Sharing	Personalised Travel Assistance (PTA)
Cycling Bus	Pool Bikes
Cycling facilities improvements	Reorganisation of PT schedules
Cycling training	School Bus
Eco-driving	Site-based Parking Management
Flexible working hours	Special ticket offers for pupils
General improvements for PT accessibility	Telework
Job PT ticket /rebated seasonal PT tickets	Travel Awareness Campaign & Events
Mobility Consultant/ Mobility Manager	Van Pooling
Mobility Education	Walking Bus
Multimodal information & trip advice	

Table 2: List of measures featured in MaxExplorer

3.3 How to use MaxExplorer

To start MaxExplorer, the users select from a set of options that provide details about their organisation, the target group for the MM measures as well as its size and the characteristics of its location. Then, a ranked list of recommended measures suitable for this selection is displayed as output, see figure below.

Ranked list of recommended measures

organisation: **public services**
 target: **site visitors**
 location: **urban area**
 size: **less than 500 site visitors/day**

The following list gives you guidance on the mobility management measures likely to be appropriate kind of user, target group, target location and size that you have selected. The green bar next to measure listed shows its relevance to your precise context, as estimated by MAX experts.

	not relevant		fully relevant						
	1	2	3	4	5	6	7	8	9
Multimodal information & trip advice									
Car Parking Management									
General improvements for PT accessibility									
Mobility Consultant/ Mobility Manager									
Cycling facilities improvements									
	1	2	3	4	5	6	7	8	9

To get detailed information on the recommended measures please click on the corresponding link.

Figure 4: Screenshot as example of the MaxExplorer ranked list of measures following the user’s answers to the four questions (orange text above the list)

Subsequent clicks on one of the measures provides the users with further information about the measure, its usefulness in different situations and links to existing case studies.

It is also possible to go from each measure description to a multi-criteria assessment that shows the contribution of a particular MM measure to public policy goals, as well as the main drivers for it and possible barriers to its successful implementation.

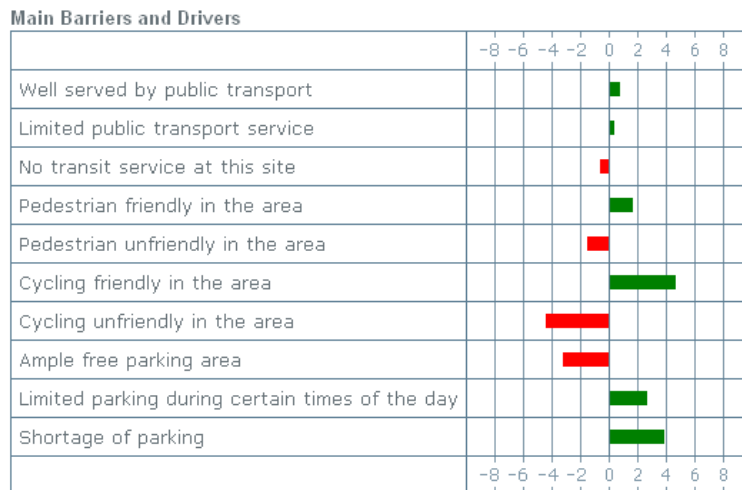


Figure 5: example of the multi-criteria assessment showing the part with main barriers and drivers for the same selection as in figure 4 (selected measure: „cycling facility improvements”)

Finally, MaxExplorer provides links to other MAX tools that can assist users in planning, monitoring and evaluating their MM measures and projects.

3.4 Benefits of MaxExplorer

The main benefit of MaxExplorer is intended to be improved decision making in the selection of MM measures by practitioners who are new to the topic. It is especially targeted to people from the new member states of the EU, where MM may be a new concept, but is also very useful for other newcomers to MM. In support of the MAX project's main objective, MaxExplorer is intended to:

- Help more people discover Mobility Management through MaxExplorer's general overview of a wide range of measures.
- Make a better choice of MM measures to include in MM projects through advice customised to the user and assisting in the selection of appropriate measures according to the characteristics of the target group.
- Enable comparison between MM measures by providing the opportunity to look at the relevance and the possible efficiency of different types of measures in different situations, through a multi-criteria assessment.
- Understand the variety of different MM measures, as MaxExplorer covers many common situations, from Company Mobility Plans to Walking Buses for Schools or Travel Awareness Campaigns.

4 MaxQ - Quality Management tool for Mobility Management

4.1 Main findings and results

A Mobility Management programme in general focuses on organising a series of MM measures into a systematic process, designed to enhance sustainable transportation in cities. The aim of the Quality Management System for Mobility Management, MaxQ, is to help decision makers (organisations, city authorities) to develop a systematic approach to the design, planning, implementation and evaluation of MM measures and activities, based on quality management principles.

An effective Quality Management System for Mobility Management should focus on developing strategies and action plans, listening and responding to the general public (customers) and stakeholders, empowering employees to continuously improve their work processes, and gathering data and analysing key performance indicators. The key criteria for MaxQ have been drawn from existing quality management tools such as Total Quality Management (TQM); the ISO9000 and ISO14000 families of standards; the Eco-Management and Audit Scheme (EMAS); and the European Foundation for Quality Management (EFQM), amongst others.

The MaxQ was refined based on a survey and a focus group, which indicated its shortcomings and proposed enhancements. MaxQ was then tested as part of a demonstration in the municipalities of Kortrijk – Belgium and Lund - Sweden, which led to final improvements to the scheme and the production of supporting documents. Through the overall research process, it was found that it is desirable, feasible and useful to introduce QM and MM and that the final MaxQ product is an appropriate tool for that purpose.

4.2 Description of MaxQ

Quality is the driving force in the development of efficient and effective services. Retaining customers / users and providing a high level of service are major goals of any organisation, with quality management being a powerful tool used to do so. Mobility Management is among those service areas that can benefit from a quality management approach – MM-related services should be provided in an organised and consistent manner and continuously improved based on user satisfaction.

MaxQ is a management process that can be adopted by any organisation for managing their Mobility Management policy and measures. The process focuses on monitoring, assessing and improving both the overall Mobility Management policy and the specific measures in a repeated, systematic way. It involves four steps – Policy, Strategy, Implementation, and Monitoring & evaluation – and twelve sub steps – called **elements** – which are structured in a loop – as shown in Figure 6.

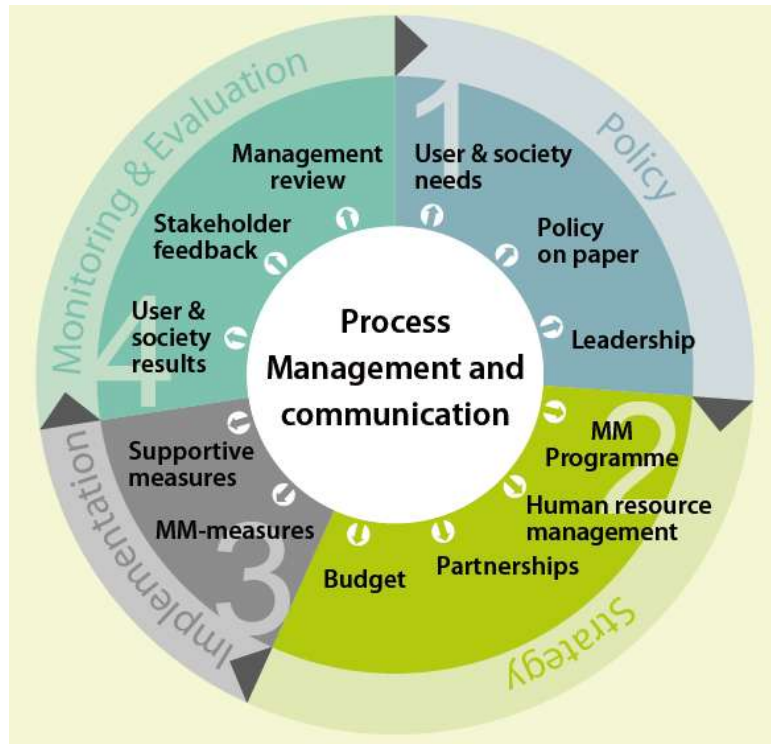


Figure 6: MaxQ Quality Circle

Policy consists of a city's or an organisation's overall vision with respect to transportation. This policy framework is used to develop an MM strategy, which includes the MM-programme to be implemented, along with any necessary partnerships, budget resources, and internal organisational restructuring. The implementation of measures follows, accompanied by high quality documentation of them. Finally, the development of a sound evaluation plan contributes to the overall quality of the Mobility Management programme. Monitoring and evaluation consists of collecting data on specified performance indicators to measure the direct output of all measures and services.

4.3 How to use MaxQ

To use MaxQ requires that the responsible agency (e.g. within a city administration) takes an active role in examining and assessing their current practices regarding each of the MaxQ elements and then to determine how changes in these practices could further improve the Mobility Management programme's effectiveness. The process of collecting and analysing evidence related to each element (through a combination of document analysis, personal interviews, questionnaires and collective discussions with the MM team and with the main stakeholders) enables the organisation to assess the current status of QM and MM in the organisation, and to formulate and action for further improvement.

MaxQ provides a systematic approach for evaluating the quality of each element in the quality circle. In MaxQ each element of the quality circle as well as each MM component is assessed according to a ladder of development, with a scale from 0 to 5 where 0 means no MM-activities at all and 5 means that the MM activities are being implemented using a Total Quality Management approach.

The MAX project developed five different levels of quality management audit for MM programmes. A short description of these levels is presented, starting from the least ambitious and ending with the most ambitious level:

- **The self assessment tool** - a short questionnaire which serves as a first and quick scan of the quality status of Mobility Management in the city. The questionnaire consists of 25 questions which refer to the 12 elements of the quality circle. The assessment can be done within half an hour to two hours.
- **Small internal audit:** done within the MM-team of the city, without any external involvement. A questionnaire, with several questions on each of the 12 elements of the quality circle, is used as a basis.
- **Internal audit:** done by the MM-team of the city, but persons and institutions beyond the MM-team are involved, at least at the political level but if possible also external stakeholders.
- **External audit:** same as above, but with the involvement of an external auditor, that can also help to benchmark with other cities.
- **Certification and benchmarking:** this can be done when quality is already well established and the ambition is to progress toward total quality management in MM - meaning certification according to a CEN-Norm and attaining an average level of over 4 on the ladder of development.

In the part on monitoring and evaluation, MaxQ recommends the use of MaxSumo and MaxEva, which would lead to a higher quality Mobility Management programme but also to a higher quality assessment and feedback for the overall quality assessment.

In other words, MaxSumo and MaxEva deliver data on the impact of Mobility Management measures, and these data can also, at least partly, be used for the assessment of the quality of some elements of the Mobility Management programme, but not for all of them.

4.4 Benefits of MaxQ

The MaxQ process is expected to significantly improve Mobility Management programmes and policy. Similar quality management is already used in a wide range of organisations and services, and they have been shown to lead to better performance of provided services and reduced costs. MaxQ presents a straightforward approach to introducing quality management in MM programmes. However, if an organisation already has a quality management culture in other services (quality management, environmental management etc), this could also be extended to mobility management.

Adopting a quality management programme like MaxQ means that the overall mobility policy and measures will be run and managed in a consistent, systematic and organised way and that the credibility of the mobility management system and its organisation will be considerably improved. In addition, when a quality management system is applied to mobility management, senior management, employees and users will be actively involved in the system's successful development and improvement. In summary, MaxQ is expected to improve the performance of a city's MM system and enhance its credibility with travellers.

5 MaxTag - Travel Awareness Campaign guide

5.1 Main findings and results

Travel Awareness Campaigns are at the core of Mobility Management and are prepared differently throughout Europe. The MAX project has identified the key factors that make Travel Awareness Campaigns successful and summarised this in the MAX Travel Awareness Campaign Guide– MaxTag. MaxTag is designed to help organisations create successful Travel Awareness Campaigns. The guide offers a 10-step programme for organising successful campaigns. It is available as a written document and as an on-line tool. MaxTag will be useful for anyone, regardless of their occupation or level of experience in Mobility Management.

One of MAX's aims was to understand the most important considerations when designing successful travel awareness campaigns. Within MAX, the insights of practitioners in the field who fund, design and roll-out campaigns were at the core of the research enquiry. Around 20 good practice campaigns in and outside the transport sector were analysed in all their aspects, One specific topic in the research on campaigns was about how to convince decision makers and other stakeholders to invest in mobility management or in other words how to campaign-the-campaign. A separate survey among car users in 5 MAX partner countries with different cultural backgrounds investigated the importance of the message and messenger in Travel Awareness Campaigns. Last but not least, concrete guidance for successfully integrating infrastructure measures and education with awareness raising activities was set up. Four small demonstrations tested out and further explored the research results.

The MAX research indicated that it is possible to 'map out' a Travel Awareness Campaign into stages, and important processes which take place during the campaign's life-time, plus to identify key success factors which are important at each individual stage. By breaking down the campaign into component parts – planning stage, implementation stage and post-campaign stage – it is possible to better understand the critical success factors and to explain these factors especially for the readers who might only be interested in reading about one aspect of a campaign.

MaxTag provides examples of best practice in all the projects investigated by MAX in addition to success factors and advises on how to use them to maximum advantage in campaign design.

5.2 Description of MaxTag

The MaxTag is a tool that offers Mobility Management practitioners step-by-step guidance in setting up their own successful Travel Awareness Campaign. The guide is structured along three main campaign stages and 10 steps as is shown in the following graph.



Figure 7: Structure of MaxTag

The guide takes Mobility Management practitioners on a journey through success factors and describes inspiring good practices at every stage of Travel Awareness Campaigns.

For practitioners who are at the planning stage of their Travel Awareness Campaign, this tool offers guidance on: setting aims and objectives, performing formative research into the target audience(s), communication to stakeholders and the community, listing of environmental conditions, and setting the frame for monitoring and evaluation. It refers to MaxSumo for more detailed guidance on this topic and recommends the use of MaxEva. It is also recommended to use MaxSem in the formative research to determine more information about the target audience.

For practitioners who are at the implementation stage of their Travel Awareness Campaign, the tool helps to identify campaign target groups and segmentation of the audience (with reference to MaxSem for more details), as well as defining the exact social marketing mix in delivering your Travel Awareness Campaign.

For practitioners who have completed their Travel Awareness Campaign, the so-called ‘post-campaign phase’, the tool provides recommendations for obtaining stakeholder feedback and evaluating the campaign effect – again referring to MaxSumo and MaxEva.

The MaxTag offers Mobility Management practitioners a full A to Z guidance on planning, implementing and evaluating a Travel Awareness Campaign.

5.3 How to use MaxTag

The MaxTag can be used by anyone, regardless of occupation or level of experience in Mobility Management. It is suitable for people involved in projects of any scale from small Travel Awareness Campaigns in towns or companies up to larger more ambitious schemes in cities or regions. It offers guidance to people planning Travel Awareness Campaigns, managing existing campaigns or evaluating campaigns that have recently been completed. More detailed information and guidance is provided throughout the 10 steps. In the sections on segmentation, monitoring and evaluation, the reader is referred to the MaxSem model and MaxSumo guidance.

The campaign guide also gives access to different levels of information. For example, a reader might be particularly concerned about what kind of research to conduct before the campaign. At the highest level, the entire TA campaign framework shows where formative research fits into the life-cycle of a Travel Awareness campaign, and the next level only the planning stage. At a second level, the reader can find an overview of the planning stage and the key actions for successfully planning a TA campaign. The third level is the formative research 'box' itself, and the associated section in the guidebook contains a brief description of the related activities a campaign designer undertakes, reasons why this process is important, and a summary of important success factors to consider when carrying out formative research.

If more information is required on the of good practice examples presented in MaxTag, a report detailing the relevant research can be obtained from the Max-tools portal on the EPOMM-website. If you are interested in going to the most defined level of detail, references for source material for each piece of information or success factor (the research reports or case study) are given throughout the guide. This material can also be accessed on the EPOMM-website.

5.4 Demonstrations

In WPA four smaller demonstration projects were carried out **to test and/or further explore the research results on travel awareness campaigns**. The demonstrations of the city of Tallinn (Estonia) and of Cotral, the regional bus operator of the Lazio region (Italy) both were targeted at local decision makers and tested the results of the research on how to convince local decision makers to invest in Mobility Management. An evaluation framework – based on MaxSumo – was set up in order to assess the activities towards this specific campaign target group. The Hammersmith study elaborated further on the research results regarding the campaign message: in a real life experiment the effectiveness of the use of emotional versus more rational imagery and message types was further explored. Within the Short Trip Contract campaign, an existing community based social marketing campaign in the Belgian city of Sint-Truiden, the research results on message and messenger were taken on board, the formative research was extended with a baseline questionnaire including the stage diagnostic questions of MaxSem and an evaluation following the different assessment levels of MaxSumo took place.

What are the main lessons learned from these demonstrations for MAX.

The demonstration of **Cotral** found that MAX helped them in planning the campaigning-the campaign activities: in setting clear targets, defining the target group, conducting a formative study, making a swot analysis before taking action. The recommendations resulting from the research on campaigning-the campaign helped them to decide on what message and media to use to address the target group.

The demonstration of the city of **Tallinn**, showed us on the other hand how difficult it is to plan for activities targeted at local decision makers: a last minute change of priorities in the individual agendas of politicians and high level decision makers might be a barrier, external factors can interfere with planned activities in a negative way (due to the global financial crisis, the planned study visit was cancelled) but also in a positive way (Tallinn won the Civitas II-bid and created new financial opportunities to invest in Mobility Management).

The London-**Hammersmith** study delivered new evidence about the importance of emotional messages and images as compared to more rational messages in images. And therefore, this study was an important extra research result of MAX.

The extension in the planning phase of the existing community based social marketing campaign short trip contract in **Sint-Truiden** of the formative study based on MAX guidance, provided new insights into the different segments of the campaign in order to fine-tune the marketing mix in the future; the use of elements from MaxSumo to evaluate, delivered new evidence on the effectiveness on the different assessment levels.

5.5 Benefits of MaxTag

MaxTag is expected to provide users with the following benefits:

- Provide customised step-by-step advise on designing their own Travel Awareness Campaign
- Learn how to apply success factors, such as the message giver, the type of message used and the importance of hard and educational measures, to make a Travel Awareness Campaign work
- Be inspired by Travel Awareness Campaign best practice from throughout Europe and the US
- Find recommendations on how to convince your decision makers to adopt Travel Awareness initiatives

6 MaxLupo - Guidelines for integration of MM and planning

6.1 Main findings and results

By integrating MM with land use planning (LUP), both the plan-making process and the site-related building permission process have the potential to bring about a more sustainable transport system. For example, local authorities can, if they become involved early in the planning process, when land use plans are made, ensure that a new development will be sited in locations where a choice of modes is available. Local authorities can also condition building permit approval on development of comprehensive MM plans.

There is a great deal of information available on integration of MM with land use planning (especially in the USA), but many strategies are either not well known or lack appropriate legal backing in Europe. On the other hand, as documented in the MAX research of WPD, some European countries (e.g. Switzerland and the UK) have strong programmes linking MM with land use planning. Finally it should be noted that many of these programmes are implemented on the local level rather than at the national level, but national level enabling legislation is needed.

Mobility Management and its measures often focus on specific sites – an office, shopping centre or stadium, for example. When a new site is being planned or an existing one expanded or changed, this usually requires building permission, involving negotiations between the site developer(s) and public authorities. Such negotiations can be used to secure MM measures for the site before it opens for example: parking management; infrastructure for cycling, walking and public transport; new bus services; or advertising and promotion to encourage site users to take alternative modes. Ensuring that site users have a choice of ways to reach the site from the first day that it opens, when they need to consider how to get there, is beneficial since people are more open to considering car alternatives for their trips at this time.

MAX reviewed the LUP systems of 10 European countries to understand the extent to which sustainable transport is used as an objective in the land use planning process, and to identify existing opportunities for integration of MM. Three groups of countries were identified: those with almost no integration, those with integration at a policy level (especially at higher levels of government) and some ad-hoc integration on the ground, and those with more consistent integration in both policy and practice. This latter situation was seen to be a product of more political will for the integration at various levels of government, plus the creation and/or identification of various tools to assist integration. Nonetheless, ways in which greater integration of MM with LUP could be brought about were seen to exist in most of the states whose planning systems were reviewed.

After reviewing the LUP systems, the MAX team developed a planning simulation workshop technique designed for use by local agencies in reviewing land use plans and encouraging implementation of MM in the planning process. This technique was tested in five workshops, one each in Germany, Lithuania, Poland, Slovenia and Spain. The workshops all considered the planning and building permission process for real sites of large new developments, and brought together a number of local professionals who are involved in planning decisions to discuss how MM might be integrated into the process for the site in question. Many of the sites considered in the workshops were poorly integrated with walking, cycling and public transport networks, as transport was not really considered in selection of the site locations. Also, MM was a new concept to most participants, and one whose possible successful transfer to their local contexts was greeted with some scepticism. No legal mechanisms were found that require or facilitate the integration of MM with the permission process for new buildings, but it was agreed that such integration could sometimes be achieved through advice and negotiation.

In the final step the MAX team developed guidelines and tools to increase the integration of MM in the land use planning process based on the research and workshop results. These guidelines and tools are described in the sections below.

6.2 Description of MaxLupo

Figure 8 illustrates the MaxLupo guidelines, training tools and recommendations developed in MAX.

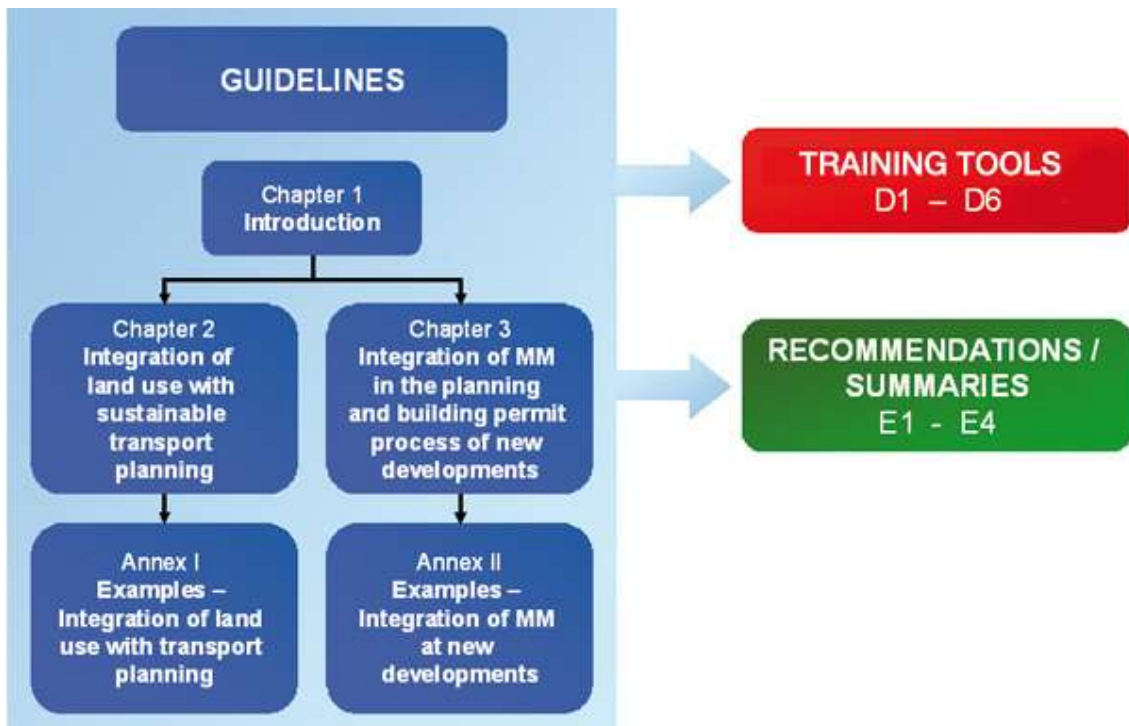


Figure 8: MaxLupo guidelines, training tools and recommendations

6.2.1 MaxLupo Guidelines

The MaxLupo guidelines for the integration of Mobility Management with Land Use Planning give practical input on:

- How to better integrate transport planning and LUP.
- How MM can be made a part of the LUP and building permission process.

The document gives in-depth information about the topic of better integration of MM and LUP. Both the plan making and the building permission process are covered and illustrated with actual existing policies and good practice examples.

Two annexes to the guidelines present 38 case studies which give more detailed information about the examples of best practice for policies and instruments. Annex I presents a range of examples of existing policies that support the integration between transport and land use planning. Annex II presents a range of examples of existing policies that support the integration of MM in the planning and building permission process of new developments. Each example is described in detail using a standard format.

These guidelines can be used by different target groups:

- *Planners* working in land use, transport or environmental planning departments in national, regional or local administrations.

- *Personnel* in local and regional administrations involved in the planning and building permit process.
- *Urban and transport planning consultants as MM experts* working for public administrations or for developers / owners of developments.
- *Developers.*
- *Universities, Schools of Planning, etc.*

6.2.2 Training material and summaries that accompany MaxLupo

In addition to the guidelines, the MAX project also developed several other training materials or instruments that can be used to support any discussion about the integration of MM and LUP, to transfer knowledge, and to raise awareness of the potential benefit attained when land use and transportation planning are better integrated:

[What is site-based Mobility Management? \(Power Point\).](#)

This presentation is targeted at politicians (and developers) and serves to explain what Mobility Management is, how it can be applied at the site level and its benefits. The presentation includes descriptions of several successful cases of site-based MM.

[How can Mobility Management be included in the planning and building permission process of a new development? \(Power Point\).](#)

This presentation is targeted at transport/ land use planners of cities and regions, people working in environmental units, as well as for departments which are directly involved in the planning and building permit processes. In addition to explaining MM at the site-level and providing examples, etc., it shows at what stage of the planning and building permit process to consider MM measures and how developers can be encouraged or required to implement MM measures.

[User guide for a training course \(one day\)](#)

This tool consists of a model training course designed for public administrations at local and regional level. The training course provides a basic presentation about Mobility Management at the site level, its measures and how to include it in the planning and building permit process, the core part of this course is having the group consider the theme in relation to a real site(s) in the area where the training course takes place.

[User guide of a planning simulation workshop: solutions for integrating Mobility Management into local planning](#)

This tool consists of organising a planning simulation workshop to help raise awareness and acceptance of the topic with relevant stakeholders. Experiences from the planning simulation workshops held in MAX show that these can be useful. The guide includes an outline programme for the workshop (content and procedure), recommendations of stakeholders to invite, how to establish their role during the planning simulation workshop, and the kind of results that can be achieved.

[Compendium of MM measures](#)

This consists of a list and description of site based Mobility Management measures targeted at developers, employers, consultants and public authorities.

[Examples of contracts between public administration and developer](#)

The sample negotiation contracts are intended to be used by local administrations involved in the building permit process. The examples can be used as a model for municipalities' own contracts tailored to the specific cases of new developments.

Summaries in the form of one to two page fact sheets were produced as support for awareness raising amongst the different target groups, with the most important key points to be considered as follows:

[Integrating Land Use and Sustainable Transport Planning: Promising Policies](#)

A short list of promising policies for integrating land use and sustainable transport planning was produced, addressed to administrations of land use, transport and environmental planning on the national, regional and local planning levels.

[Integrating Mobility Management with the Building Permission Process: Promising Policies and Examples](#)

A short list of promising policies and examples for integrating MM with the building permission process was produced addressed to administrations involved in the planning and building permit process of a new development.

[Site-based Mobility Management: A Brief Overview](#)

This summary gives a quick overview about site-based MM and offers a very brief description of the benefits and cost of MM measures as well as the process for their implementation. It is targeted mainly at developers.

[Integrating Mobility Management and Land Use Planning at the Local Level: A benefit for the site-actors and the local authority](#)

This summary is addressed to local politicians. It gives a brief overview of site-based MM; it is aimed at local authorities that want to tell their politicians about this new mobility strategy.

6.3 How to use the materials

The MAX research indicates that the best way to achieve the integration of MM into LUP is not to focus on theoretical reflections, but to show target groups existing examples where policies appropriate to the group have been successfully implemented. This approach makes the guidelines more concrete. The readers start from practical examples where they can decide if the framework matches conditions in their “own case” and permits them to act in a similar way (with some adaption if required) – or whether implementing the policy is not possible at all because of hindering framework conditions, which may be difficult to overcome in the near term.

In this sense the question of transferability of the illustrated policies can only be treated in a very broad view by these guidelines because it would be “out of proportion” to consider the legal, planning or other framework condition of each country, region or municipality within Europe in order to produce tailor-made policies. This judgement of the transferability of the guidelines to their own situation is the responsibility of the readers themselves.

6.4 Benefits of MaxLupo

Using the MaxLupo guidelines and training materials will help:

- reduce congestion and pollution caused by motorised traffic at new developments;
- increase access to developments for all, regardless of whether or not they have a car;
- lead to opportunities for improving an area's transport sustainability affecting users beyond the specific development

Importantly, integrating land use planning with MM is very effective: New hospitals in Cambridge and Edinburgh, in the UK, were subject to MM as part of the building permission process and now only 40-50% of their staff drive on their own to work. Without MM, this figure would be closer to 90%. This means less traffic, less congestion, healthier staff and fewer CO2 emissions.

7 MaxSumo - guidance on how to plan, monitor and evaluate mobility projects

7.1 Main findings and results

For anyone carrying out Mobility Management, it is of primary interest to know and to be able to show that the effort and the costs are justified. Nonetheless, many projects are not evaluated at all. One obvious reason is the lack of a common, generally accepted evaluation tool. Based on previous European projects and on the evaluation tool SUMO that is widely used in Sweden, MaxSumo has been developed to meet this need and offers an accessible and systematic method for evaluating MM measures and projects.

MaxSumo can help decision makers and MM practitioners to:

- structure and manage the monitoring and evaluation of a MM project, as well as structure the project in itself,
- monitor and adjust services and projects during the process, so as to make them more effective,
- learn from results obtained in earlier MM projects, and
- compare the obtained results with similar projects and with the targets set at the beginning of the process.

7.2 Description of MaxSumo

MaxSumo offers an opportunity to effectively plan, monitor and evaluate mobility projects and programmes aimed at behavioural change. MaxSumo includes assessment of the process of the project, of the mobility behaviour change and of the change in attitudes towards different mobility behaviour options – for the latter it uses the stage model of MaxSem (see chapter 9). MaxSumo helps to structure the necessary steps of a project, e.g. setting targets, defining target groups, selecting measures. MaxSumo uses small steps that can be monitored and evaluated successively, making it easier to follow the project activities and what happens within the target group. This makes it possible to correct deviations at an early stage.

MaxSumo divides the process into several assessment levels (see Figure 9). These assessment levels cover the whole process. It starts with the services provided, with which the activities carried out are meant – such as the provision of new information material or test tickets for public transport. The awareness, usage, acceptance and satisfaction with these mobility services are assessed. In a next step, the impact these services have on mobility options (e.g. cycling or public transport) is assessed – in terms of new attitudes towards these mobility options, the usage of these options, the satisfaction with these new options and the long term stability of the behaviour change. All these inputs then deliver the system impact of the MM-measure or MM-project. MaxSumo also enables a deeper analysis of data to gain knowledge on the reasons for the achieved changes.

MaxSumo helps managing the evaluation. In the planning stage of a MM-project, MaxSumo shows how to set up a Monitoring and Evaluation Plan (MEP), how to monitor during project implementation and how to evaluate the effects. For each of the assessment levels the users need to decide what shall be assessed, which indicators shall be used and how they shall be measured. However, it is perfectly possible to skip some levels – depending on resources, feasibility and necessity – MaxSumo recommends to keep the evaluation as simple as possible.

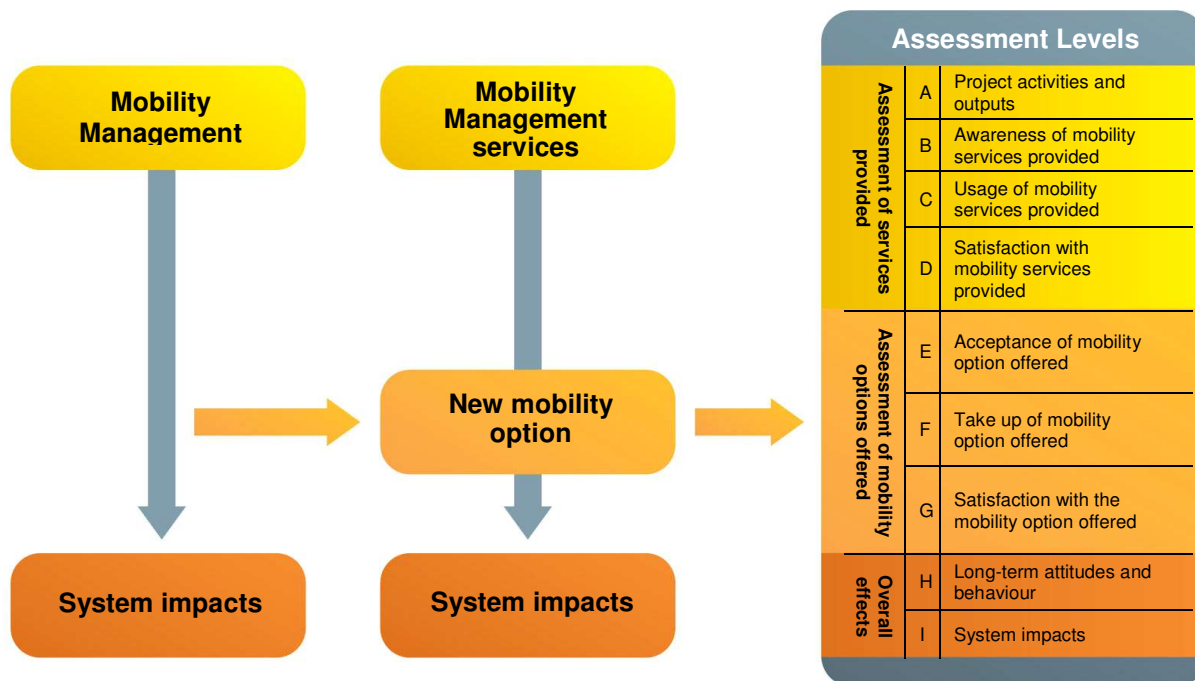


Figure 9: MaxSumo breaks down the gap between what we do in MM and the targeted impacts, into manageable units

To repeat: MaxSumo distinguishes “services provided” and “mobility options offered”. Services are activities and outputs the project provides (what the MM-team does), and mobility options are the mobility alternatives provided for the target group of the MM-project.

Figure 9 lists nine (A-I) different assessment levels in the three assessment groups (assessment of the services, assessment of the mobility options and assessment of long term impacts). MaxSumo provides questions for each assessment level that can be used by managers to evaluate the implementations and effectiveness of MM measures and programmes.

MaxSumo can be used to evaluate single measures, but also combined measures. It has already been tested successfully in several countries. The main objective is to collect evaluation data in a standardised way. The goal is to encourage MaxSumo’s use as broadly as possible. This will enable development of a consistent database (with MaxEva – see chapter 8). This database can be used to develop a tool for estimating the effectiveness of MM-measures and MM-projects in advance – see chapter 10 on “MaxImise”.

7.3 How to use MaxSumo

MaxSumo provides decision makers and practitioners with an effective tool for planning, monitoring and evaluating Mobility Management projects. MaxSumo guides the user through a process that provides guidance during all steps of the project. See Figure 10.

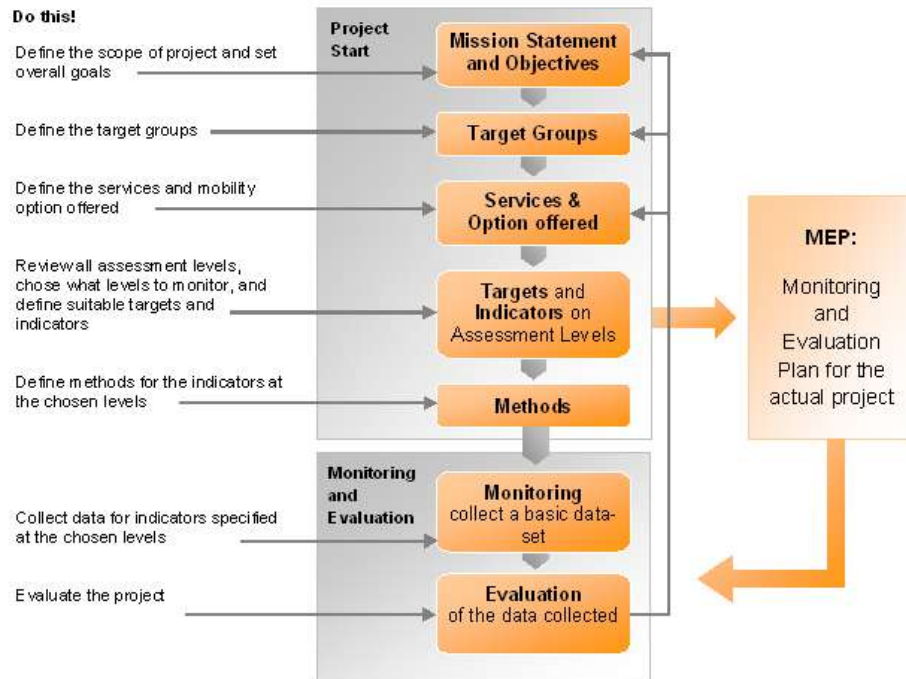


Figure 10: The MaxSumo process

For each project, the user should plan the evaluation right from the very first step of his or her project by adopting the following procedure:

- Step 1: Define the scope of projects and set overall goals
- Step 2: Define the target groups
- Step 3: Define the services that will be provided by the project and the mobility option(s) offered
- Step 4: Review all assessment levels, chose what levels to monitor and define targets and indicators for the chosen assessment levels
- Step 5: Define suitable methods for collecting data for the chosen assessment levels

After this, the last two steps follow:

- Step 6: Monitor the chosen assessment levels
- Step 7: Evaluate the project and explain observed changes

In the planning stage of a project a Monitoring and Evaluation Plan (MEP) is set up, supporting such monitoring during project implementation and the efficient evaluation of the effects.

MaxSumo can be used for most projects, measures and programmes that aim to influence attitudes and behaviour with respect to transport modal choice decisions and transport related behaviour. The method can also be used for other projects and measures with similar methods and goals, such as road safety projects. The MaxSumo approach can also be used to evaluate traditional physical measures when these are combined with information or other behaviour change measures.

7.4 Benefits of MaxSumo

- MaxSumo helps to effectively evaluate and manage projects and programmes – by making decision makers adopt a quite simple but carefully designed systematic monitoring approach.
- It offers helpful advice on setting targets and choosing consistent indicators throughout the planning, monitoring and evaluation process.
- It provides a method that permits project monitoring both during and after the project. So it helps to adjust your services during the process, to make them more effective.
- It produces results that can be stored in a database (MaxEva), which allows users to compare MM measures and projects to those implemented elsewhere in Europe
- It facilitates the assessment process by providing agreed-upon and understandable evaluation outputs.
- It substantiates the success and effectiveness of MM measures and justifies investments in MM-programmes.
- It contributes to the development of a European-wide database that can be used to better estimate the success of MM measures and programmes in advance.
- It is a helpful tool for the work with MaxQ, MaxTag and MaxLupo.

8 MaxEva - online evaluation database

8.1 Main findings and results

MaxEva is an online evaluation database that has been developed in order to provide a resource for practitioners to store their evaluation data and to benchmark the effectiveness of their MM-measures and MM-projects. The database will be filled as users enter data into the system. The main purposes of this database are to allow practitioners to work online according to the MaxSumo evaluation process – and to be able to view structure and results from other projects and compare them with their own results. MaxEva is not limited to MaxSumo users, but the database fields reflect the MaxSumo evaluation process.

The MaxEva database will thus grow and collect reliable and comparable data on MM-measures and MM-projects. Eventually, the database can provide the foundation for developing a prospective assessment tool that can estimate the impact of MM measures in advance, thus enabling users to choose the best measures for their MM-projects.

The MaxEva database will help users:

- Collect data and evaluate Mobility Management projects.
- Calculate the environmental effects of MM projects.
- Learn from the obtained results.
- Compare their MM-projects with similar projects and with the targets set at the beginning of the process.
- Form a base for further research into the effects of different MM measures.

8.2 Description of MaxEva

MaxEva is an interactive web database for storing evaluation data of MM projects. It is based on the type of data which will be generated by using MaxSumo for evaluation and offers simple tables and boxes to be filled in. Its use also provides additional information regarding the evaluation of Mobility Management measures.

The idea is that MaxEva, over time, will accumulate data from a large number of MM projects, which will then constitute a database with reliable information. Then users will be able to use this database to determine what effects can be expected from MM measures they are considering. In the short term, MaxEva can be used as a benchmarking tool where similar projects and their impacts can be compared.

MaxEva will also help to identify key performance indicators – which can help decision-makers to prioritise their investments in MM. Furthermore, MaxEva can function as a constructive tool for researchers at universities and other research institutions.

8.3 How to use MaxEva

The MaxEva database includes the full set of different types of MM measures defined for MaxExplorer (and in the MAX MM-definition). It features both single measures and plans or programmes including a large number of measures. See for example table 2 in chapter 3 on MaxExplorer.

Information to be entered in MaxEva is data collected according to MaxSumo when planning, monitoring and evaluating a Mobility Management project. MaxSumo users are recommended to consider using MaxEva and the data required at an early stage of project planning. MaxEva requires in some fields (e.g. measure selection and description of the target group) more detailed information than the MaxSumo guide. MaxEva users can either successively enter their data in the database by means of boxes and tables when they collect baseline or monitoring data, or enter all their data after finalising the evaluation.

MaxEva								
Start page	Project description	Monitoring data					Results	
Start	Background data	External Factors	Stage position	Travel behaviour	Data on level A	Data on level B-H	Results	Approve data

Figure 11: MaxEva structure – the users enter data on successive web-pages, results are calculated automatically and a summary is presented on a result page for the project and on benchmarking pages for direct comparison with other projects

The output of the database consists of a result page which presents the information obtained. MaxEva also calculates CO₂ emissions using several selectable country-specific default values on the use of fuel etc.

The users of MaxEva can finally approve their own project data and thus allow others to take a look at these projects results through the benchmarking function of the database. The benchmarking function is accessible on the opening page of MaxEva. To facilitate comparisons with other projects, the main results are listed in one comparison table.

8.4 Benefits of MaxEva

- MaxEva enables evaluation data to be compiled in a standardised way.
- MaxEva guides the user through the process of using MaxSumo and determining what to measure for an evaluation.
- MaxEva enables users to assess the results of their MM projects.
- MaxEva calculates the CO₂ reduction impacts of MM projects.

Once the database is filled with sufficient data,

- MaxEva can be used as a benchmarking tool for comparing similar projects and their impacts,
- MaxEva helps users to estimate what impacts can be expected from MM measures,
- MaxEva helps users identify key performance indicators - which can help decision-makers prioritise their investments in Mobility Management,
- MaxEva forms a key basis for further research into the effects of MM measures.

9 MaxSem – behaviour change model

9.1 Main findings and results

Scientists of the health sector and the social sciences began studying behaviour change models in the mid-20th century and research on travel behaviour models in the transport sector benefited from this early work.

However, in the transport sector there has been little research in the development of theoretical ‘standard models’ explaining behavioural change with regard to transport modes. Given the need for a standard model to help explain mode choice with respect to MM measures, the MAX project developed and tested a new theoretical model called the “Max Self Regulation Model” (MaxSem). It combines the most important aspects of static and dynamic models and shows that within the process of behavioural change, people move through different stages of ‘readiness’ to change their travel behaviour.

The model can be used to present the underlying processes involved in changing the behaviours of car drivers to more sustainable transport modes. The aim is also to assist practitioners in the design and evaluation of MM projects. MM measures have, so far, seldom been developed on the basis of behavioural change models and theories. Thus, the MAX project developed and tested some MM interventions in Munich (Germany) and Hammersmith (UK) based on the constructs of MaxSem. Results showed that MaxSem is a good model although more work is needed to refine and improve it. Application of MaxSem and more experience with such theory-based interventions should help make MM more effective.

9.2 Description of MaxSem

Mobility Management aims to change individuals’ choice of travel mode. To be effective here, it is very helpful to understand the underlying behavioural change process and to apply this knowledge to, for example, select an effective strategy to get people cycling instead of using the private car. For this the integrated psychological model of behaviour change MaxSem was developed. It was validated via a cross-cultural survey of car-drivers in seven European countries and demonstrated in Munich and Hammersmith. The new model uses the most important constructs of ‘static’ psychological models of behavioural change and interlinks those with the temporal dimension of the process of change by incorporating the four key ‘stages’ of behaviour change, as shown in Figure 12 below:

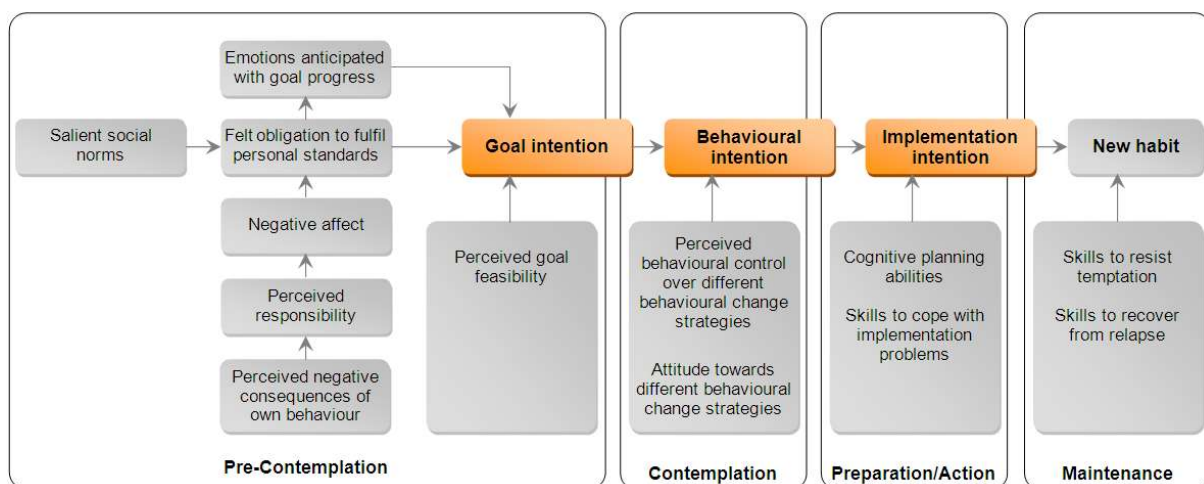


Figure 12: Overview of MaxSem constructs and stages

A change of behaviour doesn't happen at once, but takes time and proceeds via several stages. In order for people to progress from earlier to later stages, key threshold points (orange shaded in Figure 12 above) have to be 'satisfied'. These different thresholds need to be overcome in order to arrive at the final stage "maintenance". In the maintenance stage the goal is to maintain the habitual use of alternatives to single car use. Emotional processes and the manner in which an individual evaluates his or her own behaviour are central parts of the model. By taking into account MaxSem, MM measures can be specifically designed to achieve good results at each stage of behavioural change.

9.3 How to use MaxSem

MaxSem describes the behavioural change process and explains individuals' readiness to change travel within a four stage approach.

MaxSem focuses on achieving transitions between the stages and can be used to adopt measures fitting to the stage of the target group. MM measures should then aim to trigger the different underlying attitudes and perceptions, and motivate people consider, to try out and to adopt new travel mode behaviours. At the first stage this may be addressing the awareness of the problem (from pre-contemplation to contemplation) and in a next step instilling the desire to reach a personal goal (i.e. reduce use of personal cars) as a main source of motivation towards a change. Emotional processes and the manner in which an individual evaluates his or her own behaviour are central parts of the model.



Figure 13: the four MaxSem stages

- Stage 1: Pre-contemplation stage.** Individuals in this stage typically make most of their trips by car, are quite happy with the way they currently travel (i.e. as car drivers) and at the moment have no wish, or desire to change to another mode, or feel that it would be impossible for them to do so at the present time, whether this be through subjective or objective reasons. Here, the aim of MM and TA should be to make this group aware of negative consequences of car use for environment or their own health and make them think of possible changes.
- Stage 2: Contemplation stage.** Individuals in this stage also typically make most of their trips by car, but are not as content with their current travel behaviour as the pre-contemplators. They would like to reduce their level of car use and change to another way of travelling (mode), but at the moment are unsure of which mode to switch to, or perhaps don't have enough confidence to do so. They are not really sure which alternative mode they could use, or when they will begin. Here, the aim could be to inform about alternative possibilities and to present new attractive travel options. As the attitudes towards the different options are an important aspect in this stage, (e.g. towards walking or cycling), describing the benefits of these options using different messages ("it is easier than you think") is seen as a good idea.
- Stage 3: Preparation / Action stage.** Individuals in this stage also typically make most of their trips by car, but have decided which mode they intend to switch to for some or all of their trips (e.g. using the bike instead of the car to go to work), have the confidence to do so and may have already tried this new mode for some of their trips.

Here, the aim of MM is to have the group actually try out new behaviour and to facilitate the maintenance of this new behaviour. Offering more precise information about tickets, lines or time tables for public transport, maps for cycling routes and ‘cycle together’ events or provide special incentives like free test tickets to encourage testing the new travel options could be suitable MM interventions.

- **Stage 4: Maintenance stage.** Individuals in this stage typically make most or all of their trips by non-car alternatives (public transport, walking, cycling etc.). These can either be people who do not own or have access to a car for their trips (and therefore dependant on non-car modes for travelling), or people who do own have access to cars but for various reasons deliberately use them very infrequently, or not at all.

Here, the aim is to reward the new habit and to prevent relapse to the old behaviour. Possible MM measures could include incentives or awards, offering further information material about sustainable travel options in other fields, presenting special subscription conditions for (seasonal) PT tickets, or running a ‘thank you’ campaign in the city.

In order to facilitate the use of the model for detecting the more subtle effects of MM measures, MAX has developed six so called ‘stage-diagnostic questions’. With the help of these questions, the stage position of people can be detected. MM measures and campaigns often have not a direct effect on changing the actual behaviour, but according to the model they can be of great importance to move people closer (to change their ‘stage-position’) to behavioural change. The model and the questions are integrated into MaxSumo and MaxEva and can thus be used to obtain a fuller picture of the impacts of MM projects.

To summarise: on the one hand MaxSem is a theoretical model that can be used by scientists to explain the process of behaviour change. On the other hand it can be used by practitioners to select or develop measures for people at different stages of behaviour change or to evaluate the change of stage-positions of the target group.

9.4 Benefits of MaxSem

- MaxSem helps to understand the complex process of voluntary behaviour change.
- MaxSem’s stage-diagnostic questions have been developed to allow individuals to be allocated to one of the four stages. Comparing stage-membership before and after the implementation of MM measures helps to evaluate the success of a measure in more detail, by measuring more subtle changes in attitudes and perceptions (towards modal shift), as well as overt behavioural change per se.
- MaxSem can be used to identify and refine the most suitable MM measures for certain target groups.

10 Description of MaxImise and the possible future development of MaxEva and a prospective assessment tool (PAT)

Planners, administrators, policy-makers and their advisors often ask two key questions when it comes to implementing Mobility Management measures: how much will it cost and what impact will it have? The second question has been an important issue for the Mobility Management profession as much of our expertise is based on case studies, anecdotes, and reports that describe MM projects, but not on sound planning tools, such as simulation and predictive models.

One central goal to MM is mode shift: getting travellers to use – instead of their (own) car – more sustainable modes of urban transport, such as public transport, car-sharing, car-pooling, cycling, and walking. As such, a key planning need is the ability to forecast the probable mode shift that should occur if certain MM measures and packages of measures are implemented in a given setting. A forecasting tool or “Prospective Assessment Tool” (PAT) would allow planners and administrators to estimate, in advance of implementation, the mode shift resulting from a specified set of MM measures. Such tools are also referred to as sketch-planning and predictive models.

Two basic types of prospective assessment tools are possible, one more rudimentary than the other. The most useful tool would be able to estimate the interactive mode shift impacts of packages of MM measures. This is the ultimate goal of a European PAT. However, for those cases where sufficient empirical evidence exists on a single measure, based on comparative findings, one form of assessment tool can be developed to assist users in assessing whether their planned activities can be expected to generate “average” results for the measure, Max WP B developed MaxImise as a demonstration of such a kind of assessment tool.

10.1 Development of the demonstration assessment tool - MaxImise

Given the lack of sufficient data with which to develop a fully integrated assessment tool, to predict the mode shift resulting from a package of measures, MAX WP B developed a simple assessment tool as a demonstration version for a single measure. Using comparative evaluation findings on Personalised Travel Planning (PTP) from a U.K. study (<http://www.dft.gov.uk/pgr/sustainable/travelplans/ptp/>) an assessment tool was developed, called MaxImise.

MaxImise allows someone planning or implementing a PTP project to assess whether their efforts are likely to produce expected (average) results. Empirical evidence on these average impacts and the factors that contribute to success are taken from a comparative British study of PTP experience over many actual cases. MaxImise, provided in Appendix E, allows the user to describe various characteristics of the local and target population, as well as about the PTP planning and implementation process itself. These items are entered into a spreadsheet with a web interface.

Please give some background about your personalised travel planning (PTP) project

A. Area type (choose one)

- Town/city centre
- Inner suburb
- Outer suburb
- Rural

B. PT supply

- Very good
- Good
- Average
- Very poor
- Non-existent

C. Walking facility supply

- Very good
- Good
- Average
- Very poor
- Non-existent

D. Cycling facility supply

- Very good
- Good
- Average
- Very poor
- Non-existent

Figure 14: Example of some background information requested in MaxImise

“Behind” the input information is expert information about the relative weight of each factor in influencing the success of the PTP project and its expected reduction in car use with regard to mode share and vehicle kilometres travelled (VKT). The input data, as weighted by influence on outcomes, creates a score that is sort of a “passing grade.” If an input variable level is deemed influential, it is considered a “passing mark” For example, experience shows that PTP programs that are implemented over six months or more are more effective than those with fewer months. Therefore, if the user inputs more than six months, the weighted response is considered “passing.”

If the sum of all passing marks is above a certain level (33), then the PTP project is considered to have sufficient factors in place to realise above average impacts. If the sum is less than that level, the user is told (see Figure 15) that the project will likely result in below average results and the user is provided with suggestions on which factors might improve the likelihood of better results. MaxImise also points the user to more comprehensive guidance on PTP from the source evaluation study.

MAXIMISE

Unfortunately your inputs indicate that your planned PTP scheme may need some more work before it is launched.

Research shows that an above-average scheme can be expected to reduce car driver trips across target area by 9%, and car km across the target area by 12%, but in your case planned inputs and/or the context for the scheme may not be sufficient to allow you to achieve this level of mode shift.

The area that you have chosen may not be the best for a PTP scheme. In particular you might want to pay attention to the topic of question(s): I, J

Some of the planning for your scheme may need further attention. In particular you might want to look at the topics covered by question(s): 2, 6, 7, 9a, 9c, 9d, 11, 12, 13, 14

Bear in mind, though, that this tool gives only indicative results and then only based on the inputs you are able to provide. For far more detailed high quality guidance on how to design and implement your scheme, you are recommended to read the UK DfT publications on PTP, available [here](#).

[Back to questionnaire](#)

Figure 15: MaxImise information output for users with below “passing level” score

MaxImise provides an example of a “first generation” prospective assessment tool based on limited experience on one MM measure. Coupled with MaxExplorer and the benchmarking function of MaxSem, Mobility Managers now have a new set of useful tools for assessing the likely outcomes for planned or implemented MM measures. In fact, MaxImise and additional versions for other MM measures could be linked to MaxExplorer and MaxEva to provide each with the next level of assessment.

10.2 Specification of a future fully functional European Prospective Assessment Tool

In a second generation future European Prospective Assessment Tool, the interactive MaxEva database could serve as a crucial foundation, in which there would be the critical-mass of high quality study data to allow more accurate predictions to be calculated for similar type interventions. A regression analysis could then be used for analysing the evaluation data or other comparative studies, taking into account project background and contextual circumstances such as where this intervention is to be implemented and the characteristics of the sample population. Such data on the effectiveness of the more ‘soft’ interventions from all over Europe is needed for feeding into a fully functional PAT. Such a future or second generation PAT would also take into account additional aspects like interactions between selected measures, something which cannot be provided within the simplified demonstration tool, MaxImise.

In addition to MaxEva data (or other comparative evaluation findings) on the ‘softer’ measures, elasticity values for the ‘harder’ measures could be integrated into a fully functional European PAT, as described below.

A fully integrative Prospective Assessment Tool for Europe should be developed with the following features:

- User-friendly interface and instructions, requiring no knowledge of “transport modelling”;
- Minimal user inputs and reliance on existing data (no new surveys needed);
- Easy navigation in model and simple means to save and report impact forecasts;
- Able to predict impacts of packages of measures by assessing interactive effects.

The PAT inputs would likely include:

- Number of travellers and the type of the target group (company, target market, students, etc.)
- Average trip characteristics (travel time, trip distance, vehicle occupancy)
- Type of application setting (city centre, employment centre, suburban area, well/poor accessibility by foot, bike, public transport, etc.)

The U.S. models provide default values and factors for many of the needed inputs, including average carpool occupancy, average trip distance by purpose, average emission factors, average fuel economy. However, they also allow the user to enter key local inputs, including the basic elasticities, if the data are available. Local data is always more desirable than generalised default factors based on averages across cities or even countries.

The Mobility Management measures included would hopefully be all those included in MaxSumo and MaxEva. The only limitations would be the inability to obtain or derive demand elasticity for “harder” measures or insufficient benchmarking data from MaxEva for all other measures.

The PAT outputs would likely include:

- Baseline and projected mode shares and proportional changes;
- Baseline and projected vehicle trips and proportional changes;
- Baseline and projected vehicle kilometres of travel and proportional changes;
- Emission reductions (CO₂, NO_x, etc.);

- Energy reductions (litres of petrol saved);

The following figure provides an example of model outputs from the COMMUTER Model.

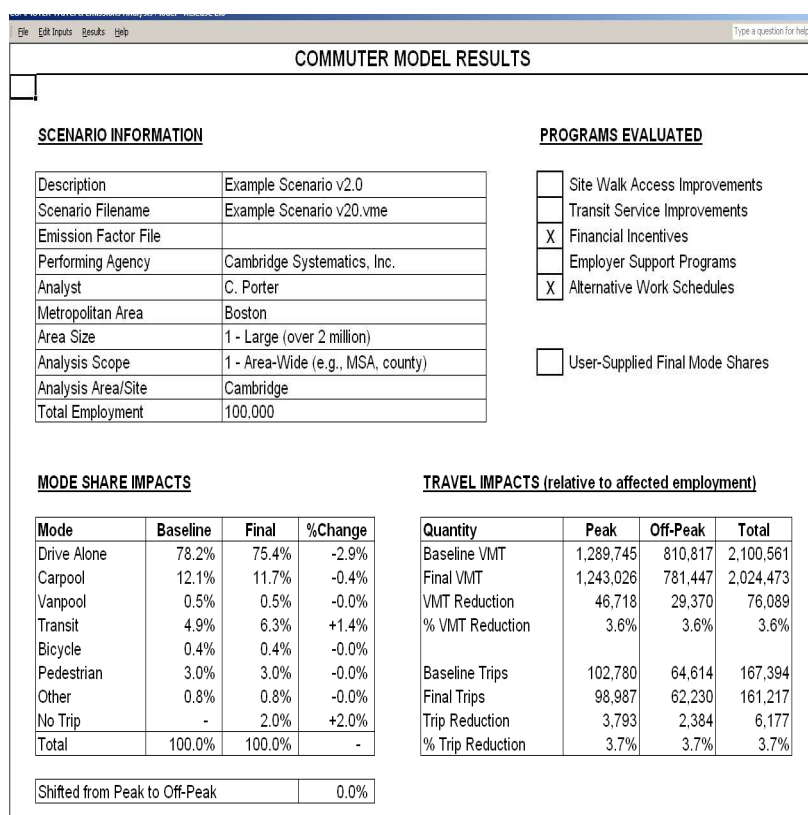


Figure 16: COMMUTER Model Output Screen and Report

One possible enhancement to the second generation European PAT would also be a cost effectiveness module. This is one of the strengths of the TRIMMS model in the U.S. If generalised costs are known or can be estimated, then benefit/cost ratios or cost effectiveness (e.g., cost per kilometre of travel or ton of emission reduced) estimates can be produced. The ability to estimate benefit/cost ratios provides a powerful tool for convincing policy-makers and engineers of the advantages of implementing Mobility Management measures compared to more expensive capital and operating strategies.

The fully integrative PAT should be developed as a combination of three primary elements that serve as the “heart” of the predictive functioning of the model:

- A set of demand elasticities for price- and service-based measures. This would include: public transport fare discounts, public transport service expansion or new services, alternative mode incentives, etc. So-called “harder” MM measures in that they involve pricing or service provision.
- A set of experiential relationships based on the benchmarking function of MaxEva or other comparative evaluation studies and their findings. This would relate to “softer” measures that involve promotion and information. Comparative cross-sectional analysis from MaxEva or another dataset would provide a relationship in the form of average mode shift impacts from a given MM measure when applied to a certain target group.
- Inclusion of a behavioural change module from MaxSem that provides results that are not strictly related to mode shift impacts. Rather this “stage diagnostic” module would provide estimates of the proportion of the target population what would move between stages as a result of the offer of a given measure. As

such, the PAT would estimate shifts to more sustainable modes (mode shift) and precursor behavioural shifts (stage shifts).

10.3 Conclusions and Recommendations

Recommendations and specifications; showing how MaxExplorer, MaxEva and MaxImise could be integrated, adapted and further developed towards a fully functional interactive Prospective Assessment Tool are as follows. It is expected that a future PAT would be an online resource, designed with a user-friendly interface that practitioners intending to implement MM measures will enter specific background and contextual information, as well as MM intervention type information. They would then receive as an output a prediction of the likely effects for that particular intervention. Once data for each individual and packages of MM types are entered into the database they will be subjected to 'expert analysis' to synthesise and estimate what the expected result would be for each measure or each package of measures, taking into account the specific influences of relevant contextual and framework conditions. Ultimately, these expected results may be calculated by using elasticities or other heuristic models of travel behaviour change.

For now, MAX provides a first generation of assessment tools in the form of MaxExplorer (a prioritised list of appropriate measures), MaxEva (benchmarking to similar examples) and MaxImise (assessment tool for Personalised Travel Planning using existing findings from the UK).

Growing MaxEva and the PAT in the future

In many respects this last section of the chapter can be seen as a series of open research questions. Given timescale and resources, the nature of the project (with limited actual interventions built into it) and the lack of available reliable data, it was not possible for MAX to gather enough data to build the fully-functioning second generation PAT as had been originally envisaged in the DoW. Instead, such a PAT has been specified, and a first generation demonstration version built that gives an indication of how a fully functioning version could look.

Future research needs largely revolve around the ability to **assemble a sufficient database of MM evaluation results** for a range of measures and packages of measures with which to develop a fully interactive predictive model. In the absence of such a database, or in the mean-time, single-measure assessment tools can be developed when sufficient data is available, either within MaxEva or via other comparative evaluations (as was used to develop MaxImise on personalised travel planning).

The main reason that the MAX project has been unable to develop a fully functioning prospective assessment tool (PAT) is because of the general paucity of impact-level evaluation data from previous MM programmes and measures: there are some limited data, but they come largely from a few countries (UK, Netherlands, Sweden) and are mainly focused on one or two types of MM measure – primarily workplace mobility plans. In contrast, in the USA, it has been possible to develop prospective assessment tools because such data exist, having been the by-product of mandatory workplace MM programmes, in which employers of a given size in a region were, or still are, required to produce, implement and monitor a plan (collect before and after employee travel behaviour data). This data is needed to develop the analytic functions of a prospective tool, be it point elasticities, average impacts, or coefficients from explanatory models.

It is therefore clear that, if a European PAT is to become a reality, then **the focus must be on ensuring that more evaluations of MM measures are carried out in a standardised fashion preferably by using MaxSumo**, and that MaxEva is then used to input and store the resulting evaluation data so that, over time, the critical mass of MM evaluations is built up such that the hundreds of individual cases on which the US tools are based are also available in similar numbers here in Europe.

The most effective way to ensure the use of MaxSumo and MaxEva is to require MM practitioners to employ them, for example as a condition of funding, as with SRA-funded projects in Sweden. In London, another example of this, an evaluation database for site-based mobility plans secured through the site planning system has been set up (iTRACE <https://london.itrace.org.uk/>), and developers are required as part of the planning system to collect monitoring data so that ultimately the database will be populated and relationships between variables measured so that predictions of the effectiveness of future plans can be made.

In the absence elsewhere of this kind of leverage over MM practitioners, then **education, promotion, encouragement and exhortation** to use MaxSumo and MaxEva are the key activities that must be taken forward. MAX partners have an important role here due to their involvement in other national and EU level MM projects - for example, the IEE project ACTIVE ACCESS (MAX partners FGM and ENU) is using MaxSumo to structure its evaluation activities, and such an approach can be taken by other MAX partners. For example SUMO, the predecessor of MaxSumo, has been used in Sweden since 2004 and has been proven to work in hundreds of projects, and the new version MaxSumo will be presented as an updated version of Sumo in Sweden. MaxSumo trainings have already been held as part of the COMMERCE project (Lithuania June 2009) and in the Netherlands (Utrecht Oct 2009), for participants from 10 European countries.

However, at the current time, probably the most appropriate vehicle for such activities is EPOMM-PLUS, since it has a Europe-wide network and resources for training and promotion. It has a vital role in making people aware of the tools, why they are important, providing instruction on their use, and, most importantly, highlighting the benefits that they bring for users. In the case of MaxEva, making this latter case is problematic in the early stages since the primary attraction of the database to users is to be able to benchmark their own results against other similar projects; but, until there are sufficient data in the database, then such benchmarking is not available – something of a “chicken and egg” situation.

The solution to this problem may be to secure relatively small amounts of EU resources to fund those with known evaluation data from MM projects to input those data into MaxEva. For example, in the UK, evaluation data from site based mobility plans and from personalised travel planning programmes *do* exist and so the only barrier there is to provide those with the data an incentive to spend time inputting it to MaxEva. Similarly projects in Switzerland and Sweden have evaluation data available. The probability that MM practitioners feel comfortable about putting their data into MaxEva could also be increased, were consideration to be given to enabling the anonymous presentation of data in the benchmarking functions of the tool.

The population of the MaxEva database with sufficient data is only one major challenge of developing a fully-functioning PAT. If a model similar to its US counterparts is to be built then **generalised price and service elasticities will also be required** that can then be used to predict changes in demand resulting from changes in transport prices, frequencies and journey times – but at a European-wide scale. These have been estimated through previous projects such as TRACE (4th Framework 1998-99) but only partially for a limited number of countries and modes. It is highly likely that a second generation PAT would have to rely at least initially on elasticities derived from only a few EU countries and further survey work undertaken to derive them for a wider range of modes and member states.

Producing a tool that could deal with more than one MM measure would also be a challenge – the US models all currently focus on workplace MM and at most one other measure, but **an EU PAT would ideally cover a wide variety of MM measures**. Because of this, and because of the need to link it to MaxEva that would, ideally, be receiving data input from new projects all the time, then **in terms of structuring and programming the PAT would also be quite complex. For these two reasons – elasticities and programming – significant resources would be required to further develop the PAT.** However, there would be little point in devoting resources to these two aspects until reasonable quality data for at least 150-200 individual cases of MM measures or MM plans are logged in MaxEva, as such data is above all the key input to a better PAT.

Annex: List of the other main documents of MAX and where to find them

These are the main documents produced by the MAX consortium that are either useful tools or document the work in the MAX consortium

Max Brochure

The MAX brochure is an illustrated well-laid-out brochure that is available in 14 languages and can be downloaded and ordered via the MM-tools part of the EPOMM-website.

Final reports of WPA, WPB, WPC, WPD

The final reports of WPA, B, C, and D describe the work, objectives, results and conclusions of the WPs in detail – each report has about 100 pages and additionally several annexes. They are downloadable from the MAX-website.

Integrated final report from WP4

The so-called integrated final report of WP4 is similar to this final report, just a little more compact and without the section on dissemination. It can also be downloaded from the MAX-website. The reports are downloadable from the MAX-website.

State of the Art Reports of MAX

MAX had the WP1 – state of the art, which was the basis for the research of MAX. It contains a comprehensive state of the art report integrating 4 state of the art report annexes for the WPs A-D. The reports are downloadable from the MAX-website.

Comprehensive Research plans of MAX

MAX had the WP2 – comprehensive research plan, which worked out, based on the state of the art and the MAX work plan – the research plan of MAX. It contains a comprehensive research plan integrating 4 research plans as annexes for the WPs A-D. The reports are downloadable from the MAX-website.

All MAX-tools and additional documents

The seven MAX tools MaxExplorer, MaxQ, MaxTag, MaxSumo, MaxEva, MaxSem, MaxLupo and numerous additional documents such as demonstration reports, fact sheets, advice notes, and case studies are all available on the MM-tools section of the EPOMM-website.