Successful Travel Awareness Campaigns & Mobility Management Strategies

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Foreword – MaxSumo as part of the MAX - Project

MaxSumo is a tool for systematic evaluation of mobility projects or programmes described in this document. It presents a method for systematic planning, monitoring and evaluation of mobility projects. If evaluations are carried out in the same way, it is easier to transfer experiences and compare similar projects. In the longer term, this also offers opportunities to describe the correlation between communicative efforts and their impact on overall societal goals. The method can also assist better project planning and in setting relevant and realistic goals.

MaxSumo was developed in the project MAX - Successful Travel Awareness Campaigns and Mobility Management Strategies as a part of WP B – Predictive Models of Behaviour Change and Prospective Assessment Tools. MaxSumo is based on existing tools including SUMO, MOST-MET and CAG. The aim was to combine the travel awareness aspects from CAG, the theoretical-based research conducted within the MAX Project and the more practical hands-on experience learned from the application of SUMO and MOST-MET in real life mobility project evaluations into the same tool[1].

MAX ran from 2006 to 2009 and was the largest research project on Mobility Management within the EU's sixth framework programme. The MAX consortium 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.

MaxSumo was developed by Trivector Traffic (Sweden), ILS (Germany) and Edinburgh Napier University – ENU (Scotland); with input from the other partners in MAX WPB.

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1 MOST-MET was developed in 2000–2002 as part of the EU project MOST, MObility management STrategies for the next decades. CAG – Common/Campaign Assessment Guide was developed in the EU project TAPESTRY in 1999-2001. SUMO is a further development of MOST-MET and was commissioned by the SRA (Swedish Road Administration). It has been widely used as a result of the broad interest in this method on the part of a great many stakeholders in the Swedish transport and community sectors.

Executive Summary

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

MaxSumo offers an opportunity to effectively plan, monitor and evaluate mobility projects and programmes aimed at behavioural change. MaxSumo includes assessment of both the process of the project and the mobility behaviour the project aims to change. MaxSumo can be used for single measures, but also for combined measures. In this way, evaluation data can be compiled in a standardised way. Evaluation in accordance with MaxSumo permits project monitoring both during and after the project and offers an opportunity to compare projects with each other. At a European level, this will have very positive effects for future work and cost-benefit estimations.

The unique benefit of MaxSumo is that the often complex process of behavioural change is divided into smaller steps that can actually be monitored and evaluated successively - analogous to using the staircase when descending a high building instead of jumping from the highest floor. Thereby, possible deviations can be corrected at an early stage.

Following from this, at the core of MaxSumo there are several assessment levels. The assessment levels cover the whole process from activities carried out, awareness, usage, acceptance and satisfaction with the mobility services provided, and finally, effects in terms of new attitudes adopted, and behaviour and system impacts. The assessment levels are co-ordinated in a systematic way, and allow direct monitoring of the effects of the project during implementation.

MaxSumo is built upon the knowledge that behaviour change takes time and that behaviour change involves a series of stages through which individuals' progress. To monitor this process MaxSem (Max Self Regulation Model) is included in MaxSumo. MaxSem is specifically designed to explain individuals' modal change behaviour using questions to group people into different stages of behaviour change.

MaxSumo should – preferably – be used from the start, in the project planning stage. At this point, all essential preparations for an effective evaluation should be carried out, including defining the overall goals, the target groups, the services provided and the desired new behaviour. At all levels users need to decide what to measure, which indicators to use and how to measure these. They can also decide to skip some levels - in some projects it is neither possible nor necessary to monitor all levels, keeping evaluation as simple as is considered adequate. The planning stage produces a Monitoring and Evaluation Plan (MEP) for the actual project, which is then used in its monitoring and evaluation.

It is recommended that you use the MaxEva online database for documentation and to share your experiences with others. MaxEva allows you to document details of your own project, to learn from other project experiences, to allow others to learn from your experiences and to deepen the knowledge base concerning the effectiveness of different mobility projects.

MaxSumo is primarily a tool for practitioners within the field of Mobility Management. Users of MaxSumo can be local mobility managers, city or transport planners and their consultants as well as other persons in organisations dealing with influencing mobility patterns or persons working with MM in companies, schools etc. Furthermore, MaxSumo can be a constructive tool for researchers at universities and other research institutions.

Glossary

Mobility Management (MM)

The definition of MM currently agreed in the MAX Project is as follows *"Mobility Management (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 Mobility Management are "soft" measures like information and communication, organising services and coordinating activities of different partners. "Soft" measures most often enhance the effectiveness of "hard" measures within urban transport (e.g., new tram lines, new roads and new bike lanes). Mobility Management measures (in comparison to "hard" measures) do not necessarily require large financial investments and may have a high benefit-cost ratio.*

The objective of Mobility Management (MM) is to induce citizens to practice 'reasoned mobility', i.e. organising their daily activity patterns in an efficient way, in terms of costs, energy savings and environment conservation. A more detailed description and examples of mobility management are provided on the MAX-website www.max-success.eu.

Mobility Project

In this MaxSumo guide we have used the term "mobility projects" as a generic name for strategies that (in different ways) try to influence travel and transport behaviour. This includes Mobility Management but also includes other strategies with similar methods and goals, such as road safety projects and also cases when MM is combined with traditional physical measures.

Monitoring and Evaluation Plan (MEP)

The MaxSumo process describes how to make a monitoring and evaluation plan – MEP – for the project. When the MEP has been developed you have a clear plan for how to proceed with the project as well as how to perform the monitoring and evaluation of the project. After completing the MEP the actual project and its activities should begin. Templates for the MEP are found in Appendix 3.

Further key definitions are provided throughout the report in individual chapters, as required.

How to use this guide

This guide has been structured to take into account the needs of different potential MaxSumo users, based on their previous experience and knowledge regarding the implementation and evaluation of mobility projects.

Chapter 1 gives you an overview of what is MaxSumo, of why and when to use it. It is extremely important to read this chapter as the background in it will help you to use MaxSumo properly.

Chapter 2 (How to use MaxSumo) is the core chapter detailing the MaxSumo methodology and how it can be applied to mobility projects.

Chapter 3 is a supplementary chapter, providing more detailed information about the different MaxSumo assessment levels.

Chapter 4 explains the various methodologies that can be selected for monitoring travel behaviour change, and their advantages and disadvantages.

The Appendices offer templates of survey questions to be used for data collection for each assessment level. They provide filled-in datasheets for two example projects and templates for producing a monitoring and evaluation plan.

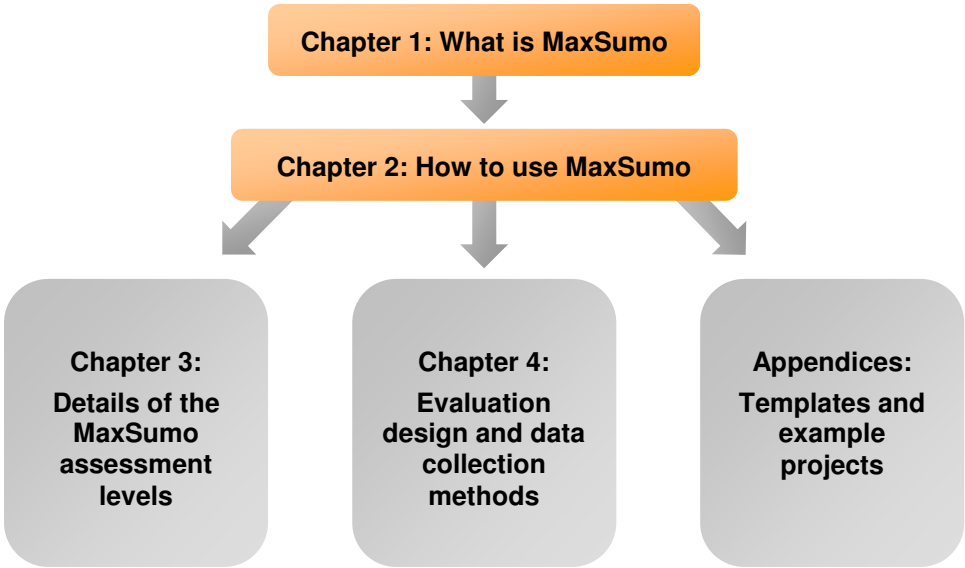

Figure 1: Structure of the MaxSumo guide

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1 What is MaxSumo

In this chapter the principle of MaxSumo is described, as well as why and when to use MaxSumo.

1.1 How does MaxSumo work?

MaxSumo is a systematic standardised evaluation methodology specifically designed for the evaluation of mobility projects. It provides step-by-step guidance to effectively plan, monitor and evaluate mobility projects and programmes including both projects comprised of single measures, and combinations or packages of measures. MaxSumo includes assessment of both the efforts of the projects and the mobility behaviour the project aims at changing.

The design of MaxSumo is simple and the methods included are not significantly different from other guidelines for transport and public policy evaluations. However, MaxSumo is unique in how its targets, indicators and results can be specified at different levels. Although the MaxSumo method is simple, it is based on a theoretical framework of how people actually change their travel behaviour and incorporates this knowledge into the evaluation process.

The 'gap' between what is done in a mobility project and the desired target for system impact is often huge. MaxSumo divides this gap into smaller steps (assessment levels) that can actually be monitored and evaluated. It provides step-by-step guidance from the start of the project, through the implementation all the way to system impacts. Each step moves the evaluation closer to the overall target – impacts/effects on system level.

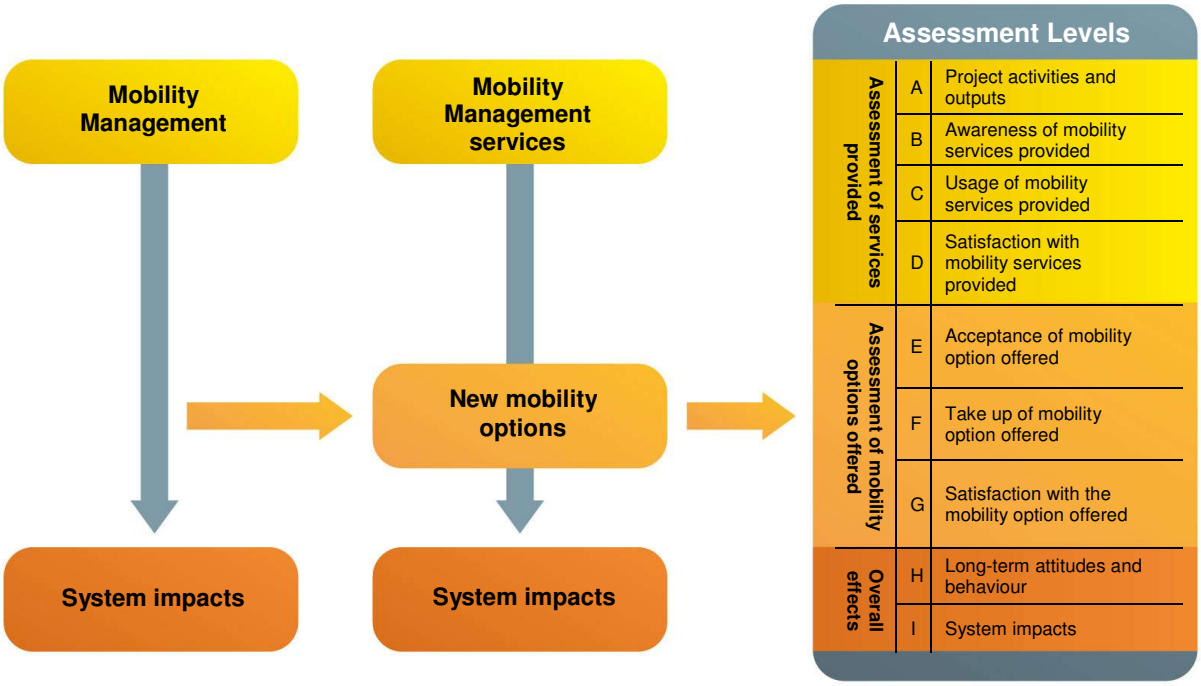

Figure 2: MaxSumo divides the gap between what we do in MM and the targeted impacts into manageable steps (assessment levels)

The different MaxSumo levels follow on from one other in a logical way. At all levels you need to decide what you want to measure, what indicators to use and how to measure these. Guidance on how to do this is provided in chapters 2 and 3.

The different assessment levels in MaxSumo are divided into four main categories;

- **Intervention framework conditions** refer to underlying background conditions in the location where the project is to take place, and characteristics of the group that is the focus of the project.
- **Services provided by the project** refer to the different activities and outputs the project provides in order to promote changes in travel behaviour (i.e. what the project is providing to people).
- **Mobility options offered through the services provided** refer to the travel behaviour the project is attempting to persuade the target sample to use (e.g. attempt to switch car drivers to public transport, cycling or walking for some or all of their trips)
- **Overall effects** refer to main outcomes of the project with regard to new attitudes and behaviour adopted, and system impacts achieved by a change in behaviour (e.g. reduction in car mileage, CO_2 emissions)

Table 1: MaxSumo assessment levels

MaxSumo ASSESSMENT LEVELS		
Intervention framework conditions		**External factors** A description of the external conditions for the measures. These are the same for all users.
		Person-related factors Information about the personal situation for different individuals, in order to divide them into target groups, etc. This includes both 'objective conditions' (such as distance home-to-work, access to public transport) and 'subjective conditions' (such as the individual's stage of behavioural change and the travel behaviour before the intervention).
Assessment of services provided	A	**Project activities and outputs** Describes the project effort invested in the measure to change behaviour, such as meetings, material distributed, data systems introduced, decisions on travel policy, etc, and the costs for this.
	B	**Awareness of mobility services provided** Describes the awareness of the project or the mobility services provided.
	C	**Usage of mobility services provided** Among those people that are aware of the services, this level describes the usage or the interest shown in the project or mobility services.
	D	**Satisfaction with mobility services provided** Measures how satisfied users are with the services provided.

Assessment of mobility options offered	E	**Acceptance of mobility option offered** Describes the acceptance of the mobility option offered, by measuring the intent to change behaviour.
	F	**Take up of mobility option offered** Measures how many test the new mobility option offered i.e. try a new mobility behaviour.
	G	**Satisfaction with the mobility option offered** Shows if people that have tested the mobility option offered are satisfied with it (often a pre-condition if they are to make it a permanent behavioural change).
Overall effects	H	**Long-term attitudes and behaviour** Measures how many users, due to the intervention, adopt new attitudes and ultimately change how they travel.
	I	**System impacts** These are the effects that the project or programme is aiming for at a system level e.g. effect on total traffic on an urban road network. It assesses e.g. how much vehicle mileage, emissions, energy consumption or accidents have changed as a result of the change in travel behaviour.

1.2 Why use MaxSumo?

For anybody carrying out or funding mobility projects, it is important to demonstrate that the project has been successful and to justify the money invested. It is also crucial to understand *why* certain results have been obtained. Evaluation in accordance with MaxSumo permits project monitoring both during and after the project and offers an opportunity to compare projects with each other and understand what has worked and why.

By considering the whole process up-front, it is easier both to monitor the individual project and for future projects to benefit from the experiences of the current one.

MaxSumo offers an opportunity to systematically and effectively plan, monitor and evaluate all mobility projects and programmes aimed at behavioural change. It provides standardised guidance for all the necessary steps, e.g. when setting targets, defining target groups, selecting measures etc. MaxSumo also builds on the idea of conceptualising the behaviour change process as a series of stages which individuals progress through in order to reach the final desired stage of behavioural change. The level-based system makes it possible to measure results of a project at an early stage and, if needed, take possible corrective action, if the results are not promising enough.

Users of MaxSumo can be local city planners, transport planners, their consultants, other persons in organisations dealing with influencing citizens´ mobility patterns or persons working with mobility management for example in companies or schools.

Before further highlighting the main benefits of monitoring and evaluation, it is useful to define them:

- **Monitoring** is the collection, storage and compilation of data in a systematic way and describes what has happened and what impact has occurred. Monitoring is the basis for evaluation but lacks the explanation why.

- **Evaluation** assesses the data collected in a systematic manner. It involves a deeper analysis of the impact, seeks to explain *why* a change has occurred and helps in drawing conclusions about cause and effect (i.e. is any observed behaviour change directly attributable to the intervention implemented).

In short, monitoring refers to what has happened as a result of the intervention and evaluation refers to why these changes have occurred.

The main benefits of using MaxSumo to perform evaluations are:

Improved project management and tracking achievements of objectives - Projects benefit in efficiency if monitoring and evaluation is used both in initial planning and throughout the implementation stages, and as a permanent process to help in steering the project and reaching real results. The result provides feedback to the work team, the decision makers and the people affected by the measure. Early results are also helpful in establishing whether the project is actually coming closer to its objectives or not. Sometimes the direction of a project must be changed. Monitoring helps us to see where adjustments might be necessary. In this sense, evaluation is simply a management tool providing feedback and aiding accountability.

Evaluation helps in the learning process - Monitoring and evaluation provide a chance to compare results with results of other, similar, projects that have also been evaluated. This benchmarking provides a build-up of knowledge that would otherwise not be possible. Sharing experiences also help others learn what worked, as well as about what did not work out so well.

Enhance knowledge about cause and effect relationships - Better measurement, documentation, monitoring and evaluation can provide better insight into impact on behavioural change. In the longer term this offers significantly improved opportunities to produce verified cause and effect relationships. These can then be used to calculate and predict the expected results of future mobility projects.

Provide data to help future decisions and investments - Measuring cost-effectiveness of MM measures implemented is an explicit goal for decision makers and funders and evaluation helps establish these costs.

Despite the benefits highlighted above, many mobility projects are not evaluated at all. It may be that you (or the funders) do not think that spending additional money of evaluation is justified, or perhaps you are not sure how to perform an evaluation at all. We hope the arguments provided in MaxSumo will convince you and your project funders of the importance and value of proper evaluation.

1.3 When can MaxSumo be used?

MaxSumo can be applied to most mobility projects comprising either single or multiple measures that aim to influence attitudes and behaviour with respect to how people travel; it can also act as a basis for the evaluation of large-scale programmes of MM measures across multiple sites and areas. This includes the full range of mobility management measures, although MaxSumo is flexible enough to apply in other areas, such as road safety. The MaxSumo approach can also be used to evaluate traditional 'hard' physical measures when these are combined with 'soft' mobility management type strategies.

MaxSumo's flexibility allows it to be applied to both large scale projects such as campaigns targeted at large populations (city or regional wide) and those targeting specific work organisations, schools, housing estates.

1.4 Understanding behaviour change

The primary purpose of any evaluation is to demonstrate that the mobility project implemented has achieved its main aims. In the case of Mobility Management this refers to whether the project has made individuals' travel behaviour more sustainable.

In order to successfully change people's behaviour, it is essential to understand the underlying processes necessary for behavioural change to occur, and to use this knowledge for the implementation strategies. Most relevant to the implementation and evaluation of mobility projects are two key facts related to behavioural change:

- Firstly, in any given population some people are more susceptible to changing their travel behaviour than others. This partly relates to more subjective factors such as their attitudes and perceptions towards their current travel choices. For some people the barriers to modal shift are more objective: for example, if there is no bus service operating on the route for their journey, or if they have a disability that prevents them switching car trips to cycling or walking.

- Secondly, it is increasingly acknowledged that in many instances behavioural change does not occur as a one-step process and can instead be viewed as a series of stages (or steps) which individuals progress through in order to reach the final stage, a new habitual behaviour. Thus, more subtle changes in attitudes and perceptions towards alternative modes (reflecting a greater propensity to change behaviour) will occur simultaneously to obvious behavioural changes.

In order to obtain a 'fuller picture' of what the intervention has achieved it is important to measure these more subtle changes in attitudes and perceptions as well as overt behavioural change *per se;* evaluations that focus solely on actual behavioural change would not show this and therefore their success in moving people towards behaviour change would be understated.

Measurements of people's stage position can be used before the project starts to help inform the selection and design of subsequent measures, which may provide the 'final push' that will result in the ultimate goal of actual behavioural change. For example, a mass-media travel awareness initiative may increase some individuals' awareness of and propensity to use alternative transport modes. This new knowledge may inspire individuals to start considering the possibility of using these alternative modes, although further initiatives (perhaps personalised travel advice or reduced fares), may be necessary for them to actually switch to other modes.

This raises two key questions:

- How to measure such changes in attitudes and perceptions in an objective way?

- How to ensure that the measurement incorporates the full range of attitudinal and perceptual constructs that are known to be important in affecting behavioural change?

The theoretical model[2] developed within the Max project (MaxSEM) and its associated stage diagnostic questions address both these issues[3]. It offers a valid theoretical framework underpinning the behavioural change process and explains individuals' readiness to change travel mode by categorising them in one of four stages:

- **Stage 1: Pre-contemplative stage.** Individuals in this stage are quite happy with the way they currently make their current trips (i.e. as car drivers) and at the moment have no wish, or desire to change to another mode.

- **Stage 2: Contemplative stage.** Individuals in this stage are not as content with their current travel behaviour (as pre-contemplators). They would like to change to another way of travelling (mode), but perhaps are unsure of which mode to switch to, or don't have enough confidence to do so at this stage.

- **Stage 3: Preparation/action stage.** Individuals in this stage have decided which mode they intend to switch to for some or all of their trips, and may have already tried this new mode for some of their trips.

- **Stage 4: Maintenance stage.** Individuals in this stage have successfully replaced some or all of their trips to the 'new' mode and this new behaviour (way of travelling) becomes the dominant mode they use for most of their trips (a new habit has been formed).

MM interventions can then be designed, or the most appropriate MM measures selected, according to which stage the individuals within the target population are currently in. Questions to group people into different stages are presented in appendix 1 (chapter 5). By asking these same questions before and after a MM project has been implemented, evaluators can establish whether intervention has progressed people to later stages of readiness to change behaviour. If yes, this information can then be used to select the most appropriate follow-up measures in order to 'push' people into the final stage of long-term behavioural change; it is also a further measure of a project's success.

[2] A detailed overview of behavioural change models is available in the MAX Work Package B State-of-the-Art-Report http://www.max-success.eu/downloads/MAX_SoA_AnnexB1_1.pdf.

[3] For more information about MaxSEM and other Max tools visit www.max-success.eu or www.epomm.org

2 How to use MaxSumo

In this chapter an overview of the MaxSumo process is described, followed by a more detailed description explaining what to do when using MaxSumo.

2.1 Overview of the MaxSumo process

MaxSumo is not only a resource advising what needs to be monitored and evaluated (and at what level), but also provides guidance throughout the project from deciding on what to do, to finalising an evaluation.

MaxSumo can thus be seen as a process to help manage and pilot the project issues and to attain real results. Some of the process deals with aspects at the very start of the project, others once the project is up-and-running and some also in the final evaluation stage.

It is important to follow the process intended for the start of the project and work with assessment levels at the *outset* of a project in order to be able to carry out monitoring and evaluation at these levels. This also helps steer the project in a systematic and methodical way towards the correct target group, organisation, and services (methods for inducing an impact). Use of the different MaxSumo assessment levels must be planned from the very beginning of the project.

Good monitoring and evaluation of a project starts with planning. All too often, consideration of evaluation only occurs towards the end of a project. If you begin thinking about evaluation at the outset, before the actual project implementation begins, it gives you (in accordance with MaxSumo) the best opportunities to target initiatives and resources as efficiently as possible.

The MaxSumo process (see Figure 3), describes the stages that are carried out at the start of a project (defining the scope of project, overall goals, target groups, and working method) to study the various assessment levels and decide what is to be done. The process then describes how assessment levels are used in monitoring and evaluation. Feedback from the evaluation allows opportunities for making improvements to the project in progress. This is a very important part of the process (marked with feedback arrows to the right in Figure 3). It is also at the evaluation stage that cause and effect relationships are observed.

This means that from the very start of the project all steps in the first block of the MaxSumo process should be performed:

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

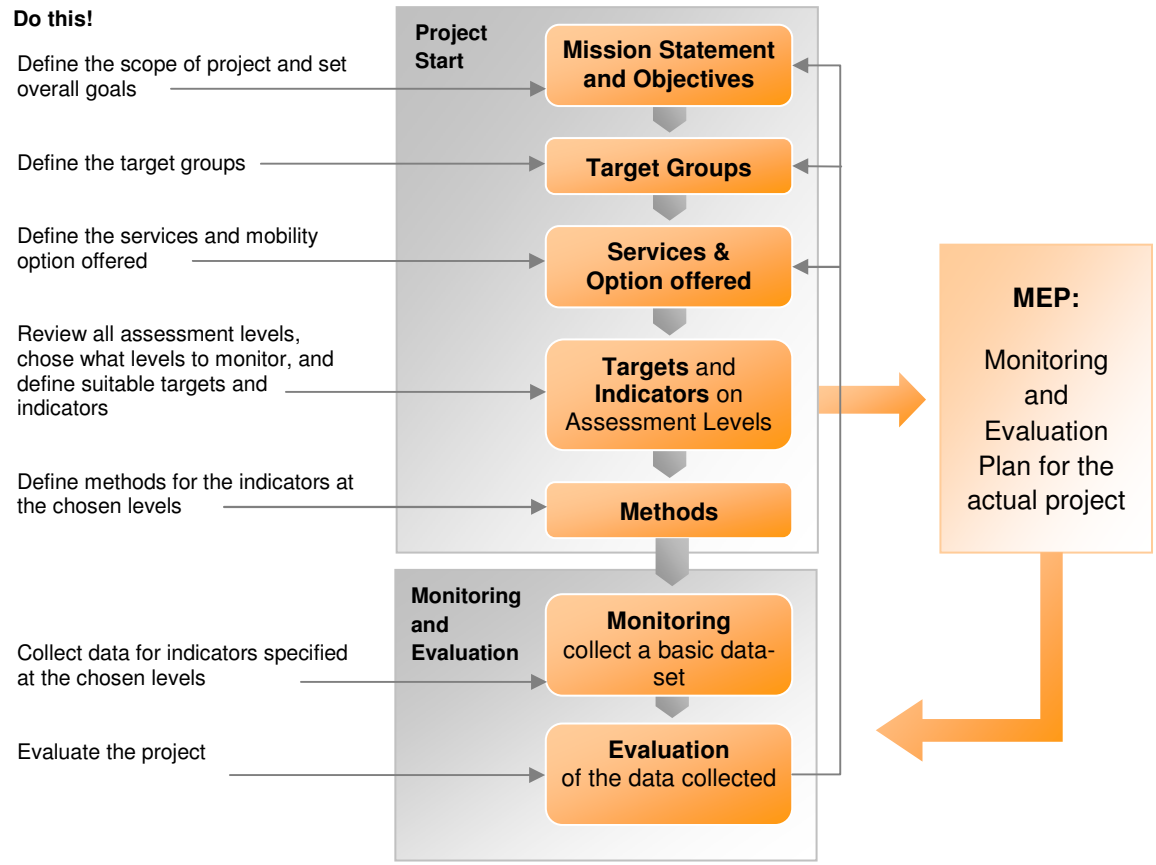

Figure 4: The MaxSumo process - a multi-step procedure initiated when starting to plan a project

Monitoring and Evaluation Plan (MEP)

The MaxSumo process describes how to make a monitoring and evaluation plan – MEP – for the project. When the MEP has been developed you have a clear plan for how to proceed with the project as well as how to perform the monitoring and evaluation of the project. After completing the MEP the actual project and its activities should begin.

During the project you will monitor according to the MEP and at the end of the project, or at specific moments during the project, you will make a deeper analysis of the collected data and draw conclusions about the effects of the project and if any changes in directions should occur.

Templates for the MEP are found in Appendix 3.

Test traveller – example project for MaxSumo

To illustrate how MaxSumo is used in the entire evaluation process and at the different assessment levels a description of an example project is provided in separate boxes.

A **test traveller project** is presented as an example in MaxSUMO; the project focuses on a defined target group, in our case company employees who normally commute to work by car. The test traveller project offers them the opportunity to try commuting by public transport during a specified period, for example one month. The car commuters receive information about appropriate public transport services together with a free bus ticket, valid for the whole 'test-travel' period. In return for the ticket, they make a commitment to participate in the wider project which entails attending meetings, participating in before and after surveys and actually trying out public transport alternatives using the tickets provided. Such a project can either be implemented as a single measure or as one out of several measures included in a workplace travel plan.

2.2 How to pilot, monitor and evaluate a mobility project

2.2.1 Step 1: Define scope, overall goals and targets of project

Overall goals for mobility projects (although varied) usually include improving air quality by reducing emissions, reducing the number of people killed and injured in traffic, reducing energy consumption and/or easing congestion by persuading car drivers to switch to more sustainable transport modes.

In order to successfully monitor and evaluate projects (to see if they have worked) it is important to clarify what the project is attempting to do (i.e. its target goals) before the project actually begins.

These targets must be set in an appropriate and constructive way and it is helpful to divide the overall goal into specific measurable sub-targets. To set targets the SMART model is useful.

SMART targets are:

Specific Specific and clear targets should, as far as possible define, what is to be achieved preferably also in quantifiable terms. For example, "Public transport mode share should increase" is more specific than "improved modal split". Even more specific would be "share of public transport should be increased by Y% for working trips in town X over the period Z".

Measurable If targets are not formulated to make them measurable then they cannot be binding. For example, "Share of public transport for working trips in town X should be increased from 20 % to 25 %" is one such measurable target. This target requires a baseline study to establish the current modal split; in this case you need to know that the current PT modal share for working trips is 20 %.

Ambitious / Accepted Ambitious and challenging targets encourage activity to achieve them, while targets that are easy to meet do not produce this effect. A target that "share of public transport should be increased by 0.5 % for working trips" would not produce any effect (or be measurable). The target should also be accepted by the project team and the funders.

Realistic However, it is important that targets are not so ambitious as to become unrealistic. The danger here is that if the targets are set unrealistically high then people consider them unattainable and consequently give up. The challenge is to make the targets both demanding but realistic.

Time-limited Targets should also be time-limited. This is necessary if the project and evaluation are to be efficient. For example, "The share of public transport for working trips in town X should be increased from 20 % to 25 % between 2004 and 2006" shows how a time-limited target can be formulated.

➡ To do: Describe the project and its scope and define the overall goals and targets.

Test traveller example:

Scope: The project involves persuading car commuters to break their habit and commute to work by bus in order to reduce environmental impact and congestion on city roads.

Goals: The overall goal for the local authority is a more sustainable environment and less road congestion. For the transport provider, the overall goal of the project is to be better able to entice more people to commute by bus. They are interested in finding out the opinion of people who were not used to taking the bus in order to be able to improve commuting facilities and ultimately increase the number of bus commuters.

Target: The project should lead to a reduction of at least 20 tons of carbon dioxide one year after it is introduced.

2.2.2 Step 2: Define the target groups

It is important to decide upon and define specific target groups whose behaviour the project is attempting to change, which in part allows you to focus your resources onto groups that are likely to produce the greatest effects. The target group can for example be all employees at a company but also a more specific selection can be useful. The selection of target groups can be based on various criteria, including:

- trip purpose (e.g. work, leisure and school);
- specific routes (i.e. different combinations of origin and destination points);
- geographical regions, such as living in a certain area;
- specific transport modes, such as car or public transport;
- attitudes towards transport modes or different MM measures;
- socio-demographic variables (e.g. age and gender);
- major life changes (such as people that have recently moved house, changed work or had children); and
- current stage of behaviour change (pre-contemplation, contemplation, preparation / action, maintenance).

The target group will be largely dependent on the aims of the mobility projects, i.e. to target car drivers to switch to public transport, to target parents who currently drive their children to school to walk instead, and so on.

For example, if you are looking to persuade employees at a specific work location to use non-car alternatives, the overall target population would be employees. To identify only those who are currently driving to work, you need to separate them for example from those who already use the bus or walk. If no information about car drivers is available, you can use the 'before' survey to 'find them'. You can specify your target group even further by selecting those employees who have an objective choice to travel for example by public transport to

work e.g. those who live close to a bus line. Thus, you focus resources on those people, who are the ones most likely to change their transport behaviours. Depending on the actual situation for the selected target group and what stage an individual belongs to, the most appropriate MM measure can then be selected.

Sometimes there are direct and indirect target groups, such as corporate management or union representatives (indirect target groups) who need to accept the measure so that you can reach your direct target group (e.g. employees and management staff that are asked to change their behaviour). Often identifying and working also with the indirect target groups is crucial for successful implementation of measures. Services in the project can be aimed at both groups but the mobility option offered is only for the direct target group. In the appendix there are templates for each group separately.

➡ To do: List possible target groups for defined measures. Target groups are used to divide the population based on typical characteristics relevant to the measures.

Test traveller example: The project focuses on car commuters at two major workplaces, Oles Bakery and the hospital. Of these, the project particularly targets employees that live in towns with good bus connections to each workplace, although they currently travel to work by car.

In the test traveller project all participants belong to the preparation/action stage (stage 3) as they are all positive about trying public transport for a month. The selected MM measure includes a trial period using public transport aiming at moving people into the maintenance stage (stage 4).

2.2.3 Step 3: Define the mobility services provided and mobility options offered

Mobility projects promote changed mobility behaviour by providing mobility services that aim to make people accept and use a new mobility option offered to them.

Mobility services provided

Mobility projects often consist of a range of measures, these measures can be categorised into different ***mobility services provided*** by the project or the programme. These are:

Information measures provide the potential traveller with information and advice though many possible media, e.g. advertising, door-to-door leafleting and travel information before and during the trip.

Promotional measures are a more extensive form of information offered to customers. This could be personalised travel assistance, advertising campaign to encourage people to try walking, cycling and/or public transport and targeted promotions of alternative modes for specific groups.

Organisation and coordination measures are about efficient ways to organise sustainable transport. This could include car pool matching services, area-wide car sharing services and flexible cycle hire services.

Education and training measures refer to the integration of MM into education and the training of staff in MM issues and training in special techniques such as Eco-Driving.

Site-based measures include a large number of measures such as company and school mobility plans, site-based services and infrastructure (e.g. bicycle parking, bus stops, bus shuttles, work buses).

Telecommunication and flexible time organisation substitute travel with telecommunications and/or reorganisation of working practice, e.g. changing the number of times that patients have to come to hospital for a

given procedure, changing the opening hours of certain organisations, introducing flexible working hours or compressed weeks.

Supportive /integrative actions include measures that may not be implemented directly to manage mobility, but that can have significant impacts on the effectiveness of MM. This could be parking management, (pricing, rationing, limiting, cash-out) tax changes to make employer provided travel benefits more or less attractive, and planning permission connected to certain requirements by the developer, owner or occupier to minimise the mobility impact of the new development.

Further details and definitions of different types of MM measure can be found at www.max-success.eu.

Mobility options offered

The mobility options offered are the travel behaviour the project aims to make people switch to, e.g. a shift from the use of car to the use of walking, cycling or public transport, a shift from owning a private car to using a car belonging to a car-sharing association, a shift from driving to work four days a week instead of five days a week.

➡ To do: Describe the mobility services provided by the project and the mobility options offered to the target group.

Test traveller example:

The **mobility service provided** is a combination of different kinds of information and a trial period public transport ticket. To recruit car commuters for the trial period information meetings are held at the companies. The project provides detailed advice, free public transport passes, etc for car commuters signing up for the testing public transport.

Mobility option offered: To commute by public transport rather than by car.

2.2.4 Step 4: Set targets and define indicators for MaxSumo assessment levels

Often, it is a large step between the efforts in a single MM-project and the desired sustainable transport behaviour. Direct measurement of the overall goals is often difficult or impossible and takes a long time. Using MaxSumo for measurements at a number of early stages in the project can provide valuable information as the project progresses. Based on the overall goals and targets for the project, detailed realistic, measurable and time-specific targets need to be defined for the different assessment levels.

Targets and indicators for each specific level are closely linked. Often the target setting and drawing up of indicators are done simultaneously in an iterative process. The nature of the project determines which assessment levels are applicable. Sometimes certain levels simply do not exist, and sometimes these can be too difficult for the project to measure. When setting targets and deciding on indicators it is also advisable to decide on which assessment levels to include in the project monitoring and evaluation.

Table 2 shows examples of targets for the different assessment levels in the test traveller project. In the example we have formulated targets for each assessment level. However, as stated earlier, it is more common to focus on the most relevant key levels and defining the projects 'smart' targets for those. For example, if the key objective of the monitoring of a project was to find out the change in CO_2 emissions that resulted from it, the most relevant level would be H, travel behaviour. Here data from before and after the intervention would need to be collected for modal split, travel distance per mode, and number of trips per week and year for the intervention group and (if used) the control/comparison group (see chapter 4.2 for more information on these terms).

In this specific example the targets were derived from experiences from earlier evaluations of similar projects. It is recommended to use both percentage and the total numbers of employees as indicators since the total numbers are needed to be able to calculate any system effects at the end of the project.

Table 2: Targets for the MaxSumo assessment levels of the test traveller project (company with 1000 employees)

LEVEL		TARGETS
A	**Project activities and outputs**	Information meetings to recruit companies participating in the test traveller project were carried out at four companies by March 2008. Information campaigns to recruit test travellers were carried out at two different companies by June 2008.
B	**Awareness of mobility services provided**	At least 80 % of the employees (800 employees) at the companies know about the project.
C	**Usage of mobility services provided**	At least 25 % of the employees (250 employees) have participated in information meetings at the companies.
D	**Satisfaction with mobility services provided**	At least 90 % of the participants at meetings (225 employees) are satisfied with the information.
E	**Acceptance of mobility option offered**	At least 6 % of the employees (50 employees) agreed to become test travellers and receive trial tickets.
F	**Take up of mobility option offered**	At least 90 % of the test travellers (45 persons) actually tested commuting by public transport at least 3 days per week for a month between August and October 2008.
G	**Satisfaction with the mobility option offered**	At least 80 % of the test travellers (40 employees) were satisfied with the tested public transport option.
H	**Long-term attitudes and behaviour**	In September 2009, at least 50 % of the test travellers (25 employees) were still using public transport at least 3 times a week.
I	**System impacts**	Carbon dioxide (CO_2) emissions are reduced by at least 20 tons per year.

To make setting targets easier it is wise to proceed in two steps. For deciding on the type of targets, a useful method is to work your way from the level 'project activities and outputs', through the levels downwards all the way to the 'system impacts' by setting the target but not yet quantifying the achievements. When it comes to adding the actual measurable figures for the targets it is then better to instead start from the' system impact' level and work your way upward through the MaxSumo assessment levels. If the project has a specified system impact target such as a certain amount of CO_2 reduction this will guide the kind of effort in project activities and outputs needed to reach this target at system level.

➡ To do: Create a table at the outset of the project, defining targets and indicators for the key assessment levels of your project.

Test traveller example: See Appendix 2 (section 6.1) *Example Test Traveller*

2.2.5 Step 5: Define data collecting methods

Having defined your targets and indicators to monitor, an appropriate method for collecting the data needs to be defined. There are many different types of data collection methods, e g surveys/interviews, site investigations, documentation and counts. The choice of data collection method depends on the type of data of interest. When planning the project you should also decide how often data collection should take place.

See chapter 4 to find more details on evaluation design, data collection methods and when to collect your data.

➡ To do: Add methods chosen and surveys planned for each target and indicator for the chosen assessment levels to your MEP. The same survey can be used for measuring more than one level.

Test traveller example: The methods used in the test traveller project are a combination of *documentation* of project outputs and activities and *written surveys*.

2.2.6 Step 6: Monitor the chosen assessment levels

When monitoring the project data collection is done according to the MEP for the actual project. The MEP shows what indicators to measure, what methods to use and when to measure.

The assessment level "Services provided by the project" should be monitored during the course of the project. The levels A-D all assess how well known or accepted the services of your project are. They are used to get an overview of project progress and to judge whether it is running well or needs to be redirected to reach overall project targets.

Background data and current travel behaviour, normally need to be collected before or at the very beginning of the project. If this is collected only at the end of the project and only for the target group alone (without using a control or comparison group), proper evaluation of intervention effects will be nearly impossible. Travel behaviour after the intervention should always be monitored. If there are behavioural changes in the intervention group these need to be explained and data about the background conditions is invaluable in doing so.

In order to estimate the cost efficiency of various measures and the cost effectiveness of the overall project, it is also very helpful to document and monitor costs for the different measures and services. An example of how to document costs is included in the appendices.

➡ To do: Collect survey and monitoring data according to your MEP for the actual project.

2.2.7 Step 7: Evaluate the project and explain observed changes

Good planning is essential

Good preparation before starting the project as well as during the planning and monitoring phases makes the actual evaluation comparably simple to complete. Using the assessment levels provides a rational framework for doing this. It is really in the planning phase where you can lay the foundations for a proper evaluation. MaxSumo helps you to work systematically and gain know-how about suitable evaluation methods.

Explaining observed changes

Monitoring and evaluation are closely linked, but there is an important difference between both. **Monitoring** is, as stated before, the collection, storage and compilation of data in a systematic way and describes what has happened and what impact has occurred. It forms the basis for the evaluation but lacks the explanation why. **Evaluation** is to assess the collected data in a systematic manner. It involves a deeper analysis of the occurred impact, seeks to explain why a change has occurred and helps in drawing conclusions about cause and effect.

There are different aspects which should be considered carefully in order to be able to identify changes and to explain reasons for the changes; they depend in part on the methods chosen for collecting data on changes in mobility behaviour.

When monitoring and comparing behaviour with or without the project intervention to be evaluated you need to be very careful in what you compare. If you are measuring behaviour changes in a population or target group before, during and after any intervention or awareness campaign, be careful to compare behaviour within the same population. Maybe the population monitored in the before situation was not the same as the one monitored after the intervention. For example the mix of inhabitants or workforce included in the intervention might change during the project period. Make sure you compare behavioural data for comparable groups, not attributing changes to the intervention effects that are really due to comparing different populations or groups. If you use comparison or control group design to monitor changes these groups also have to be chosen very carefully so they really can be used for comparison and control. If the groups differ in composition or other behavioural conditions then the difference in mobility behaviour might not be fully attributed to the intervention but also to other differences. For a fuller discussion of these issues, see chapter 4.

An evaluation of effects in behavioural changes or early assessment of the project services provided can be performed during or after completing the project/intervention. In either case the evaluation aims to explain why changes have occurred. To be able to do this you have to be very careful when examining possible causes for the changes. Changes in mobility behaviour could result from factors such as weather, welfare/income, and changes in petrol prices, supply of public transport or similar. The key to well performed evaluation in this stage is a careful consideration of the situation, the intervention framework conditions and the monitoring data.

One of the important objectives of performing a proper and thorough plan for monitoring is to plan clearly which MaxSumo assessment levels to use and, equally important, when these need to be measured. This has to be decided before starting the intervention. It also helps to save resources and effort at the overall project level. Assessment levels will normally be measured using techniques such as counts, surveys and questionnaires. It is hugely important to give survey and question design careful consideration (see Appendix 1) to make experiences comparable.

In addition it is also advisable to try to estimate the benefits of the measure, i.e. monetary benefits from effects such as decreases in e.g. fuel consumption, parking space demand, congestion and sick leave.

To summarise – when evaluating you:

- compare the obtained results with the set targets,
- compare with other results and projects, and
- seek explanations for the changes (is it due to the intervention or are there other explanations?).

One of the most important long-term objectives for evaluating is to acquire basic data for cause and effect relationships of the implemented measures. By using MaxSumo, the effects of specific measures at the different levels can be estimated and be used to produce – over time – a system holding all the experience previously collected. When comparisons among multiple applications of various measures are possible, transferable lessons can best be learnt and best practices recommended.

By using MaxSumo for monitoring and evaluating all projects in a structured and consistent manner we will all be able to:

- adjust our measures and projects during their run to make them more effective,
- learn from the obtained results and do better next time,
- collect data for research and analysis of cause and effect relationships, and
- find out the most effective kinds of interventions.

➡ To do: Evaluate your project according to your MEP, compare the results with goals and targets, compare with other projects and results and seek explanations for the observed results such as behavioural changes.

3 Details of the MaxSumo assessment levels

This chapter gives a more detailed description of the MaxSumo assessment levels.

3.1 Intervention framework conditions

It is essential that the impact on behaviour resulting from the project under evaluation can be distinguished from other influencing factors occurring in the same time period. A good result might arise from a successful project, but could also depend on favourable conditions specific to that intervention site. This is of special interest when a one group design is used (see chapter 4 for more details). Monitoring indicators for background conditions serve several purposes:

- to better understand the surrounding conditions;
- to establish if changes have occurred with regard to external factors (e.g. new bus line) and person-related objective factors (e.g. moving to another area, differences in access to a car);
- to learn about effects on subjective person-related factors (e.g. if stage progression has occurred); and
- to be able to compare results from similar MM projects and to better understand why effects differ.

The two main factors that could affect the reliability of any results of the mobility project intervention can be broadly classified as either external or person-related factors.

3.1.1 External factors

External factors refer to local conditions that apply to the people who are targeted by the mobility project measures. These factors vary; examples include:

- political situation/legislation (e.g. a local authority or government may introduce by new by-laws),
- price of fuel and public transport (increases or decreases),
- infrastructure (e.g. new public transport lines, stops, or removal of existing ones),
- change of organisation's location,
- parking availability (e.g. changes in the number of places / cost), and
- other mobility projects that are introduced simultaneously.

In all of the above instances these external factors are likely to influence modal choice and, unless they are documented and ideally controlled for, it will be hard to accurately establish the precise impacts of the mobility project that is the subject of the evaluation.

Most of the monitoring data for these indicators can be gathered via official sources, such as official statistics or online reports, or can be obtained via secondary data sources, such as interviews with key personnel at local authorities, businesses, or during the preliminary assessment performed as part of the mobility project.

Test traveller example: Possible external factors influencing the effects of the project include location of the company, accessibility to public transport, changes in service frequencies or introduction of parking fees.

3.1.2 Person-related factors

Person-related factors refer to the personal characteristics of those people who are targeted by the mobility project. They can be broadly classified as either objective or subjective person-related factors.

Objective person-related factors include for example age, gender, living and working conditions.

Subjective person-related factors refer to individuals' intrinsic values, attitudes or stage position within MaxSEM (see chapter 1.4). When surveying only the intervention group it is especially important to collect data for each individual's stage position both before and after the mobility project measures have been implemented in order to monitor any changes during from the project intervention.

Most of the data for both objective and subjective person-related factors can be gathered via questionnaire surveys or interviews conducted with people in the target population group.

Test traveller example: Possible objective person-related factors for the test traveller project are changed living or working conditions, such as moving to a new house, a new job or different working hours.

Subjective person-related factors refer to the participants´ stage position within MaxSEM. It is most likely to progress people from the contemplative to the preparation/action stage, so they will try out public transport instead of the car.

3.2 Assessment of services provided

3.2.1 Level A – Project activities and outputs

Project outputs and activities refer to the various activities that are associated with the mobility project measures being implemented. They will of course vary with each project, and will include aspects such as the number of leaflets distributed in a post-out travel awareness campaign, the number and nature of face to face meetings with participants in a personalised travel planning project.

To monitor all actual activities is particularly important when barriers must be overcome and where an initial phase requires a concerted effort and investment for example to convince employees to take part in your test-traveller project. Outputs and activities are measured by continuously and consistently noting what is being carried out and quantifying the volume of activities using simple summaries to keep track of how many people have been reached by certain information (documentation) or meetings.

Test traveller example: Indicators are the number of leaflets distributed and the number of information meetings with employees explaining how to become a test traveller.

3.2.2 Level B – Awareness of mobility services provided

This level refers to the grade of awareness of the different mobility services provided. It is important to collect information at this level, as in most cases a basic prerequisite for anyone considering using the services that your project is promoting is an awareness that they exist. Measuring awareness of the service provides information on how well and widely-known it is and of how successful the marketing has been.

Good awareness of a project is valuable on its own, even if not everyone can or wants to participate in the project. One clear example is a car-pooling scheme at a company. The scheme can only be a success if sufficient numbers of employees are aware that it exists. Measuring awareness can provide early feedback that the project is not achieving its potential impact. If awareness was shown to be relatively low, it might highlight the need for further or different types of awareness raising activities, in order to make the scheme more successful.

Measuring awareness can be done via the use of interviews with people whose behaviour the mobility project is aiming to change.

Test traveller example: An indicator is the number and percentage of employees who are aware that the project is taking place. Either all or a representative sample of the employees can be included in the necessary data collection. If all employees use e-mail, it could be a good idea to include all and use a web-based survey.

3.2.3 Level C – Usage of mobility services provided

This level refers to the number of people who use the services provided within the mobility project. Measuring this number allows you to determine how effective these efforts have been. The measurement also gives an opportunity to obtain feedback on the project activities.

Using the services is a step towards a change in behaviour but does not guarantee it. Usage of the services provided by a MM-project is measured by counting and documenting how many people have used the service, for example this could be the number of registrations for a car-pooling database.

Test traveller example: Indicators are the percentage and total number of employees for each company who attended information meetings about the project.

3.2.4 Level D – Satisfaction with mobility services provided

This refers to the level of satisfaction with the mobility service provided which reflects how well they meet the needs of the target group. This can be measured through follow-up interviews with people that have used the service, and provides useful information about how the service could be improved to better meet their needs.

Test traveller example: Satisfaction with the service provided can be measured through interviews or through questionnaires to all or a few of those who attended information meetings to ask how they perceived the information, and if they could suggest any improvements.

3.3 Assessment of mobility option offered

3.3.1 Level E – Acceptance of mobility option offered

This level refers to the level of acceptance of the mobility option offered. To accept the mobility option offered means to express a **willingness** to test it (new travel option, receiving a cycle helmet.). Note that acceptance of an option offered does not necessarily mean that people will actually test the option, or actually change their behaviour to the mobility mode that is been offered. One way of measuring the acceptance level is to register the number of people that contact a suggested carpooling group, or who receive a cycle helmet with the intention of using it.

Test traveller example: An indicator of acceptance of the mobility option offered are the number and percentage of people who expressed interest in taking up the offer and joining the test traveller scheme after receiving information about the project.

3.3.2 Level F – Take up of mobility option offered

This level refers to the number of people who try out the mobility option offered. In most mobility projects, individuals are encouraged to test new travel behaviour, in MaxSumo this is measured as 'take-up of mobility option offered'.

Testing and trying of a new mode should not be confused with long-term behavioural changes. If it is not possible to monitor this level during the project period, it could be asked for retrospectively by asking a question about the use of the offered bus-ticket during the project period in the after-survey. Thus it would be measured together with the long term behaviour, which needs to be measured for the project evaluation in any case (see level H in chapter 3.4.1).

Evaluation design implications: If a control group or a comparison group is available, these data are measured for both the intervention group and the control/comparison group.

Test traveller example: Indicators for this level are the modal split of employees during the test period together with distance travelled by the different modes and the number and percentages of people that use public transport at least 3 days per week during the test period. To monitor these indicators interviews and/or questionnaire surveys are used.

3.3.3 Level G – Satisfaction with the mobility option offered

This level refers to the level of satisfaction with the mobility option. A certain level of satisfaction with the new type of behaviour that the participants have tested is an important prerequisite for recurrent and hopefully long-term behavioural change. Measuring the satisfaction with the mobility option offered provides also useful information about how the option could be improved to better meet the needs of the users.

Test traveller example: This would relate to the percentage of people satisfied (including degree of satisfaction) with commuting with public transport during the test period. This can be measured through interviews with all or some of the people who have taken up the new mobility behaviour.

3.4 Overall effects

3.4.1 Level H – Long-term attitudes and behaviour

This level refers to two specific, although related impacts of a mobility project: long-term attitudes and behaviour. The overall goal in mobility projects is typically to change individuals' travel behaviour to more sustainable transport modes on a long-term basis, but also changes in attitudes are of interest.

Attitudes refer to people's position within MaxSEM stages, their intrinsic values, or attitudes towards transport modes.

Behaviour refers to peoples modal choices for all – or specific – trips that they make.

Information about behaviour after the completion of a project can be obtained through questionnaire surveys or interviews with the participants. These surveys should take place several months, preferably one year, after the end of the intervention in order to measure long-term changes (see chapter 4.3.2). Monitoring this level could include how many individuals use carpooling on their way to work a year after the implementation of a carpool matching system at a company or how many people use cycle helmets when travelling to work a year after a cycle helmet campaign was conducted at their workplace.

Evaluation design implications: If a control group or a comparison group is available, these data are measured for both the intervention group and the control/comparison group.

> **Test traveller example:** Attitudinal indicators refer to the participants' stage position within MaxSEM.
>
> Behavioural indicators are the modal split, the number and percentage of people that use the bus at least 3 days per week, measured a year after the project ended.

3.4.2 Level I – System impacts

Long-term changes in individual's modal choice can provide lasting impacts on the road transport system, for example in the form of reduced air pollutants / noise emissions, less vehicle mileage, reduced energy consumption, fewer accidents or reduction of car-parking spaces. The sum of these changes within a target group shows the impact at a system level. This is estimated using data collected at previous levels.

Based on the modal split changes, the distance travelled by each mode and the size of the actual group, a change in the vehicle mileage travelled with each mode can be calculated. A drop in vehicle mileage could be an overall target at system impact level but can also be converted into reduced emissions and less petrol consumption. Data collection must, however, ensure that one can see how vehicle mileage is distributed between the different modes of transport.

Unless you have experience with previous projects, how to translate the mileage split by mode into reductions in emissions can be difficult. It is not possible to give recommendations on what emission factors to use since these differ between countries as well as between cities due to a wide variation of vehicles used. Changes in mileage per mode are, however, comparable between regions or cities. When analysing and trying to evaluate the differences it is of importance to take into account other factors that may affect the target behaviour and also to ask for the reasons for change (see Appendix 1).

It is suggested that the impact of the project on emissions is calculated. It is often difficult to show the effects of a (small) mobility project on the actual air quality when using ambient measurement of pollutants, as the type or size of change can be relatively small, at least in the short term, in comparison to the overall emissions situation. In addition, measurement of ambient concentrations shows only the overall levels of pollutants in the air, not changes in quantities discharged from different sources. In the case of carbon dioxide, only the total emissions per source matter, whilst local concentrations are unimportant. To facilitate a comparison between projects it may be more useful to focus on one or a few pollutants. CO_2 is a key policy challenge, so it should be included in each report on a sustainable mobility project; other substances of interest could be nitrous oxides and particle matter, which are important for local air quality.

Evaluation design issues: The system impact is calculated by comparing the situation before and after a project if a one-group design is used. When a comparison or control group design is used, the system impact is calculated by comparing the situation of the intervention and control/comparison group after a project.

Test traveller example: System impact of the test traveller project refers to the calculated reduction of CO_2 due to surveyed changes in travel behaviour.

4 Evaluation design and data collection methods

In order to efficiently evaluate any mobility project it is of critical importance to decide, at the very beginning of the project, on the appropriate methods that will be used. This chapter helps you to select evaluation designs and appropriate data collection methods. More detailed templates for monitoring and evaluation are provided in the Appendices.

4.1 Establishing cause-and-effect

The main purpose of any evaluation is to establish as accurately as possible that the mobility project implemented has achieved its primary aim. For example, following an awareness raising campaign to encourage cycling at a specific workplace, more people have started cycling to work. Unfortunately, in the majority of instances when mobility projects are implemented, other 'external' factors (that may also affect travel behaviour) are likely to occur at the same time. These could for example include changes in weather patterns, petrol prices, wages, or population-wide attitudes towards exercise.

In order to accurately evaluate the measures being implemented, it is very important to take into account - *control for* - the effects of any of these external factors to ensure that measured changes are a direct result of the mobility project intervention, and nothing else. This is known as **establishing cause-and-effect**.

Taking the cycling awareness campaign as example, it could be that after the campaign, it was found that an additional 5% of the workforces are now cycling to work instead of driving. An initial reaction would be to say that this was all due to the awareness campaign. However at the same time, fuel prices could rise or new secure cycle parking facilities could have been installed. These factors would also have been likely to play a role in increasing cycling to work, making it very difficult to establish the precise 'stand-alone' effects of the awareness campaign.

The importance of measuring external factors (and how to do so) is also discussed in chapter 2.2.7 and 4.1.

4.2 Evaluation design

This section provides an overview of the main evaluation designs available, and illustrates the impact of each design for establishing cause-and-effect. There are three main design types of evaluation available:

- control group design,
- comparison group design, and
- one group design.

The choice of which design to use is dependant primarily on the type of project and the resources and experience of those implementing it (see chapter 4.2.4).

4.2.1 Control group design

The most reliable way to establish cause-and-effect is through the use of a pre-post **control group design**. This measures behaviour before and after the intervention and compares the travel behaviour in the target population (i.e. *intervention group)*, with the behaviour in a group that has not been exposed to the intervention, (i.e. the *control group)*. To illustrate how this design can be applied to a mobility project, an example is provided below.

A travel awareness campaign intends to target the population living in a housing area in a suburb of a large city and aims to persuade them to use public transport (i.e. the bus) rather than the car for trips to the city centre. The intervention consists of information packs about local bus services delivered to people in the target area. The campaign starts with a 'before' questionnaire survey with a representative sample of residents for collecting baseline information such as their current travel habits , their attitudes towards switching to the bus for some / all of these trips (i.e. how ready are they for change using the MaxSEM stage-diagnostic questions), and other socio-demographic data.

The residents would then be randomly assigned[4] to either the intervention group (those who receive the information packs) or the control group (those who do not). The random assignment makes sure that both groups are similar and only differ in their exposure to the intervention. After the awareness materials have been sent to the intervention group only, a suitable timescale would be allowed for people to digest the materials and perhaps change their current travel behaviour. An 'after' survey would then be conducted with both groups using the same questions as the before survey. Additional questions related to the actual materials, such as do people like them, are they useful could be included for the intervention group.

Finally, the responses from both groups can be compared, and any differences between them can be attributed (with confidence) to the actual awareness campaign, as other effects have been controlled for. For example, if 15% of the intervention group and 10 % of the control group are now using the bus for their trips, one can conclude that the awareness campaign has resulted in 5 % increase in public transport use.

Similarly, it may be observed that 15 % of the intervention group and 10 % of the control group have moved from being pre-contemplators to contemplators. It can be concluded that the information packs for the intervention group have resulted in moving 5 % of them to a higher stage of readiness to change their travel behaviour. As these 5 % are now more ready to change behaviour (i.e. try out the local bus services), this knowledge supports the local authority (who implemented this campaign) to decide a follow-up project specifically targeting this 5 % using other methods, such as providing them with free travel tickets for the bus.

4.2.2 Comparison group design

For many mobility project interventions, especially those which target whole populations, such as travel plans for schools, or a city-wide mass-media awareness campaign , it would not be possible to identify 'true' control groups, as every individual within the population would be exposed to the intervention. In these instances a pre - post **comparison group design** should preferably be applied. This design is similar to the control group design but it uses a 'comparison' group from a different population to be compared to the intervention group. The key issue for the success of this type of design is to ensure that the two separate groups are as closely

[4] Random assignment means that every participant (resident in this case) has an equal chance of been assigned to either the intervention or control group. This can easily be achieved by dividing the sample into two separate piles by hand (e.g. first three into pile one, second three into pile two, third five into pile one, etc.). If a list has been created in an electronic format, you can often use automated procedures to randomly allocate people into the two groups.

matched as possible on all factors known to influence modal choice decisions, such as access to public transport services, income levels.

For example, if the mobility project implemented was a school travel plan, it would be extremely unlikely that you could identify a sub-group of school pupils at that particular school that was not exposed to the travel plan initiative (i.e. a control group). In this example, another school with pupils of similar ages, living in similar areas in terms of public transport accessibility, with the same initial mobility behaviour within populations of similar socio-demographic profiles can be used instead. The same process with before and after surveys as for the control group design is then followed.

4.2.3 One group design

If it is not possible to find a control or a comparison group, a pre-post **one group design** should be used. In this study design, the mobility behaviour of the same group is surveyed before and after the intervention. For example employees of a company will be surveyed about their travel behaviour before and after the implementation of a travel plan. In many cases where an adequate control or a comparison group cannot be found this is the only feasible way to examine the effects of a MM intervention.

Here it is of special importance to take into account other factors that may affect the target group's behaviour and also to ask for the reasons for any change observed (see Appendix 1). For example an increase in cycling instead of driving can be a success of a bike-to-work campaign, but can also be a result of rising petrol prices, selling the car or moving closer to the workplace. The contextual conditions should be considered and be taken into account when drawing conclusions from the results.

This evaluation design is not as reliable as the control group design in establishing cause and effect relationships, but it can give a lot of valuable results for a single MM intervention – for example, whether specific targets have been reached, whether measures are accepted and how the mobility project has worked. When different MM measures are evaluated in the same way they can also be compared to each other which will give valuable input to future decisions.

4.2.4 Which design to use?

The choice of which design to use is dependent on a combination of several factors, namely, the type of project implemented, the purpose of the evaluation, and the available resources. In Table 3 below a summary of the three design options, as described in the previous chapter is shown.

Table 3: Differences in study designs

STUDY DESIGN	GROUPS	BEFORE STUDY	RECEIVING MM INTERVENTION	AFTER STUDY
Control group design	Intervention group	Yes	Yes	Yes
	Control group	Yes	No	Yes
Comparison group design	Intervention group	Yes	Yes	Yes
	Comparison group	Yes	No	Yes
One group design	Intervention group	Yes	Yes	Yes

The use of control groups will be particularly appropriate when the mobility project is implemented and evaluated directly by a large (well resourced) party such as a local authority or by its contractor. A control group design is more complicated to implement than other designs, but it gives much greater confidence that any changes observed in attitudes, awareness and travel behaviour are really as a result of the MM measure and not due to some other change e.g. an increase in fuel prices. For this reason, it is worth the effort and should be used wherever possible. Only if it is not possible, a comparison or one group design should be used. As noted earlier for some types of mobility projects - those that target whole populations - it is impossible to identify a true control group. Ideally in these instances a comparison group design should be used.

However, control and comparison designs are slightly more complex and do require more experience and resources in conducting evaluations. As such it may be impractical or unfeasible for smaller mobility projects implemented by, say, schools or smaller work organisations to use such designs, and the pre-post one group design should be used instead.

A recommended decision making process for the selection of the most appropriate design is presented in Figure 5 below.

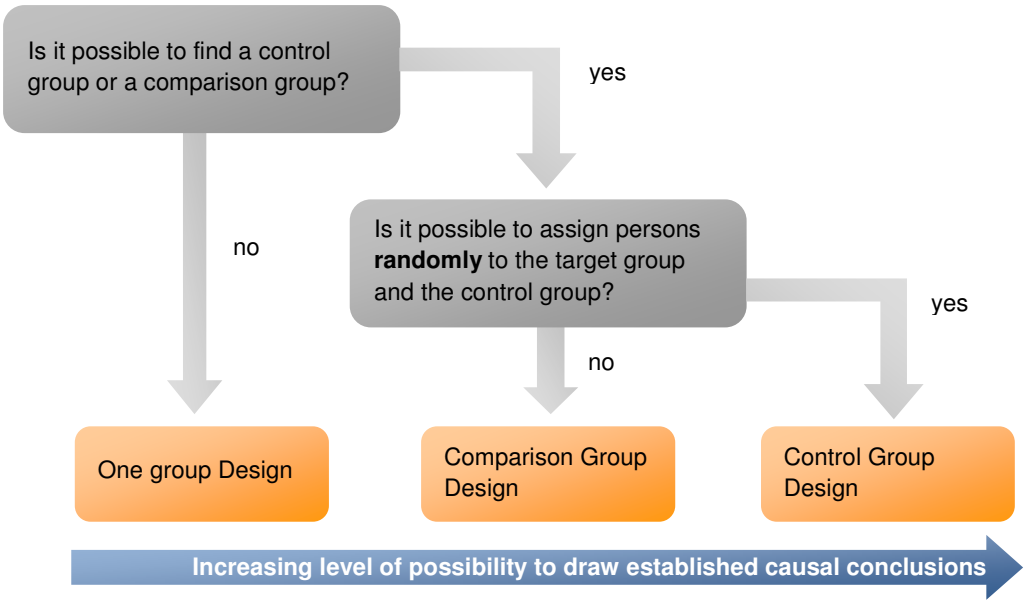

Figure 5: Selection of study design

The vast majority of MaxSumo's underlying principles are equally applicable to all three design options. For any aspect where the design influences the procedure (what to do, how to measure, etc.) we have highlighted the variations required in the appropriate sections.

The MaxSumo guide provides some advice on how to carry out control group design evaluations but, if more advice is needed, it may be appropriate to utilise the services of consultancy or university departments who are more familiar with conducting these types of evaluations.

4.3 Data collection

When implementing mobility projects there are large amounts of different types of data that potentially could be collected. However, data collection requires extensive effort and expenditure and it is therefore important to carefully identify which data are necessary for monitoring and evaluation of the project and choose indicators accordingly. This chapter provides a basic introduction to this topic, including the different types of data and when to collect it. Further assistance is provided in Appendix 1 with examples of question(naire) design suitable for each of the MaxSumo assessment levels.

4.3.1 Data collection methods

There are many different types of data collection methods:

- surveys / interviews – e.g. written/mail surveys, telephone interviews, face-to-face interviews;
- site investigation – e.g. existing number of parking spaces, bicycle parking, public transport services, possibilities of teleworking or compressed working weeks;
- documentation – e.g. documentation of customer enquiries, amount of information material distributed, number of news paper articles, programmes on radio and TV; and
- counts – e.g. traffic counts (cars, bicycles, pedestrians, public transport users, motorcycles), number of occupied car/bicycle parking spaces.

How to collect the data of interest depends often on the types of measures that are implemented. Several different methods can be used. It is usual to make a division between qualitative and quantitative methods as these are used to answer different types of questions.

Qualitative methods are used to acquire a deeper understanding of an occurrence and its context, e.g. by using in-depth interviews. These can also be used to gain insight ahead of a quantitative study.

Quantitative studies are carried out to gain statistically reliable results through written questionnaires, telephone interviews, counts, or face-to-face interviews, etc. Questionnaires are a popular method, but some experience and knowledge is necessary to prepare and execute a reliable questionnaire.

It is recommended to carry out a pilot study or "pre-test" before the real study, for example to test a draft questionnaire in order to see if it is understandable or there are any difficult. A well-designed questionnaire is more likely to be completed and returned. Pilot studies include only a small number of participants, who should be similar to those people who will participate in the main study. A pilot study gives valuable information about different tested data collection methods and the estimated response rate, which helps to estimate the sample population in the real study.

When deciding on methods and planning of surveys several factors have to be taken into account, e.g. sample size, response rate and timings of surveys. If the target population is small (say less than 100 employees), then everyone can be surveyed and a high response rate should be aimed for. However, if the population is large (more than a few hundred), then random sampling is recommended to ensure that the group surveyed is representative of the target population. Sample size determination can be calculated using standard formulae.[5]

[5] http://www.ezsurvey.com/samplesize.html

A low response rate could lead to misleading results due to self-selection bias; that is, some individuals or groups in the target population respond more to the survey than others. In simple terms, this means that there is a risk that those who have positively reacted to a mobility project measure may be more likely to respond to the survey, thus providing an incomplete picture of the target population's response. Ideally, a smaller survey should be conducted amongst those who have not responded to the initial survey, and the results of the two surveys compared. The similarity or differences between the two groups indicates whether the results from the first survey represent the target population or not. Determining how representative the results are for the whole population is also known as checking the external validity of a study and its results.

Development of appropriate survey instruments (e.g. questionnaires, or interview schedules), determining appropriate sample sizes and actually performing surveys can be difficult if you have not done it before. If this is the case, we recommend that a professional survey research firm is used. Experience from the MOST project (that preceded MAX), indicates that this produces better survey data.

4.3.2 When to collect your data?

In order to fully benefit from MaxSumo, a key requirement is to collect data before the project is implemented (before / pre), during the project and also when the project is complete (after / post).When to collect the after data is not an exact science, and will vary according to the types of measures implemented within the mobility project.

While planning the project one should decide how often data collection should take place and by what methods. This should be decided based on the overall efforts and aims for each project or programme. In principle, data collection should be carried out regularly (each year, half year, month, week, etc.) in order to monitor changes in behaviour and attitudes of the target population as and when they occur. If you have an ongoing programme with new or higher targets for each year, then it is wise to set up a plan for a yearly follow-up. In these instances it is important to ensure that the before and after surveys are conducted at the same time periods in subsequent years to control for seasonal effects, since most people's travel behaviour is known to differ seasonally, in that they are more likely to switch to walking and cycling modes in the spring/summer because of the weather.

4.3.3 MaxEva – Evaluation online database

It is recommended that you use the MaxEva online database for documentation and to share your experiences with others. MaxEva allows you to document details of your own project, to learn from other project experiences, to allow others to learn from your experiences and to deepen the knowledge base concerning the effectiveness of different mobility projects.

MaxEva is an interactive web-based database to allow the collection of monitoring and evaluation data as well as background information of mobility projects. It is specifically designed to fit to MaxSumo evaluations, allowing people to enter relevant data collected for the different MaxSumo levels. MaxEva can be used at the beginning and throughout the project implementation (e.g. to get to know more about MM measures or what data will be required for calculating the system impact of the projects). It is also possible to enter monitoring and evaluation data when your project is completed.

MaxEva is accessible via www.epomm.org or www.max-success.eu.

5 Appendix 1: Examples of questions for MaxSumo assessment levels

Each mobility management project, its target groups and the area where it is implemented creates a unique project and the monitoring and evaluation should therefore be adapted to the actual situation. In this appendix you will find examples of questions on the different assessment levels in MaxSumo. To make these questions applicable in your project you can:

- select the most appropriate questions for your project,
- modify the suggested questions to best fit your own project, and
- design your own questions.

5.1 External factors

There are many external factors that can influence the result of the MM intervention and it is therefore important to be aware of these factors. Examples of external factors that might influence the results are; political situation, price of petrol, weather conditions, infrastructure situation, parking situation, and other MM-projects. Some of the data for these indicators can be gathered via official sources in statistics or reports that are published regularly. It is thus possible to gather this data after the end of the project. Gathering this data is mostly relevant for larger-scale, ambitious evaluations or when it is not possible to have a control or comparison group.

In smaller projects the evaluator should try to focus on the most important external factors for the specific situation. A recommendation is to already think about the possible influencing external factors in the planning phase of a MM-project and then, during the project time, monitor the changes in the external factors – which means to note every time there is a change in the external factors during the whole project period from before the study to the after study 6-12 months after the intervention. A recommendation is to make a list of all possible external factors that can influence the result, and note the changes (in figures, or as a note of an increase or a decrease) and what kind of effects, i.e. if it is a pull or a push influence, the changes might have had on the total result. An example of such a list is given below.

Table 4: Example log of external factors

POSSIBLE EXTERNAL FACTORS	Note of change	Possible positive or negative influence on the results
Political situation	No changes	0
Price of petrol	Increased	+
Price of public transport	Increased	-
Infrastructure – bus lines, bus stops	No changes	0
Business location	No changes	0
Parking situation - number of places, fees, accessibility	Increased parking fees	+
Other MM-projects run in the same area	No	0
XXX		

Some external factors might have a greater influence on the travel behaviour in specific situations. Such a factor is for example weather conditions. Bad weather during a survey might decrease the use of cycling and walking. When monitoring the travel behaviour the recommendation is to make a note about the weather conditions, see an example below.

Table 5: Example log of weather conditions

POSSIBLE EXTERNAL FACTORS	Before study	Experimental study	After study
Average weather conditions	+ 10°C cloudy	+ 15°C sunny	+ 12°C cloudy, some rain

Monitoring of external factors is especially important when it is not possible to have a control group that ensures that differences between the intervention group and control group are due to the intervention and not to external factors. Thus, using a control group design is not necessarily the more extensive project design as it removes the necessity of context monitoring.

5.2 Person-related factors

In all surveys it is important to obtain some basic information about the respondent so that responses can be related to personal characteristics and comparisons can be made for comparable groups of people over time. The basic information can also be used to define different target groups.

The basic information normally includes gender, age, occupation and use of transport modes. Below are some examples of possible questions.

5.2.1 Objective person-related factors

Table 6: Example of questions to ascertain objective person-related factors

Are you?

☐$_1$ Male ☐$_2$ Female

Which year were you born? _____

Where do you live?

☐$_1$ City centre ☐$_2$ Suburban ☐$_3$ Village ☐$_4$ Countryside

How long have you been living at this location? _____ year/s

How many people live in your household?

_____ adult / adults

_____ child / children below 18 years **How old is the youngest child?** _____ years

What is the yearly income of your household? _____ Euros/year

Do you have a driving license?

☐$_1$ Yes ☐$_2$ No

Do you have access to a car for your commuting during a normal week?

☐$_1$ Yes, always ☐$_2$ Yes, several days a week ☐$_3$ Yes, once a week or less ☐$_4$ No

Do you have any kind of card for public transport?

☐$_1$ Yes **If yes; What kind of card?** ☐$_1$ Monthly/weekly/seasonal card
☐$_2$ Concessionary card

☐$_2$ No

Continuation: Example of questions to ascertain objective person-related factors

Which of the following best describes your current status?

☐ 1 Employed full-time ☐ 2 Employed part-time

☐ 3 Self-employed ☐ 4 House person

☐ 5 Student ☐ 6 Looking for work

☐ 7 Unable to work ☐ 8 Retired/pensioner

If you work outside your home:

What's the distance between your home and your workplace? _____km

What is your working schedule?

☐ 1 Only weekdays ☐ 2 Only weekends ☐ 3 Both weekdays and weekends

Have you access to a parking lot at your working place (no matter if you use it or not)?

☐ 1 Yes, a charged parking lot at the work place

☐ 2 Yes, a charged parking lot off-site (nearby the work place)

☐ 3 Yes, a free parking lot at the work place

☐ 4 Yes, a free parking lot off-site (nearby the work place)

☐ 5 No

Have you access to any kind of car, bicycle or other facilities at your work place?

☐ 1 Yes, a company car of my own

☐ 2 Yes, a company car that I share with others

☐ 3 Yes, a company bike

☐ 4 Yes, other facilities:_____

☐ 5 No

5.2.2 Subjective person-related factors

MaxSem stage position

As stated earlier in Section 1.4, the main purpose of any mobility project is to demonstrate that it has achieved its primary aims, in order to justify the resources expended. In most cases this is to demonstrate that the mobility project implemented has resulted in changes in the way people travel, specifically to more sustainable travel modes. However, as described by MaxSem overt behaviour changes are only 'visible' at the last stage of a longer behaviour change process and it is therefore of greater value to measure changes in individuals' attitudes / perceptions towards reducing their current levels of car use (reflected by their MaxSem stage position), as well as any overt behavioural change.

In order to objectively measure peoples MaxSem stage position standardised questions are provided below in Table 7. Respondents are asked to indicate which one of the six statements best reflects their current attitudes towards their current level of car use and intentions towards future car use. Depending on their response they can easily be classified into one of MaxSem's four stages (see later).

Table 7: Questions to identify individuals MaxSem stage position

Which of the following statements best describes how you feel about your current level of car use for daily trips (in city X/ to your workplace[6]) **and whether you have any plans to try to reduce some or all of these car trips?**

Please choose which statement fits best to your current situation and tick only one box

- ☐ 1 As I do not own / have access to a car, reducing my level of car use is not currently an issue for me.
- ☐ 2 As I am aware of the many problems associated with car use, I already try to use non-car modes as much as possible. I will maintain or even reduce my already low level of car use in the next months.
- ☐ 3 At the moment I use the car for most of my trips, but it is my aim to reduce my current level of car use. I already know which trips I will replace and which alternative transport mode I will use, but as yet have not actually put this into regular practice.
- ☐ 4 At the moment I do use the car for most of my trips. I am currently thinking about changing some or all of these trips to non-car modes, but at the moment I am unsure how I can replace these car trips, or when I should do so.
- ☐ 5 At the moment I do use the car for most of my trips. I would like to reduce my current level of car use, but feel at the moment it would be impossible for me to do so.
- ☐ 6 At the moment I use the car for most of my trips. I am happy with my current level of car use and see no reason why I should reduce it.

[6] The exact wording of this question will depend on the type of trips the mobility project is attempting to change (e.g. general every day trips, or more specific trips such as journeys to/from workplaces, schools etc.)

According to the answers given (which statement / box did they tick), respondents are grouped into one of MaxSem's four stages:

- *People choosing* ***statement*** $\square_5$ *or* $\square_6$ *belong to* ***Stage 1: Pre-contemplation***. Individuals in this stage are quite happy with their car use and at the moment have no wish, or desire to change to another mode. Statement 6 aims to identify those pre-contemplators, who use the car for some or all of their trips and currently see no reason as to why they should change their level of car use. Statement 5 helps to identify those people who would like to reduce their level of car use, but currently see no possibility to do so; these 'captive car-users' are pre-contemplative as well.

- *People choosing* ***statement*** $\square_4$ *belong to* ***Stage 2: Contemplation***. Individuals in this stage are not as content with their current travel behaviour (as pre-contemplators). They would like to change to another way of travelling, but perhaps are unsure of which mode to switch to, or don't have enough confidence to do so at this stage. Statement 4 is to identify those who currently use the car for some or all of their trips and would like to use other modes instead. They are not really sure which modes they could use, or when they will begin replacing their trips.

- *People choosing* ***statement*** $\square_3$ *belong to* ***Stage 3: Preparation / Action***. Individuals in this stage have decided which mode they intend to switch to for some or all of their trips, and may have already tried this new mode for some of their trips. Statement 3 is to classify those people into the preparation /action stage.

- *People choosing* ***statement*** $\square_1$ *or* $\square_2$ *belong to* ***Stage 4: Maintenance***. Individuals in this stage have successfully replaced some or all of their trips to the 'new' mode and this new behaviour (way of travelling) becomes the dominant mode they use for most of their trips (a new habit has been formed). Statement 2 is used to identify those non-car drivers or those who only use the car very infrequently. Statement 1 is used to identify those, who currently – voluntarily or not – don't own/have access to a car and therefore currently depend on other modes; they belong to the maintenance stage as well ('captive non-car users').

A more detailed overview of MaxSem and these stage diagnostic questions is provided in the MaxSem section on www.max-success.eu or www.epomm.org.

Travel behaviour

There are a number of ways of surveying this level. These differ a great deal in complexity and there is thus a separate chapter 5.12 with a more complete description of methods for measuring this.

5.3 Level A – Project activities and outputs

MaxSumo level A - Project activities and outputs are all the basic tasks done within a MM project. The tasks are divided into two main groups - the budget and effectuated MM-services. The best way to collect information about outputs and activities is normally by documentation.

Documentation of budget

Examples of expenses could be; costs for in-house staff or consultants, printing and postage costs for information material, and meeting room rental costs. In the documentation of the budget for a MM-project at least the following costs should be registered.

Table 8: Minimum costs to be logged during a MM project

KIND OF RESOURCES	**EURO**
Total	**X**
Please specify:	
Own employees (staff time)	X
Consultants/Vendors	X
Information material	X
Other	X

Documentation of activities and outputs

Examples of documentation are described in the tables below. Note that it is not necessary to document the date but it makes it easier for the person monitoring the documentation as it makes it to remember when different things have been done.

Table 9: Log of meetings

MEETINGS WITH…	**Date**	**Number of participants (MaxSumo Level C)**
XXX	XXXX-XX-XX	X
XXX	XXXX-XX-XX	X
Total	**X meetings**	**X participants**

Note that this level describes what the project leaders do to inform the target group. In the table above the number of meetings is MaxSumo-level A but the number of participants is level C.

Table 10: Log of leaflet/brochure distribution

DISTRIBUTED LEAFLETS/BROCHURES	Date	Number of leaflets
Commute by bike campaign - leaflets	XXXX-XX-XX	X
XXX	XXXX-XX-XX	X
XXX	XXXX-XX-XX	X
Total	**X occasions**	**X leaflets**

Table 11: Log of publication in media

ARTICLES IN INTERNAL AND/OR EXTERNAL MEDIA	Date	Number of people reached (readers)
Information on internal web-page	XXXX-XX-XX	X
Articles in internal newsletter	XXXX-XX-XX	X
Articles in external newspapers	XXXX-XX-XX	X
XXX	XXXX-XX-XX	X
Total	**X articles**	**X people**

Table 12: Log of other media coverage

OTHER INFORMATION	Date	Number of people reached (readers)
Information on web-page	YYYY-MM-DD	X
Radio/TV-spots	YYYY-MM-DD	X
Newspapers advertisement	YYYY-MM-DD	X
XXX	YYYY-MM-DD	X
Total	**X occasions**	**X people**

5.4 Level B – Awareness of mobility services provided

Examples of standardised questions for *MaxSumo level B – Awareness of mobility services provided* are presented below.

Table 13: Question to determine awareness of project

In X we are working with Y / a project called Y. Have you heard about this project?
Please tick one box

☐1 Yes, I´m very well informed about this

☐2 Yes, I have heard about it

☐3 No, I don´t know about this

If the project includes different sub-projects and/or activities the questions can be as follows.

Table 14: Question to determine awareness of activities within a project

In X we are working with the following activities/projects. Have you heard about any of these? *Please tick one box per row*

ACTIVITIES and PROJECTS	Yes, I´m very well informed about this	Yes, I have heard about it	No, I don´t know about this
XXX	☐1	☐2	☐3
XXX	☐1	☐2	☐3
XXX	☐1	☐2	☐3

Sometimes it is necessary to indicate a time span, and then the question might be: **In X we are working with the following activities/projects. Have you heard about any of these in the last 3 months / 6 months / year**? *Please tick one box per row.*

5.5 Level C – Usage of mobility services provided

MaxSumo level C – Usage of mobility services provided can be measured in two different ways:

- by documentation and/or registration, and
- by surveys

The best way to collect information about the usage of mobility services is normally by documentation or registration.

To facilitate comparisons the number of people can be expressed as number of people and the percentage of the target group (employees at a company / pupils at a school / …) that have used the mobility services.

Table 15: Indicators of usage of mobility services

INDICATORS OF USAGE	Persons	Percentage
Number/percentage of people that have participated in Y (a MM-event)	X	X %
Number/percentage of people that have visited www.yyyy.com (a MM-web-page)	X	X %
Number/percentage of people that have registered at Z / web-based matching system for car pooling	X	X %

The usage can also be measured by questionnaires. Examples of questions for this level are presented below.

Table 16: Example questionnaire for determining usage of services offered

In X we are working with the following services. Have you used any of these?
Please tick one box per row

SERVICES	Yes, several times	Yes, once	No
Bike map for Y-village	☐ 1	☐ 2	☐ 3
Bicycle garage at the railway station	☐ 1	☐ 2	☐ 3
www.commutebybike.com	☐ 1	☐ 2	☐ 3
XXX	☐ 1	☐ 2	☐ 3

5.6 Level D – Satisfaction with the mobility services provided

MaxSumo *level D - Satisfaction with the mobility services provided* aims to reflect how well the services meet the need for it. Examples of questions for this level are presented below.

Table 17: Questionnaire to determine satisfaction with a mobility service

Question for those who have got information about X:

Are you satisfied with the MM-information you have got? *Please tick one box*

- ☐1 Yes, I´m very satisfied
- ☐2 Yes, I´m somewhat satisfied
- ☐3 I´m neither satisfied nor not satisfied
- ☐4 No, I´m not satisfied
- ☐5 No, I´m not at all satisfied

Question for those who have participated in the X-project:

Are you satisfied with the content of the service/project/activity? *Please tick one box*

- ☐1 Yes, I´m very satisfied
- ☐2 Yes, I´m somewhat satisfied
- ☐3 I´m neither satisfied nor not satisfied
- ☐4 No, I´m not satisfied
- ☐5 No, I´m not at all satisfied

The indicator of *MaxSumo Level D – Satisfaction with the mobility services provided* is the percentage of people answering ☐1 and/or ☐2.

Table 18: Questionnaire to determine satisfaction with information on a mobility service

What do you think about the information you have got at the Y / meeting /….?
Please tick one box

☐1 Very good

☐2 Good

☐3 Neither good nor poor

☐4 Poor

☐5 Very poor

Please rate the following aspects connected to the information you have obtained:

PROVIDED INFORMATION…	Fully agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree
… is comprehensible	☐1	☐2	☐3	☐4	☐5
… is well-arranged	☐1	☐2	☐3	☐4	☐5
… is credible	☐1	☐2	☐3	☐4	☐5
... XXX	☐1	☐2	☐3	☐4	☐5

Provided information can also be rated on a 5-point scales referring to different aspects as "information is comprehensible" or "information is well arranged".

The indicator of *MaxSumo Level D – Satisfaction with the mobility services provided* is the percentage of people answering ☐1 and/or ☐2.

If the project includes different sub-projects and/or activities the questions can be as follow.

Table 19: Questionnaire to determine satisfaction of different services within a mobility campaign

Question to those who are aware of the MM-services at X (e.g. the work place):

In X we are working with several MM-services and activities. What is your opinion of them? *Please tick one box per row*

SERVICES AND ACTIVITIES	Very good	Good	Neither good nor poor	Poor	Very poor
Commute-by-bike campaign	☐1	☐2	☐3	☐4	☐5
www.commutebybike.com	☐1	☐2	☐3	☐4	☐5
Bike map for Y-village	☐1	☐2	☐3	☐4	☐5
XXX	☐1	☐2	☐3	☐4	☐5

The indicator of *MaxSumo Level D – Satisfaction with the mobility service provided* is the percentage of people answering ☐1 and/or ☐2.

5.7 Level E – Acceptance of the mobility option offered

MaxSumo level E – Acceptance of the mobility option offered can be measured by documentation or questionnaires.

Documentation can be based on the following table.

Table 20: Example table of indicators of acceptance

INDICATORS OF ACCEPTANCE	Persons	Percentage
Number of people that sign up to become a test-traveller	XX	X %
Number of people that sign up to participate in commute-by-bike campaign	XX	X %

Examples of questions for this level are presented below.

Table 21: Example questionnaire to determine acceptance of mobility option offered

Question for those who are aware of the MM-services at X (e.g. the work place):

Please fill in your opinion concerning the following statements? *Please tick one box per row*

STATEMENT	I fully agree	I agree	I don´t agree	I disagree
As a result of X / the information I received / ... I have started to think about using other travel means that the car for my trips to A / B / C	$\square_1$	$\square_2$	$\square_3$	$\square_4$
XXX	$\square_1$	$\square_2$	$\square_3$	$\square_4$

The indicator of *MaxSumo Level E – Acceptance of mobility option offered* is the percentage of people answering $\square_1$ and/or $\square_2$.

5.8 Level F – Take up of mobility option offered

Both in projects that are run during a specific time period and in long-term projects there is normally some kind of test period in the beginning.

Many projects are run during a specific time, such as a campaign month or a test period with public transport. Even in long-term projects or programmes there is a test-period for the user when he or she tests a new behaviour. The take up of the option offered is normally monitored at the end of a test period. In a long-term project the take up is measured after a month or so.

The distinction between the take up and finally adopted attitudes and behaviour will not be relevant in all cases, for example for a tourist making a single trip to an area. And even when it is relevant it will not always be possible to pick up these two stages separately.

There are a number of ways of surveying this level. These differ a great deal in complexity and there is thus a separate section 5.12 with a more complete description of methods for measuring this.

5.9 Level G – Satisfaction with the mobility option offered

MaxSumo level G Satisfaction with the option offered is a measure that aims to reflect what the person who has tested a new travel mode thinks about this and how well the tested travel mode suits the person. An example of a question for this level is presented below.

Table 22: Example question to determine satisfaction of mobility option

What do you think about X (the travel mode you have tested / commuting by public transport / using a car from a car sharing association / …)? *Please tick one box*

- ☐1 Very good
- ☐2 Good
- ☐3 Neither good nor poor
- ☐4 Poor
- ☐5 Very poor

The indicator of *MaxSumo Level G – Satisfaction with the option offered* is the percentage of people answering ☐1 and/or ☐2 (of those who have tested the travel option).

5.10 Level H – Long-term attitudes and behaviour

MaxSumo level H – Long-term attitudes and behaviour aims to describe both the important new attitudes regarding mode choice/travel behaviour and any permanent changes in mode choice/behaviour several months or preferably a year after the MM intervention.

The long-term attitudes are measured through MaxSEM – the subjective person-related factors – as described earlier in section 5.2.2.

The long-term attitudes and behaviour can be monitored by asking questions about the actual travel mode several months, but preferably a year and sometimes even longer, after the MM intervention.

The same questions should be asked using the same methodology as in the before study and as in the study of the experimental individual behaviour to facilitate comparisons between the behaviour before the intervention, during the test period and the long-term behaviour.

There are a number of ways of surveying this level. These differ a great deal in complexity and there is thus a separate section 5.12 with a more complete description of methods for measuring this.

5.11 Level I – System impact

MaxSumo level I – System Impact is calculated by comparing the situation before and after a MM intervention. Sometimes it is also interesting to measure impacts during the intervention, which is calculated by comparing the situation before and during a MM intervention.

The impacts can be described as reduced vehicle mileage, reduced emissions, reduced petrol use, or reduced number of parked cars.

Table 23: Example method for measuring a system impact

Example for a work place measure with available data concerning the number of trips per week by each travel modes:
Reduced vehicle mileage
Travel mode 1: Number of trips by travel mode 1 per week * average kilometres per trip by travel mode 1 * 45 weeks per year = mileage per year by travel mode 1
Repeat the multiplication for each travel mode until the annual travelled mileage with each travel mode is calculated
Reduced emissions
Mileage per year by travel mode 1 * emissions in gram per kilometres by travel mode 1
Repeat the multiplication for each travel mode until you have the annual emissions with each travel mode. Summarise the total emissions by all travel modes.
Compare the before with the during/after situation.
Compare the amount of emissions per Euro spent on the project.

How to translate the mileage split by mode into reductions in emissions can be difficult. It is not possible to give recommendations on what factors to use since these differ a great deal between countries as well as between cities. Changes in mileage per mode is however comparable between regions or cities.

The calculated mileage reduction can be transformed into e.g. energy savings or cost savings.

5.12 Monitoring travel behaviour

In MaxSumo we are interested in measuring whether any changes in travel behaviour have occurred. Core aspects of travel behaviour to be measured include:

- travel mode
- trip length
- trip purpose
- frequency of travel

This information can be obtained in many different ways, like:

- recording travel over a given time period (one-day to multi-day survey)
- “use of modes”- matrix
- “in the course of a trip”- survey

How to obtain this information depends on many factors; e.g. data collection opportunities, exact data needed, size of the target group, type of survey and if the survey covers only one trip purpose or several trip purposes.

The ideal is that the questions are asked in the same way in the before study, the survey during the take up of the mobility option offered and the survey of the long-term attitudes and behaviour to facilitate comparisons between the behaviour before the intervention, during the test period and the long-term behaviour. When this is not possible, retrospective questions can also be used but they may not provide the same level of accuracy.

5.12.1 Recording travel over a given time period

Travel behaviour can be measured by asking questions about the use of all travel modes over a given time period (complete travel diary) or by asking questions about the use of travel modes for specific travel (simplified travel diary) over a given time period.

For research projects and some specific projects that need a very precise evaluation, a complete travel diary is recommended. A complete travel diary gives the most detailed answers concerning travel but it tends to involve long questionnaires and can also be very expensive to manage and analyse.

In many mobility management projects, resources are limited and the intervention often aims to influence a specific type of travel. In this case, a simplified travel diary can be used. In such a simplified travel diary questions about the travel modes and travel distances are asked.

How many days that should be included in the simplified travel diary depends on the size of the target group, the need for detailed answers and the normal variation in travel modes. If the target group is all employees at a company with several hundred employees it is often enough to ask about the travel modes used during a one or two day survey. If the company has less than 50 employees it might be better to ask for the travel modes used for an entire week (seven days).

When asking about the travel mode for specific travel you can ask about the main travel mode and the total distance or you can ask for the distance travelled with all different travel modes used during the survey period which gives a more detailed answer and permits you to measure even small changes in travel mode. Both alternatives can be used for one or several travel days. It is possible to add in or specify any other potential modes specific to the location being studied (e.g. underground, light rail).

The examples below are adapted to a commuting project where the questions concern home to work travel. The questions can be adapted to other trip purposes when necessary like to and from schools or leisure activities.

Table 24: Example 1- Main travel mode and total distance for a 1-2 day survey

What is the total distance between your home and your workplace? ____kilometres

What main travel mode did you use getting <u>to work</u> today?

☐1 Car – driver	☐5 Motorcycle/scooter
☐2 Car – passenger	☐6 Cycle
☐3 Bus	☐7 Walk
☐4 Tram/train/underground	

What main travel mode will you use getting <u>from work</u> today?

The same options as above.

What main travel mode did you used getting <u>to work</u> yesterday?

The same options as above.

What main travel mode did you used getting <u>from work</u> yesterday?

The same options as above.

Table 25: Example 2 - Distance travelled with all different travel modes used for a 1-2 day survey

What travel modes did you use getting <u>to work</u> today and what was the travelled distance with each used mode? *Fill in for all travel modes that you have used*

☐1 Car – driver	____ km	☐5 Motorcycle/scooter	____ km
☐2 Car – passenger	____ km	☐6 Cycle	____ km
☐3 Bus	____ km	☐7 Walk	____ km
☐4 Tram/train/underground	____ km		

What travel modes will you use getting <u>from work</u> today?

The same options as above.

What travel modes did you used getting <u>to work</u> yesterday?

The same options as above.

What travel modes did you used getting <u>from work</u> yesterday?

The same options as above.

Table 26: Example 3 - Distance travelled with all different travel modes used for a 7 day survey

How do you travel to and from work? Fill in the number of kilometres for each travel mode you have used to and from work during the last week (Monday 21st of April to Sunday 27th of April). One trip can include several modes. Tick the last column if you did not work the actual day.

Monday 21 April	Bike	Walk	Car, driver	Car, passenger	Bus	Train	Motorcycle, scooter	Did not work this day
To work	.....km	.....km	.....km	.....km	.....km	.....km	.....km	
From work	.....km	.....km	.....km	.....km	.....km	.....km	.....km	
Tuesday 22 April	Bike	Walk	Car, driver	Car, passenger	Bus	Train	Motorcycle, scooter	Did not work this day
To work	.....km	.....km	.....km	.....km	.....km	.....km	.....km	
From work	.....km	.....km	.....km	.....km	.....km	.....km	.....km	
The same questions for Wednesday, Thursday, Friday and Saturday								
Sunday 27 April	Bike	Walk	Car, driver	Car, passenger	Bus	Train	Motorcycle, scooter	Did not work this day
To work	.....km	.....km	.....km	.....km	.....km	.....km	.....km	
From work	.....km	.....km	.....km	.....km	.....km	.....km	.....km	

5.12.2 "Use of modes"- matrix

Sometimes the travel behaviour for all kinds of travel is of more interest than the travel mode for a specific travel purpose. Then the travel behaviour can be measured by questions about the travel behaviour during a specific period, for example a month.

The "use of modes"- matrix should only be used in cases where data collection opportunities are very limited as it will not give any detailed answers. By using this method it is difficult to calculate the system effects as the distance for each travel mode is not specified.

This way of asking gives the possibility to measure the percentage of the target group that has tried the travel option at least once during a certain period (*Max*Sumo *level F – Take up of mobility option offered*).

Table 27: Example 4 - Travel behaviour for all kinds of travel during the last month

In the last month how often have you used… *Please tick one box per row*

	5-7 days/week	2-4 days/week	1 day/week	1 day/month	Less than once a month	Never
…the car as a driver	☐1	☐2	☐3	☐4	☐5	☐6
...the car as a passenger	☐1	☐2	☐3	☐4	☐5	☐6
…the bicycle	☐1	☐2	☐3	☐4	☐5	☐6
…walking	☐1	☐2	☐3	☐4	☐5	☐6
…bus	☐1	☐2	☐3	☐4	☐5	☐6
…train/metro	☐1	☐2	☐3	☐4	☐5	☐6
…scooter/motorcycle	☐1	☐2	☐3	☐4	☐5	☐6

If the aim of the survey is only to make a rough estimation of the impact the same questions as in chapter 5.2.2 can be used.

If the survey aims to evaluate the effects of changes in stage progression and travel behaviour, the questions from the table above could be used for a target group analysis, measurement of the stage progression and calculation of the effects.

5.12.3 "In the course of a trip"- survey

If a mobility management measure seeks to increase the use of a certain means of travel an "on-mode" or "in the course of a trip" survey can be done. For example, if a measure seeks to increase bus use, an on-board bus survey might include the following questions to the passengers.

Table 28: Example of an 'in the course of a trips' survey

What is the purpose of this trip?

☐1 Home	☐4 Shopping
☐2 Work	☐5 Visiting friends
☐3 School	☐6 Leisure activities

How long will the total trip be? _____ km

How often have you used public transport for this purpose the last month?

☐1 5-7 days a week

☐2 2-4 days/week

☐3 1 day/week

☐4 1 day/month

☐5 Less than once a month

☐6 Never

Have you previously made this trip by car?

☐1 I normally go by car, but it is not available today

☐2 I normally go by car, but I have decided to try the bus

☐3 I used to go by car but now regularly go by bus

☐4 I normally go by bus, but occasionally go by car

If the respondent answers ☐2 or ☐3 then ask why they have switched from car to bus (see chapter 5.13).

5.13 The reasons for changes in travel behaviour

It is also necessary to investigate whether travel behaviour has changed as a result of the mobility management intervention or as a result of some external factors. This can be done by asking the respondent directly why they have changed their behaviour without biasing their response. Reasons of changes can be:

- the **MM intervention**;
- **personal reasons** such as a change in home or work location, retirement;
- **transport system characteristics** such as *objective improvements* in service provision (higher frequencies, new buses) or *subjective improvements* brought about by changes in the perception; or
- **other external factors** such as fuel price increases, parking fee increases.

An example of questions to determine if a change in travel mode occurs as a result of a mobility management intervention or as a result of external factors is described below.

Table 29: Example question to determine reasons for change in travel behaviour

When having established that a change in travel behaviour has occurred, this issue could be addressed by asking:

Why have you decided to try / changed to this mean of transport?

☐1 The services have been improved

☐2 I have participated in a test project / got personal advice *(as appropriate)*

☐3 I heard about it on radio/television/posters *(as appropriate according to the media used)*

☐4 I no longer own a car

☐5 It is too expensive to go by car / to pay for the parking space

☐6 I save time

☐7 I have recently moved my residence

☐8 I have recently changed working place

☐9 Health reasons

☐10 Other reason:_____

5.14 Monitoring stage progression

In order to monitor individuals stage-progression (e.g. have some pre-contemplators now become contemplators), the person-related subjective factors described in chapter 5.2.2 can be measured both at the end of the campaign period and 6-12 months after the campaign period. If a control group or a comparison group is used, this data (stage-movement) should be measured for both intervention and control/comparison groups.

6 Appendix 2: Project examples

In the following to project examples, light blue fields are filled in at the planning of the project; darker blue fields contain the r results after using MaxSumo for monitoring and evaluating the project.

6.1 Example 1– Test traveller project

The following tables offer more information about the test traveller project.

Table 30: **Overall goals**, **target groups**, **services** and **mobility options** of test traveller project

Overall goals	The project involved persuading car commuters to break their car commuting habits and commute to work by bus in order to reduce environmental impact and congestion on city roads. The overall goal for the local authority was a more sustainable environment and less road congestion. For the transport provider, the overall goal of the project was to be better able to entice more people to commute by bus. They were interested in finding out the opinion of people who were not used to taking the bus in order to be able to improve commuting facilities and ultimately increase the number of bus commuters.	
Target groups	**Direct target group:** Employees at the two major workplaces, Oles Bakery and the hospital, particularly people that live in towns with good bus connections to each work place and the people selected should be typical car commuters.	**Indirect target group:** The management at the selected companies.
Mobility services provided	**For direct target group:** A combination of different kinds of information and a trial period of free public transport use. To recruit car commuters for the trial period information meetings are held at the companies. The project provides detailed advice, free public transport passes, etc for car commuters signing up for testing public transport.	**For indirect target group:** Information about the possibility of participating in the test traveller intervention.
Mobility option offered	**For direct target group:** To commute by public transport instead of by car.	**[Not applicable]**

Table 31: **Targets** of test traveller project

Level		Targets	Results
B	Awareness	At least 80 percent of the employees (800 employees) at the companies know about the project.	*Not recorded*
E	Acceptance	At least 6 percent of the employees (50 employees) agree to become test travellers.	Achieved (see Table 34 Level E)
F	Take up of mobility behaviour	At least 90 percent of the test travellers (45 persons) actually commute by test public transport at least 3 days per week for a month.	Achieved (see Table 34 Level F)
H	Long-term attitudes and behaviour	At least 50 percent of the test travellers (25 employees) continue to use public transport at least 3 times a week.	Achieved (see Table 34 Level H)
I	System impacts	Carbon dioxide emissions are reduced by at least 20 tonnes per year.	Not achieved (see Table 34 Level I)

External factors that influence the possibility and desire to travel by public transport include the location of the company, access to public transport, and introduction of parking fees at a workplace.

Person-related factors: The person-related objective factors in this project include changed living or working conditions, such as moving to a new house, a new job, or different working hours. Person-related subjective factors are the stage belongings that are measured both before the test period, during the test period and 12 months after the test period.

Table 32: **Services provided** and **options offered** for the test traveller project aimed at the **indirect target group**

Level			Indicators	Results
Services provided	A	Project activities and output	Number of companies that have received an information letter	Team X, Hospital, Oles bakery, Sondera *In total: 4 companies*
	B	Awareness of mobility services provided	Number of companies that are aware of the test traveller project	*Not recorded*
	C	Usage of mobility services provided	Number of companies that have participated in information meetings	Team X, Hospital, Oles bakery, Sondera *In total: 4 companies*
	D	Satisfaction with mobility services provided	Numbers of companies that are satisfied with the concept of the test traveller project	*Not recorded*
Option offered	E	Acceptance of the MM intervention	Number of companies that joined the project	Hospital, Oles bakery *In total: 2 companies*

Table 33: MaxSumo **intervention framework conditions** and **services provided** for the test traveller project aimed at the **direct target group**

Level			Indicators	Results
Intervention framework conditions		**External factors** **Person-related factors**	– Business location – Public transport availability – Parking fee at workplace	No changes
			Objective factors: – Place of residence – Workplace – Working hours	Objective factors: – Two test persons have changed workplace and are therefore not included in the follow-up study after 12 months
			Subjective factors: – Stage belongings – Travel behaviour: Modal split in the test group Average distance per mode / trip Number / percentage of test travellers that already use public transport at least 3 days/week	Subjective factors: Stage belongings: – 0% stage 1 and stage 2 – 100% stage 3 – 0% stage 4 Modal split: – 5% public transport – 95% car Average distance per trip: – car: 25 km, bus: 26 km Number that travel by public transport at least 3 days per week: 0 people, 0 % of test group
Services provided	A	**Project activities and outputs**	Number of : – leaflets distributed – info-meetings with employees	– Hospital: 170 leaflets, 1 meeting – Oles Bakery: 47 leaflets, 1 meeting **Total number of leaflets: 217** **Total number of meetings: 2**
	B	**Awareness of mobility services provided**	Number / percentage of employees that are aware of the test traveller project	*Not recorded*
	C	**Usage of mobility services provided**	Number / percentage of employees that have participated in information meetings	– Hospital: 243 people – Oles bakery: 27 people **In total 270 people, 27% of total target group**
	D	**Satisfaction with mobility services provided**	– Percentage of employees that are positive to the information on the test traveller project – Percentage of employees that are positive to the test traveller project	*Not recorded*

Table 34: **Options offered** and **overall effects** for the test traveller project aimed at the **direct target group**

Level			Indicators	Results
Option offered	E	**Acceptance of mobility option offered**	Number of people signing up to become test travellers & use public transport at least 3 days/week during test	– Hospital: 44 people – Oles bakery: 10 people **In total 54 people, 5% of target group**
	F	**Take up of mobility option offered**	– Travel behaviour: Modal split during test period Average distance per mode and trip in the test group Number / percentage of test travellers travel by public transport at least 3 days / week during the test period – Stage belongings	<u>Modal split during test period:</u> Hospital: 85% public transport, 15% car Oles Bakery: 90% public transport, 10% car **Total: 86% public transport, 14% car** <u>Average distance per trip (both companies):</u> – car: 25 km, bus: 26 km <u>Number that travel by public transport at least 3 days per week:</u> – Hospital: 90% (40 people) – Oles bakery: 100% (10 people) **Total 50 people, 92% of test group** <u>Stage belongings (both companies):</u> – 0 % stage 1 and stage 2 – 9 % stage 3 – 91 % stage 4
	G	**Satisfaction with mobility option offered**	Number /percentage of test travellers that are satisfied with public transport	– Hospital: 38 people, 86% - Oles bakery: 9 people, 90% **In total 47 people, 87% of test group**
Overall effects	H	**Long-term attitudes and behaviour**	Travel behaviour: Modal split 12 month after test period Average distance per mode and trip in the test group Number / percentage of test travellers that use public transport at least 3 days / week Stage belongings	<u>Modal split after test period:</u> Hospital: 35% public transport, 65% car Oles Bakery: 58% public transport, 42% car **Total: 39% public transport, 61% car** <u>Average distance per trip in the test group:</u> – car: 25 km, bus: 26 km <u>Number of test travellers that travel by public transport at least 3 days per week:</u> – Hospital: 28 people, 64% – Oles bakery: 7 people, 70% **In total: 35 people, 65% of test group** <u>Stage belongings:</u> – 0% stage 1 and stage 2 – 35% stage 3 – 65% stage 4
	I	**System impacts**	– Change in travel mode – Reduced vehicle mileage/year – Reduced CO_2 per year	Reduction of car use by 34 percentage points – Increase of public transport by 34 percentage points 110.000 km/year – 18 tonnes CO_2/year

6.2 Example 2 – New citizens marketing campaign

This example is taken from a pilot project targeting new citizens in a German city, using welcome packages with information material about the local sustainable transport options. During a test period new citizens were randomly assigned to an intervention group and a control group. The intervention group (direct target group) received a welcome package and could order additional material by sending a postcard and also asking for further advice via telephone. With such a telephone call, individual information was given and additional material was sent out to the participants. After the campaign period, both groups were interviewed about their every day travel behaviour, and the intervention group was additionally asked to give feedback about the campaign and material.

The overall goal of the project was to convince as many of the new citizens as possible to use at their new location sustainable transport means in order to reduce personal car use and road congestions and therefore achieve a more sustainable environment and better air quality. The project therefore offered information about public transport (local and regional), bicycle (parking, direct/leisure routes), walking (e.g. pleasant routes) car-sharing, car parking facilities and fees, park and ride locations, as well as a weekly test ticket for public transport and a rebated offer for a monthly local transport pass (when purchased as an early subscription). Due to the test character of this campaign, no direct targets were formulated before the project started. There was no indirect target group in this project.

Table 35: **Overall goals**, **target groups**, **services** and **mobility options** of new citizens marketing campaign

Overall goals	The project aims at reducing personal car use. The overall goal for the local authority is a more sustainable environment (especially an improvement of air quality and CO_2 reduction) and less road congestion.
Target group	The target group consists of individuals who recently moved to the city that implemented the new citizen marketing campaign.
Mobility services provided	5000 individuals who moved to the new city receive a package with information on different mobility options. Moreover they receive a “service card” with which they could order additional materials as well as a one- week test ticket if they provide their phone number. Individuals who order additional materials are contacted by phone and receive personal advice on the use of different mobility options.
Mobility option offered	To travel by public transport, bike and foot.

External factors that influence the possibility and desire to travel by public transport, bike and foot include e.g. the access to public transport and bicycle paths, parking fees in their residential area.

Person-related factors: The person-related objective factors in this project include place of residence, age, gender or income. Person-related subjective factors are the stage the persons belong to. Person-related subjective factors are measured both before the intervention and 3 months after the intervention.

Table 36: MaxSumo **intervention framework conditions** and **services provided** for the new citizen marketing campaign

Level			Indicators	Results
Intervention framework conditions		**External factors**		*Not recorded*
		Person-related factors	Objective factors: – Place of residence – Age – Gender – Income – Car availability – Number of persons / household – Number of children / household	No significant differences between intervention and control group in subjective and objective factors before the intervention.
			Subjective factors: – Stage position Modal split: – Percentage of trips by car – Percentage of trips by public transport – Percentage of trips by bike/foot Average distance per trip and mode Average number of trips / day	<u>Stage position before intervention:</u> – 55% stage 1 – 15% stage 2 – 11% stage 3 – 19% stage 4 <u>Modal split before intervention:</u> – car: 39% – public transport: 32% – bike/foot: 29% <u>Average distance per trip:</u> – car: 33 km, public transport: 15 km Average number of trips / day: 3.9
Services provided	A	**Project activities and outputs**	Number of : – Information packages (including service card) – Additional information materials – Personal telephone advice	– 5000 new citizens received information packages; – 1813 people received additional information materials; – 955 personal telephone advice
	B	**Awareness of mobility services provided**		*Not recorded*
	C	**Usage of mobility services provided**	Percentage of new citizens that: – order additional materials – take part in telephone advice	– 36.3% (1813 people) ordered additional materials – 19.1% (955 people) took part in telephone advice
	D	**Satisfaction with mobility services provided**	Percentage of new citizens that are: – positive to the information materials – positive to the telephone advice (of those who took part in telephone advice)	– 55% (2750 people) were positive to information materials – 75% (716 people) were positive to telephone advice

Table 37: **Options offered** and **overall effects** for the new citizen marketing campaign

Level			Indicators	Results
Option offered	E	**Acceptance of mobility option offered**	Percentage of new citizens who: – order a test ticket – say, they will try an alternative mode within the coming weeks	– 18% ordered a test ticket – 13% said they will try an alternative mode
	F	**Take up of mobility option offered**	Modal split: – Percentage of trips by car – Percentage of trips by public transport – Percentage of trip by bike / foot Average distance per trip and mode Average number of trips / day	Modal split during intervention: **Control group:** – car: 40% – public transport: 31% – bike/foot: 29% **Intervention group:** – car: 34% – public transport: 39% – bike / foot: 27% Average distance per trip: – car: 33 km, public transport: 15 km Average number of trips per day: 3.9
	G	**Satisfaction with mobility option offered**		*Not recorded*
Overall effects	H	**Long-term attitudes and behaviour**	Modal split: – Percentage of trips by car – Percentage of trips by public transport – Percentage of trip by bike/foot Average distance per trip and mode Average number of trips / day Subjective factors: – Stage position	Modal split 3 months after intervention: **Control group:** – car: 40% – public transport: 31% – bike / foot: 29% **Intervention group:** – car: 36% – public transport: 37% – bike / foot: 27% Average distance per trip: – car: 33 km, public transport: 15 km Average number of trips per day: 3.9 Stage position 3 months after intervention: **Control group:** – 55% stage 1 – 15% stage 2 – 11% stage 3 – 19% stage 4 **Intervention group:** – 48% stage 1 – 17% stage 2 – 12% stage 3 – 23% stage 4
	I	**System impacts**	Change in travel mode (modal split)	– Reduction of car use by 4 percentage points – Increase of public transport use by 6 percentage points But: partly at the expense of walking / cycling

7 Appendix 3: MaxSumo templates - Monitoring and Evaluation Plan

7.1 Template 1: Overall goals, target groups, services provided and mobility option offered

Use this template at the beginning of the project when defining the overall goals, the target groups, the services provided and the mobility option offered. Fill in the empty boxes.

Project: _____

Overall goals		
Target groups	Direct target group:	Indirect target group:
Services provided	For direct target group:	For indirect target group:
Mobility option offered	For direct target group:	[Not applicable]

7.2 Template 2: Assessment levels – targets, indicators, methods and timing

Use this template at the beginning of the project when defining the overall goals, the target groups, the services provided and the mobility option offered for the direct target group, and when applicable also for the indirect target group. Fill in the empty boxes.

Project: _____

Direct target group

Level			Targets	Indicators	Methods	When
Framework conditions	External factors		[Not applicable]			
	Person-related factors		[Not applicable]			
Services provided	A	Project activities and outputs				
	B	Awareness of mobility services provided				
	C	Usage of mobility services provided				
	D	Satisfaction with the mobility services provided				
Option offered	E	Acceptance of mobility option offered				
	F	Take up of mobility option offered				
	G	Satisfaction with the mobility option offered				
Overall effects	H	Long-term attitudes and behaviour				
	I	System impacts				

Project: _____

Indirect target group

Level			Targets	Indicators	Methods	When
Services provided	A	Project activities and outputs				
	B	Awareness of services provided				
	C	Usage of services provided				
	D	Satisfaction with the services provided				
Result	E	Acceptance of the MM intervention				

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Equipo de Tecnicos en Transporte y Territorio, ETT – Spain

Lyle Bailie International Limited – United Kingdom

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University of Piraeus Research Centre – Greece

Cracow University of Technology – Poland

Centre National de la Recherche Scientifique – France

University of Central Lancashire – United Kingdom

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

University of Maribor, Faculty of Civil Engineering – Slovenia

Aristotle University of Thessaloniki – Greece

Edinburgh Napier University – United Kingdom

Otto-von-Guericke-University of Magdeburg – Germany

Vilnius Gedimas Technical University – Lithuania

Demonstrators

Almada Municipal Energy Agency, AGENEAL – Portugal

Lazio Transport Company COTRAL – Italy

Tallinn Municipality – Estonia

Almada Municipality – Portugal

Kortrijk Municipality – Belgium

Munich Municipality – Germany