



Common & Local Impact Evaluation Plans | D6.3

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1. LIST OF TABLES, FIGURES AND ABBREVIATIONS

1.1. List of tables

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1.3. List of abbreviations

This table provides an overview on all abbreviations used in this document.

Abbreviation	Full name Explanation
0000	SMARTSET table text (Calibri, black, font size 10)
CO ₂	Carbon dioxide
GWh	Gigawatt hour
KPI	Key Performance Indicator
UFT	Urban Freight Terminal

Table 1: Abbreviations used in this document

2. ABOUT SMARTSET

Transport of goods, both on long distances and within cities contributes to a substantial part of the total emissions generated from the transport sector, as well as congestion. Up to 20% of traffic, 30% of street occupation and 50% of greenhouse-gas emissions are generated by freight.

The SMARTSET project will develop and show how freight transport in European cities and regions can be made more energy-efficient and sustainable by a better use of freight terminals. To reach this overall goal, the project will provide examples of good practice that can support cities, regions and countries to contribute to the European Union „20-20-20“ targets¹ for reduction in carbon dioxide emissions and improvement in energy-efficiency.

SMARTSET targets	Reduction by 2016	Reduction by 2020
Reduction of CO ₂ emissions in tonnes	9,051 tonnes per year	23,418 tonnes per year
Reduction of energy consumption in tonnes	3,104 tonnes per year	8,056 tonnes per year
Reduction of energy consumption in GWh	36 GWh per year	94 GWh per year

Table 2: SMARTSET targets during project duration (by 2016) and beyond (by 2020)

SMARTSET is structured around three core aspects for creating successful and attractive terminals:

- **Market based business models** provide an outline for various strategies and distribution solutions to be implemented through organizational structures, processes and systems.
- In order to make city centres more attractive, the **introduction of clean and energy-efficient vehicles** for last mile distribution and the use of intermodal transports is facilitated as well.
- **Incentives and regulations** improve the possibility to make the business models profitable and financially sustainable.

SMARTSET is a project, co-funded by the Intelligent Energy – Europe programme of the European Union (IEE) and is composed of 14 partners, coming from Austria, Germany, Italy, Sweden and the United Kingdom. It will run from 01.05.2013 until 30.04.2016.

¹ The climate and energy package is a set of binding legislation which aims to ensure the European Union meets its ambitious climate and energy targets for 2020. These targets, known as the "20-20-20" targets, set three key objectives for 2020:

- A 20% reduction in EU greenhouse gas emissions from 1990 levels
- Raising the share of EU energy consumption produced from renewable resources to 20%
- A 20% improvement in the EU's energy efficiency

3. OVERVIEW OF EVALUATION

The monitoring and evaluation activities (within WP6) aim to:

- ensure and perform a high quality evaluation of the implemented schemes;
- support the cities in their evaluations and raise their evaluation capabilities;
- identify important key drivers and barriers for a successful implementation of city logistic solutions and business models; and
- provide recommendations for cities interested in city logistics and for future city logistic projects.

It is important to know: what worked and what did not work and why within SMARTSET. Therefore

- **Monitoring will measure and describe what is happening:**
 - by collecting, storing and compiling **data**
- **Evaluation will assess this data in a systematic way to:**
 - **find out** if the objectives (see below) are achieved and targets have been reached
 - **compare** our projects with others'
 - **learn** from the results
 - **explain** causal relations

The monitoring and evaluation framework set for SMARTSET follows the logical sequence for evaluation (see figure below). A set of performance indicators has been developed to measure and demonstrate the project's success in achieving its objectives, outputs and outcomes (both during and beyond the project).

Details of this framework is further explained in project deliverable: *D6.1 Updated Set of Common Performance Indicators* (a word document with an accompanying excel file).

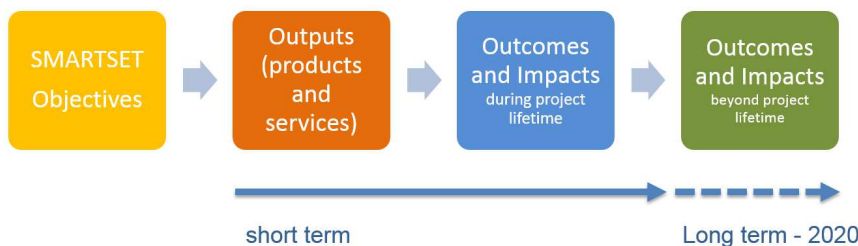


Figure 1: *Evaluation's logical sequence*

The following section overviews the project specific, strategic and IEE objectives set out for the project for ease of reference.

3.1. Objectives

SMARTSET project specific objectives (during the project life 2013-16) are to:

- P1 - Reduce the energy and environmental impact of freight distribution.
- P2 - Develop business models and business cases for freight terminals for both last mile freight delivery and shift from road to rail for longer distances.
- P3- Develop incentives and regulations which may shift transport demand in favour of UFT distribution schemes
- P4 - Increase the number of freight vehicles using clean and energy-efficient fuels.
- P5 - Capacity building within the consortium and creation of networks with stakeholders in the project and external actors to improve dialogue and acceptance of proactive freight schemes.
- P6 - Transfer of knowledge on various aspects of UFTs including business models to develop more sustainable distribution networks.

Strategic Objectives of the project are to:

- S1 - increase the use of clean vehicles for freight distribution in urban areas.
- S2 - identify and implement a more sustainable way of freight transports to and from the city that means less transport, to the same or lower cost and on time with the same number of deliveries. Thus develop and adopt a sustainable business model for freight transport.
- S3 - stimulate the introduction of clean vehicles for urban freight.
- S4 - implement methods for operational train management that ensure reliability and freight path preservation (priorities) on mixed traffic lines.

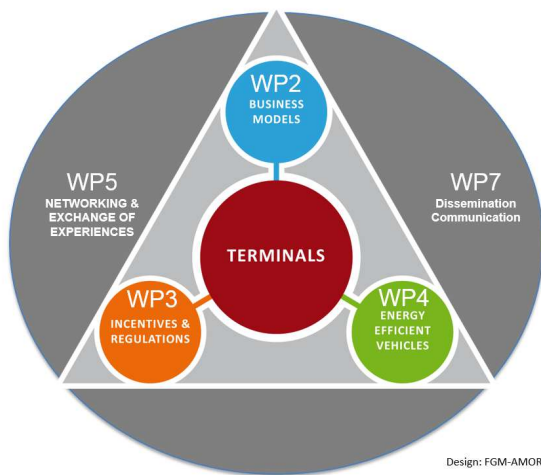
IEE relevant objective is to:

- contribute to the EU 2020 targets on energy efficiency and renewable energy sources.

How SMARTSET *contributes to this IEE objective* with respect to short-term (2013-16) and long-term targets (beyond the duration of the action: 2016-20) is shown in Table 2 above. Further details can be found in the project deliverable: *D8.1 Updated set of IEE Common Performance Indicators* (a word document with an accompanying excel file).

3.2. SMARTSET Common Evaluation Framework

The main framework for implementing the market-driven terminal schemes is a business model which will be drawn up for each of the SMARTSET sites (WP2). The business models are supported in their development with regulations and incentives (WP3) as well as the energy efficient vehicles (WP4) to be chosen for the operation of the schemes. Capacity building (WP5) for those involved in implementing the schemes aims to support the local projects and internal and external dissemination, and communication (WP7) aims to support the knowledge exchange between the consortium and the outside world.



The “Common Project Evaluation Plan” describes how to monitor and evaluate these project activities. This plan includes a framework for the Local Evaluation Plans to ensure common conclusions can be drawn.

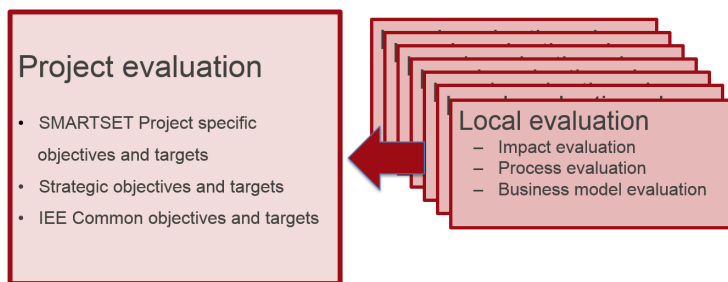


Figure 2: SMARTSET Project Evaluation Framework

While the project evaluation concerns whether the SMARTSET objectives, outputs and outcomes are achieved, the Local Evaluation Plans concern:

- the system impacts of the cities’ logistic solutions (in **Impact Evaluation**),
- how these impacts were obtained in terms of the success and the failure of the process followed (in **Process Evaluation**) and
- how successful their business models were (in **Business Model Evaluation**).

The Common Project Evaluation (report in M36) will present how SMARTSET and its partner cities' activities have contributed to the project specific, strategic and IEE objectives by drawing conclusions from the local evaluation plans as well as the project evaluation (as shown in Figure 2 above).

The time schedule (updated) of the monitoring and evaluation activities within SMARTSET are shown in the project Gantt chart in Figure 3 below.

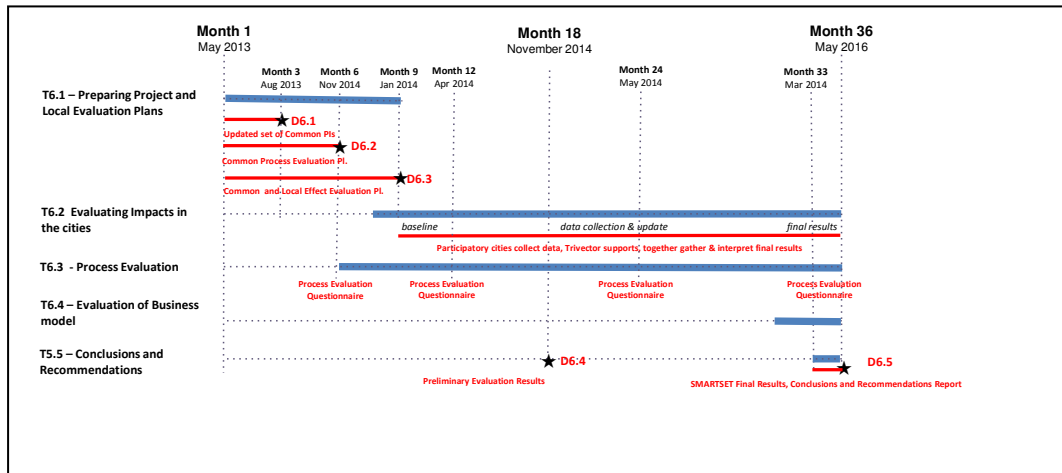



Figure 3: SMARTSET timing of the monitoring and evaluation activities

The remainder of this document details both the Common and the Local Impact Evaluation. The process evaluation is detail in D6.2 SMARTSET Common Process Evaluation Plan. The Local Business Model Evaluation Plan will be developed after the deployment of the Business Models developed in WP2 (after M24).

Notes are provided in the document for the SMARTSET cities to help in the development of the local monitoring and evaluation plans. They are marked with this symbol: 

A separate strand of evaluation activities is carried out for the communication and dissemination actions and outcomes. This part of activities will be monitored and reported in WP7 deliverables and included in D6.5: Final Results, Conclusions and Recommendations (M24).

ID	Performance Indicator	Targets
PPI 23	Number of web site visits during the project period.	20000 web page visits.
PPI 24	Number of external links to SMARTSET project website	50 external links
PPI 25	Number of press releases during the project period.	30 press releases.
PPI 26	Number of articles in magazines during the project period.	10 articles.

PPI 27	Number of reached practitioners in European cities	Outreach to 200 EU cities and organisations
PPI 28	Number of presentations at major European conferences.	2 Presentations at major conferences.

Table 3: Project level evaluation KPIs which will be monitored and evaluated as part of WP7 activities

4. COMMON AND LOCAL IMPACT EVALUATION PLAN

4.1. The framework

The common and local impact evaluation plans are based on the principles in MaxSumo, initially a tool for systematic planning, monitoring and evaluation of mobility projects. MaxSumo was developed in the EU-project MAX (2006-2009). Detailed information on MaxSumo assessment framework can be found in **MaxSumo guidebook** (www.epomm.eu).

By adopting the MaxSumo framework, we aim to deepen our understanding of what SMARTSET cities plan to do in their projects as well as what impact the projects have. This is done by breaking the activities (and the evaluation thereof) into manageable pieces called **assessment levels**. The assessment levels provide a way to monitor and evaluate the project within a set framework defined by MaxSumo. The framework presented here (Figure 4) provides us with a step-by-step approach to evaluate the impacts of the project all of the way through the project’s lifetime.

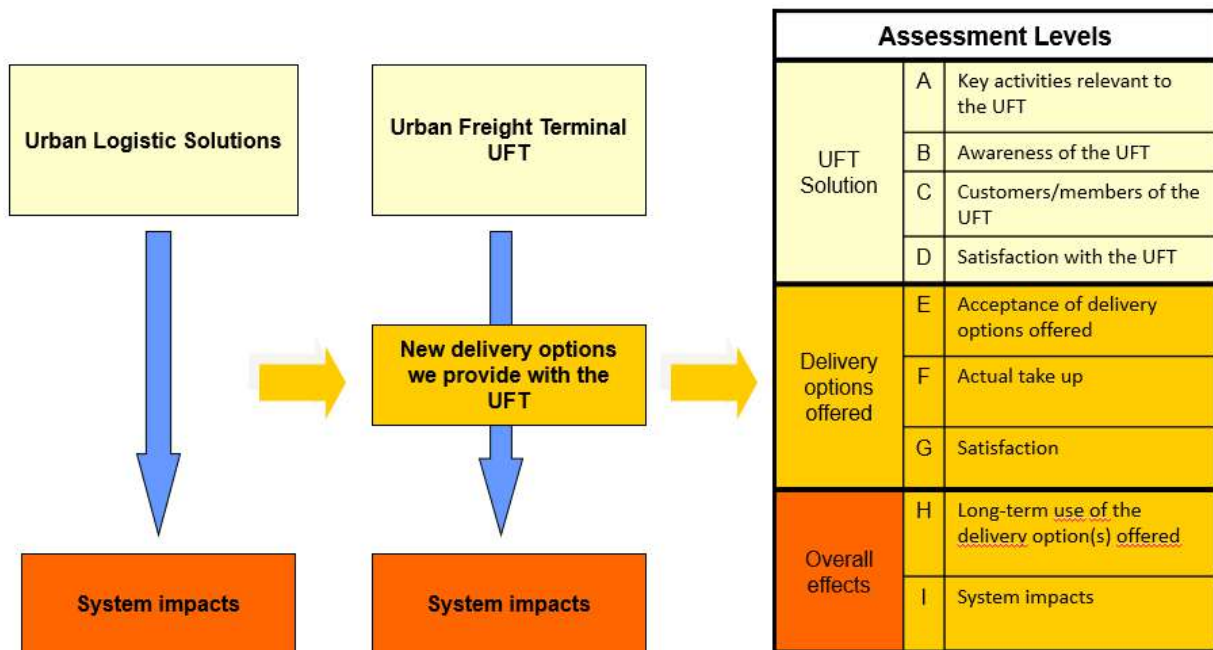


Figure 4: MaxSumo Framework in SMARTSET

The adopted Max-SUMO framework will help us to:

- use different assessment levels to explain the **causal relations** between what we implemented and its impacts on the ground
- **compare** the impact of different UFT schemes and the reasons for their success and failure.

The key principle of the MaxSumo framework is the careful planning of the monitoring and evaluation before the start of the project. This is done by following a seven step procedure, as shown below.

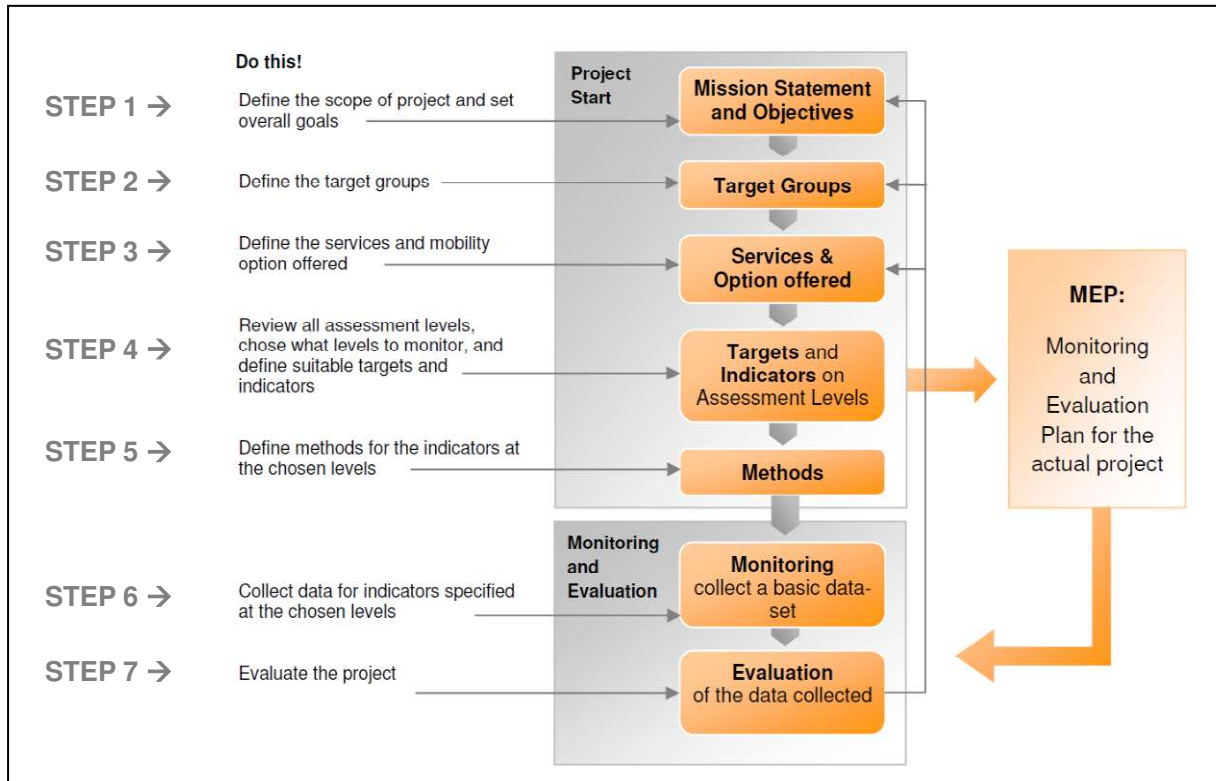


Figure 5: MaxSumo Framework in SMARTSET (MaxSumo guidelines, 2009 p1)

In this framework, Steps 1-5 define the cities’ individual monitoring and evaluation plans while steps 6-7 refer to actual monitoring and evaluation activities that the cities will undertake during SMARTSET. All of the details of these steps are described in chapter 5.

4.2. The Objectives and Performance Indicators

At SMARTSET project level, we aim to assess whether and how we have achieved the agreed SMARTSET *project specific, strategic and IEE relevant objectives*, targets, outputs and outcomes as detailed below.

MaxSumo’s Steps 1-5 were used when setting up the project level objectives, targets, outputs and outcomes in SMARTSET project Annex I and thereafter during the preparation of D6.1 and D8.1. The participating SMARTSET cities are required to review and, if necessary, to revise the information required for these 5 steps when preparing their Local Impact Evaluation Plans. These steps are repeated below:

Step 1: Define the scope of project and set overall goals

Step 2: Define the target groups

Step 3: Define the UFT solutions that will be provided by the project and the delivery option(s) offered to these target groups

Step 4: Review all assessment levels, choose 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



To do in writing local impact monitoring and evaluation plan:

- Review the first five steps from the MaxSumo model (see above). Detailed descriptions are given in Chapter 5.

4.2.1. SMARTSET Common Objectives

Local Impact monitoring and evaluation will help us to assess whether and how the project has achieved the following agreed SMARTSET *project specific, strategic and IEE relevant objectives* and their targets, outputs and outcomes. Each SMARTSET city is required, as a minimum, to consider and report the outcomes of their local project with respect to these objectives. Other local objectives they may wish to set in their Local Impact Evaluation Plans may also be included.

The project specific objectives are to:

- P1 - Reduce the energy and environmental impact of freight distribution (PPI 1-3; SPI4-6 and SPI20-30).
- P4 - Increase the number of freight vehicles using clean and energy-efficient fuels (PPI 11-14)

Strategic Objectives of the project are to:

- S1 - increase the use of clean vehicles for freight distribution in urban areas.
- S2 - identify and implement a more sustainable way of freight transports to and from the city that means less transports, to the same or lower cost and on time with the same amount of deliveries. Thus develop and adopt a sustainable business model for freight transports.
- S3 - stimulate the introduction of clean vehicles for urban freight.
- S4 - implement methods for operational train management that ensure reliability and freight path preservation (priorities) on mixed traffic lines.

IEE relevant objective is:

- to contribute to the EU 2020 targets on energy efficiency and renewable energy sources.



To do in writing local impact monitoring and evaluation plan:

- Review the project objectives and add any local project objectives. More details in chapter 5

4.2.2. SMARTSET Common Performance Indicators

Common impact evaluation refers to the system outcomes of the UFT solutions in each SMARTSET city with regard to the project objectives, achieved through SMARTSET (e.g. reduction in energy consumption through the introduction of UFTs). The outcome is measured through some key performance indicators.

The relevant performance indicators that will help us measure our success in achieving the above objectives are set out in D6.1 by following the MaxSumo principles and thereafter calculated as part of D8.1.

ID	Performance Indicator
PPI 1	Energy consumption (GWh/year) from freight distribution
PPI 2	CO2 emissions (tonnes/year) from freight distribution
PPI 3	Use of conventional and clean energy vehicles (in vehicle-kms /year)
SPI 4	Average distance "of delivery" (vehicle-kms/tonne or unit)
SPI 5	Average cost "of delivery" (Euros/tonne or unit)
SPI 6	Amount of goods delivered (tonnes or unit / year)
SPI 29	Freight carried on road (tonne-kilometres)
SPI 30	Freight carried on rail (tonne-kilometres)
PPI 11	Number of sites in which clean vehicles of different kinds will be tested and evaluated for the freight distribution connected to the micro terminals during the project.
PPI 12	Number of freight vehicles using clean and energy efficient fuel
PPI 13	Number of sites in which test will be performed on stimulating intermodal shift from road to rail for freight distribution.
PPI 14	Number of sites where gas/hybrid cars and cargo bikes have replaced delivery fleet.

Table 4: Performance indicators for Common and Local Impact Monitoring and Evaluation Plans

Each SMARTSET city is required, as a minimum, to consider and report the outcomes of their local project by evaluating these common performance indicators. Other performance indicators that are required/suitable for local objectives and targets may also be included. The results from each local impact evaluation report will be compiled, analysed and reported in the final SMARTSET project evaluation report.



To do in writing local impact monitoring and evaluation plan:

- Review the performance indicators and add any others that may be required / suitable in a local context. More details in chapter 5

4.3. The method

The system impacts of the SMARTSET activities will be monitored and evaluated by three means:

- **Data collection** – base line (M16-18) and “after” data (M32-34) at local level
- **Calculations** of the system impacts (eg energy savings, CO2 reductions etc) – through excel-based impact calculation models at local level (M35)
- **Assessment of** the mid-term (M18) and final result (M36).

The following tables summarise the data collection methods required for each of the common impact evaluation performance indicators listed in section 4.2, following the project objectives P1 and P4.

P1 - Reduce the energy and environmental impact of freight distribution

KPIs	Performance Indicators	What’s needed	Timing
PPI 1	Energy consumption (GWh/year) from freight distribution	Calculate number of km driven (before and after) by type of vehicle Energy conversion factors for different vehicle types	Before (M16-18) and after (M32-34)
PPI 2	CO2 emissions (tonnes/year) from freight distribution	Calculate number of km driven (before and after) by type of vehicle CO2 emission factors for different vehicle types	Before (M16-18) and after (M32-34)
PPI 3	Use of conventional and clean energy vehicles (in vehicle-kms/year)	Calculate number of km driven (before and after) by type of vehicle	Before (M16-18) and after (M32-34)
SPI 4	Average distance "of delivery" (vehicle-kms/tonne or unit)	Calculate number of km driven (before and after) and tonne or unit carried (before and after)	Before (M16-18) and after (M32-34)
SPI 5	Average cost "of delivery" (Euros/tonne or unit)	Calculate number of km driven (before and after) by type of vehicle; Calculate tonne or unit of goods carried (before and after)	Before (M16-18) and after (M32-34)

SPI 6	Amount of goods delivered (tonnes or unit / year)	Calculate tonnes or unit delivered per year (before and after)	Before (M16-18) and after (M32-34)
SPI 29*	Freight carried on road (tonne-kilometres)	Calculate freight carried on road in tonne km (before and after)	Before (M16-18) and after (M32-34)
SPI 30*	Freight carried on rail (tonne-kilometres)	Calculate freight carried on rail in tonne km (before and after)	Before (M16-18) and after (M32-34)

*only applicable to rail based schemes in Sundsvall and Berlin

P4 - Increase the number of freight vehicles using clean and energy-efficient fuels

KPIs	Performance Indicators	What's needed	Timing
PPI 11	Number of sites in which clean vehicles of different kinds will be tested and evaluated for the freight distribution connected to the micro terminals during the project.	Record number of clean vehicles tested / used before and after	Before (M16-18) and after (M32-34)
PPI 12	Number of freight vehicles using clean and energy efficient fuel	Record number of freight vehicles using clean and energy efficient fuel before and after	Before (M16-18) and after (M32-34)
PPI 13*	Number of sites in which test will be performed on stimulating intermodal shift from road to rail for freight distribution.	Record number of sites testing intermodal shift from road to rail	Before (M16-18) and after (M32-34)
PPI 14	Number of sites where gas/hybrid cars and cargo bikes have replaced delivery fleet.	Record number gas/hybrid cars and cargo bikes before and after	Before (M16-18) and after (M32-34)

*only applicable to rail based schemes in Sundsvall and Berlin

D8.1 Set of Updated IEE Common Performance Indicators and its accompanying excel file details how the IEE's standard performance indicators were estimated in SMARTSET at the start of the project. Similar to this process, when preparing their Local Impact Monitoring and Evaluation Plans, we expect each city to review and update their baseline data and the calculation model which were used for estimating the IEE agreed SMARTSET targets in D8.1.

In a nutshell, calculations were based on the number of freight deliveries **replaced** in the city (or in the area served with the UFT), their frequencies, total vehicle km travelled (and number of stop-starts), vehicles used (conventional and clean and energy efficient fuel), and consequent energy use (toe/year) and greenhouse gas emissions (tonne CO₂/year) from freight transport before and after the UFT scheme(s).



To do in writing local impact monitoring and evaluation plan:

- Review the calculations required for reporting the performance indicators (in attached Excel template), and adapt to own project characteristics. More details in chapter 5.

5. LOCAL IMPACT EVALUATION PLAN

This chapter includes templates and detailed guidance for what will be included in each of the SMARTSET cities local impact evaluation plans. It is broken down into two sections:

- Section 5.1 gives a template and guidance for describing the overview of the SMARTSET local activities
- Section 5.2 gives a template for the overview of impacts of the project and guidance on how to complete this template using the MaxSumo method:
 - Section 5.2.1 gives guidance on reviewing the assessment levels, defining the targets and defining the indicators in order to personalise the template at the beginning of section 5.2 for each SMARTSET site.
 - Section 5.2.2 gives guidance on how to do the monitoring and evaluation to complete the template at the beginning of section 5.2

5.1. Overview of the City’s activities within SMARTSET²

Please provide an overview of the city’s logistic solutions developed within SMARTSET (see D6.2 Local Process Evaluation).

SMARTSET city	<ul style="list-style-type: none"> Brief description eg location, population, economy etc.
Mission statement, Overall goals and targets / Value proposition	<ul style="list-style-type: none"> Scope – the project involves... Goals – why are you developing these UTFs solutions eg reduction in travel kms, emissions Target(s) – quantified (% or amount) reduction in CO2, energy etc
Target groups / Customer Segments	<ul style="list-style-type: none"> (focus your resources onto group of customers who are likely to produce the greatest effects— eg retail shops, a specific geographic region in the city, etc)
Services provided	<ul style="list-style-type: none"> Details of the UFT scheme, proposed incentives, regulations, tariffs etc
Options offered	<ul style="list-style-type: none"> New delivery options - eg the details of the new ways of transporting good in the city due to the UFT terminal

² based on MaxSumo Evaluation Plan Template 1 – please make sure this table corresponds to the one in D6.2 Local Process Evaluation

5.1.1. Guidance on defining the scope of the project, its objectives and target groups

MaxSumo steps that this section refers to:

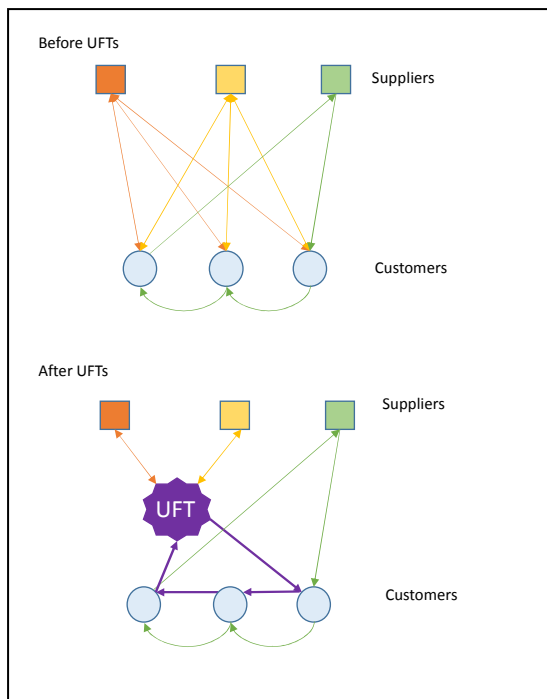
Step 1: Define the scope of project and set overall goals

Step 2: Define the target groups

Step 3: Define the UFT solutions that will be provided by the project and the delivery option(s) offered

This section gives guidance on how to complete template 1 (previous page) which is included in the local impact evaluation plans and subsequently the reports. The participating SMARTSET cities have already defined the scope of their project, its objectives and the target groups alongside a brief description of UFT solutions that they are proposing to implement in Annex I of the SMARTSET agreement.

The SMARTSET cities are required to review and, if necessary, revise this template following the MaxSumo steps 1-3. WP2 Task 2 activities and deliverables and D6.2 Local Process Evaluation Plan questionnaires will help to complete these steps (see *Figure 7*).



In order to be able to attribute changes on the transport system to SMARTSET and its applications in the cities, it is important to state the objectives that we want to reach already at the start of the local SMARTSET project. It is very important that they are SMART:

- Specific
- Measurable
- Ambitious / Accepted
- Realistic
- Time-limited

When defining your target groups, keep in mind the overall SMARTSET target groups (transport suppliers, hauliers and industry, political decision makers, shop keepers and good receivers) and when setting up objectives or planning activities, consider the question “what freight movements do I want to change?”.

Figure 6: Defining scope of the project

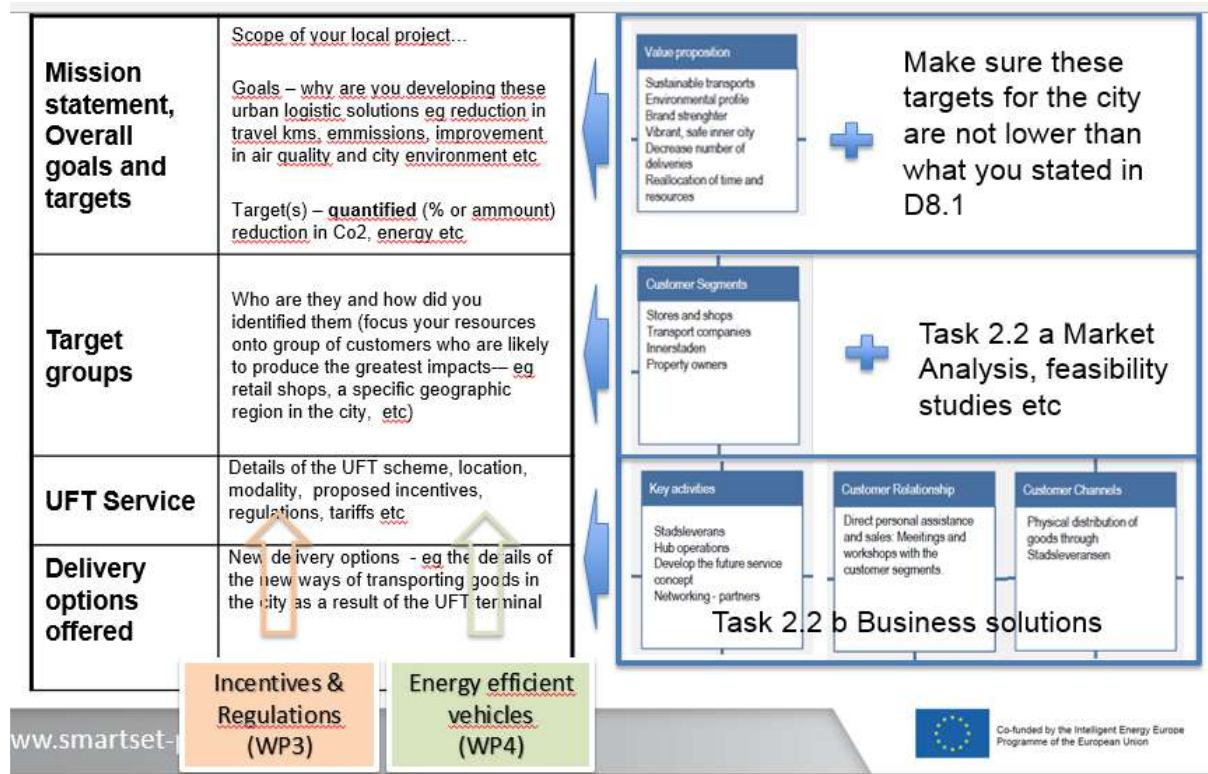


Figure 7: Overview of the City's Project - Guidelines for Template 1



To do in writing local impact evaluation plan:

- Complete template 1, and ensure it matches that used in the local process evaluation (D6.2)
- Review MaxSumo steps 1-3 to complete the template using other deliverables where appropriate

5.2. Overview of Impacts³

Obj	KPIs	Performance Indicator	Local Targets (from D8.1 and D6.1)	Before	After	Change
P1	PPI 1	Energy consumption (GWh/year) from freight distribution				
	PPI 2	CO2 emissions (tonnes/year) from freight distribution				
	PPI 3	Use of conventional and clean energy vehicles (in vehicle-kms /year)				
	SPI 4	Average distance "of delivery" (vehicle-kms/tonne or unit)				
	SPI 5	Average cost "of delivery" (Euros/tonne or unit)				
	SPI 6	Amount of goods delivered (tonnes or unit / year)				
	SPI 29*	Freight carried on road (tonne-kilometres)				
	SPI 30*	Freight carried on rail (tonne-kilometres)				
P4	PPI 11	Number of sites in which clean vehicles of different kinds will be tested and evaluated for the freight distribution connected to the micro terminals during the project.				
	PPI 12	Number of freight vehicles using clean and energy efficient fuel				
	PPI 13*	Number of sites in which test will be performed on stimulating intermodal shift from road to rail for freight distribution.				
	PPI 14	Number of sites where gas/hybrid cars and cargo bikes have replaced delivery fleet.				
		<i>Any other local KPIs</i>				

*only applicable to rail based schemes in Sundsvall and Berlin

³ based on MaxSumo Evaluation Plan Template 2

5.2.1. Guidance on reviewing assessment levels, defining targets and indicators

MaxSumo steps that this section refers to:

Step 4: Review all assessment levels, choose 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

This section gives guidance on how to review the assessment levels, and define targets and indicators in order to complete the template 2 on the previous page (to be included in local impact evaluation plans, and subsequently reports).

After setting up the local objectives, targets and the project activities, each SMARTSET city is required to review and, if necessary, to revise the information and calculations used in D8.1. This includes reviewing the assessment levels – the different parts of the SMARTSET local activities in manageable pieces that can be monitored and evaluated.

Assessment levels to be considered in the review include:

- **Intervention framework conditions** refer to underlying background conditions in SMARTSET sites, and characteristics of the target group that is the focus of the project (before data).
- **Services provided by the project** refer to the different activities and outputs that the city's SMARTSET project provides in order to promote changes in urban delivery behaviour (i.e. what the project is providing to its target group eg an urban urban freight terminal, multi-modal consolidation centre, energy efficient vehicles, establishing a freight committee, marketing and awareness campaigns etc).
- **Options offered through the services provided** refer to new ways of transporting the goods in urban areas that the project is attempting to persuade its target group to use (e.g. attempt to switch consolidation of deliveries, using energy efficient vehicles in tours, etc)
- **Overall effects** refer to main outcomes of the project with regard to more sustainable ways of delivering/distributing good in urban areas, and system impacts achieved by a change in urban deliveries (e.g. reduction in mileage, energy consumption and CO₂ emissions etc) (after data)

These assessment levels are detailed below (Table 5). Please note that the assessment levels are not generic but dependent on the individual projects, so need to be revised for each project.

Assessment Levels to be considered		
Assessment of UFT Solutions provided	A	Project activities and outputs / key activities relevant to the UFT Describes the project effort invested in the UFT to change transport of goods in the city, such as meetings, material distributed, data systems introduced, incentives and regulations introduced etc, and the costs for this (refers to D6.2).
	B	Awareness of UFT services provided Describes the awareness of the project or the UFT services provided.
	C	Usage of UFT services provided Among those shops or delivery companies that are aware of the services, this level describes the usage or the interest shown in the project or UFT services.
	D	Satisfaction with UFT services provided Measures how satisfied users are with the services provided.
Assessment of delivery options offered	E	Acceptance of delivery options offered Describes the acceptance of the delivery options offered, by measuring the intent to use them.
	F	Take up of delivery options offered Measures how many test the new delivery options offered eg. 30 shops use the new bicycle delivery services etc
	G	Satisfaction with the delivery option offered Shows if target groups that have tested the delivery options offered are satisfied with it (often a pre-condition if they are to make it a permanent change).
Overall effects	H	Long-term attitudes and behaviour Measures how many users, due to the city's UFT solution, adopt new attitudes and ultimately change how they transport goods to/from and within the city.
	I	System impacts These are the effects that the project 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 have changed as a result of the change in transport of goods.

Table 5: MaxSumo adopted Assessment Levels to be considered for Local Impact Monitoring and Evaluation Plans

Table 6 provides a template for cities to set targets and identify performance indicators according to the nature of their own scheme. In order to have consistency in reporting the system impacts of the overall SMARTSET project the common performance indicators (listed in section 4.3) **must** be included in cities' Local Impact Monitoring and Evaluation Plan.

It is very complex to measure/calculate the system impacts eg energy consumption, travel distance etc. for all distribution traffic within a city area in general. Therefore the assumptions can be based on the distribution which can be identified and aimed to be replaced by the UFT-projects. If still valid, and corresponds to the local performance indicators chosen above, the same models and assumptions (hence updated) can be used as when the local targets were calculated in D8.1.

Once again, it is important to make it clear at the start that whether the calculations will be based on a complete area (eg the whole city centre) or a certain part of the distribution traffic (which is aimed to be replaced by the UFT services).

Table 7 below provides some examples on the performance indicators and data may be considered in each assessment level above. Cities are **not expected to have targets or indicators for all of the assessment levels** but are advised to consider those levels that is suitable and important for their project. Please also note indicators listed in this table are only for guidance.

Assessment Level	ID	Performance Indicators	Local Targets**	Methodology	Timing
A					
B					
C					
D					
E					
F	PPI 11	Number of sites in which clean vehicles of different kinds will be tested and evaluated for the freight distribution connected to the micro terminals during the project.		Record number of clean vehicles tested / used before and after	Before (M16-18) and after (M32-34)
	PPI 13*	Number of sites in which test will be performed on stimulating intermodal shift from road to rail for freight distribution.		Record number of sites testing intermodal shift from road to rail	Before (M16-18) and after (M32-34)
G					
H	PPI 12	Number of freight vehicles using clean and energy efficient fuel		Record number of freight vehicles using clean and energy efficient fuel before and after	Before (M16-18) and after (M32-34)
	PPI 14	Number of sites where gas/hybrid cars and cargo bikes have replaced delivery fleet.		Record number gas/hybrid cars and cargo bikes before and after	Before (M16-18) and after (M32-34)
I	PPI 1	Energy consumption (GWh/year) from freight distribution		Calculate number of km driven (before and after) by type of vehicle	Before (M16-18) and after (M32-34)
	PPI 2	CO2 emissions (tonnes/year) from freight distribution		Calculate number of km driven (before and after) by type of vehicle	Before (M16-18) and after (M32-34)



PPI 3	Use of conventional and clean energy vehicles (in vehicle-kms /year)		Calculate number of km driven (before and after) by type of vehicle	Before (M16-18) and after (M32-34)
SPI 4	Average distance "of delivery" (vehicle-kms/tonne or unit)		Calculate number of km driven (before and after) and tonne or unit carried (before and after)	Before (M16-18) and after (M32-34)
SPI 5	Average cost "of delivery" (Euros/tonne or unit)		Calculate number of km driven (before and after) by type of vehicle; Calculate tonne or unit of goods carried (before and after)	Before (M16-18) and after (M32-34)
SPI 6	Amount of goods delivered (tonnes or unit / year)		Calculate tonnes or unit delivered per year (before and after)	Before (M16-18) and after (M32-34)
SPI 29*	Freight carried on road (tonne-kilometres)		Calculate freight carried on road in tonne km (before and after)	Before (M16-18) and after (M32-34)
SPI 30*	Freight carried on rail (tonne-kilometres)		Calculate freight carried on rail in tonne km (before and after)	Before (M16-18) and after (M32-34)

* only applicable to rail based schemes in Sundsvall and Berlin

**See D8.1 for local targets

Table 6: A template for considering targets and performance indicators for the assessment levels – including the compulsory common performance indicators

<p>Framework conditions</p>	<ul style="list-style-type: none"> • Legislation on incentives and regulations • Before data on existing deliveries: <ul style="list-style-type: none"> • Number of shops which have their own distribution routes • Average number of deliveries per shop per day • Percentage of deliveries made with fixed route/circuit deliveries(%) • Length of the fixed route/circuit (in Km) • Percentage of heavy trucks in the distribution fleet • Percentage of light trucks in the distribution fleet • Number of fixed routes/circuits per day -city deliveries
<p>Assessment of UFT Solutions provided</p>	
<p>Project activities and outputs / key activities relevant to the UFT</p>	<p>Market analysis – WP2 activities</p> <ul style="list-style-type: none"> • Number of network meetings / workshops / articles • Setting-up of one UFT in each city • Number (%) of shops in the geographic area <u>informed about the UFT</u> • Number (%) of transport providers <u>informed about the UFT</u>
<p>Awareness of the UFT</p>	<ul style="list-style-type: none"> • Number (%) of shops in the geographic area aware of the UFT • Number (%) transport operators <u>aware of the UFT</u>
<p>Customers/members of the UFT</p>	<ul style="list-style-type: none"> • Number (%) of shops signed upto the UFT • Number (%) of transport operators signed up to the UFT
<p>Satisfaction with the UFT</p>	<ul style="list-style-type: none"> • Number (%) of shops in the geographic area <u>satisfied with the UFT</u> (target 90 %??) • Number (%) transport providers <u>satisfied with the UFT</u>

Assessment of Delivery option(s) offered	Acceptance of delivery options offered	E	<ul style="list-style-type: none"> 72 % (480 shops) surveyed said they consider using the new delivery options provided by the UFT etc
	Actual take up	F	<ul style="list-style-type: none"> No of actual shops/customers/ providers using the UFT <p>Intermediate data on:</p> <ul style="list-style-type: none"> Average number of deliveries per shop per day Percentage of deliveries made with fixed route/circuit deliveries(%) Length of the fixed route/circuit (in Km) Percentage of heavy trucks in the distribution fleet Percentage of light trucks in the distribution fleet Number of fixed routes/circuits per day -city deliveries Use of alternative fuel vehicles
	Satisfaction	G	<ul style="list-style-type: none"> Number (%) of shops and/or transport operators satisfied with the new transport solution
Overall effects	Long-term use of delivery option(s) offered	H	<p>After data on:</p> <ul style="list-style-type: none"> Average number of deliveries per shop per day Percentage of deliveries made with fixed route/circuit deliveries(%) Length of the fixed route/circuit (in Km) Percentage of heavy trucks in the distribution fleet Percentage of light trucks in the distribution fleet Number of fixed routes/circuits per day -city deliveries <p>Calculations on:</p> <ul style="list-style-type: none"> Reduction of energy consumption (GWh/year) from freight distribution Reduction of CO2 emissions (tonnes/year) from freight distribution Change in vehicles-km with conventional and with clean energy vehicles (in vehicle-kms /year) Change in average distance "of delivery" (vehicle-kms/tonne or unit) Change in cost "of delivery" (Euros/tonne or unit)
	System impacts	I	

Table 7: Example for performance indicators

Table below presents the estimated energy, CO2 savings and renewable energy triggered due to SMARTSET activities in cities as calculated in D8.1. The cities are required to set their local targets no less than these values.

City	Energy (GWh/year)	Energy (toe/year)	CO2 (tonnes/year)	Renewable energy triggered (toe/year)
Berlin	0	0	0	0.0
Forli	0.0	0	0	0.0
Gothenburg	-0.1	-8	-28	0.1
Graz	0.0	0	0	0.0
Newcastle	-0.2	-16	-56	12.5
Padova	-0.6	-52	-206	21.5
Rome	-0.2	-18	-61	0.0
Sundsvall	-35.0	-3010	-8700	0.0
Total	-36	-3104	-9051	34.1

Table 8: Targeted savings (during the project) - Berlin, Forli and Graz terminals will not be operational

City	Energy (GWh/year)	Energy (toe/year)	CO2 (tonnes/year)	Renewable energy triggered (toe/year)
Berlin	-1.2	-107	-457	25.3
Forli	-3.2	-278	-981	3.8
Gothenburg	-1.7	-144	-507	1.0
Graz	-1.6	-137	-481	0.9
Newcastle	-3.4	-290	-1014	224.9
Padova	-5.5	-471	-1853	193.6
Rome	-4.1	-352	-1227	0.0
Sundsvall	-73.0	-6278	-16900	0.0
Total	-94	-8056	-23418	449.4

Table 9: Targeted savings (beyond the project)

Targeted savings (beyond the project) were calculated extrapolating the short term impacts to long term impacts by using multipliers (enlargement of the project to wider area and to the other cities).



To do in writing local impact evaluation plan:

- Include local targets for the compulsory performance indicators listed in section 4.3, and make sure that they are not less than the values in table 8.
- Add any additional performance indicators and targets as required (use tables 6 and 7 as guides)
- Review, and if necessary, revise the information (both baseline and after data) and calculations in D8.1 – use the excel template accompanying this document. Please note that if still valid, the same models and assumptions (hence updated) can be used as when the targets were calculated.

5.2.2. Guidance on Monitoring and Evaluation

This section refers to the following MaxSumo steps:

Step 6: Monitor the chosen assessment levels

Step 7: Evaluate the project and explain observed changes

Once the cities develop their Local Impact Monitoring and Evaluation Plans, they will proceed with the **data collection** for setting up the baseline data and thereafter for monitoring and developing an **impact calculation** model. Some of the cities used the common impact calculation model that was developed at the start of the SMARTSET project but others used different calculation models during D8.1 review. We urge the cities to review their calculation models in the light of the assessment levels and their targets and indicators.

Please note establishing a causal chain that explains the link between the outcomes and impacts can be helpful when establishing performance indicators and an impact calculation model.

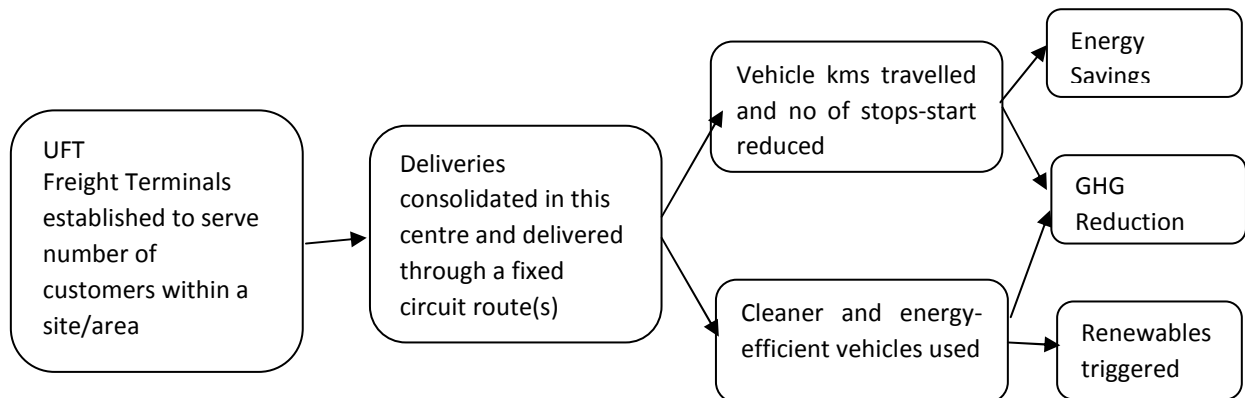


Figure 8: Mapping Outputs to impacts

Timing of the Local Impact Monitoring and Evaluation activities:

- **Data collection** – base line (M16-18) and “after” data (M32-34) at local level
- **Calculations** of the system impacts (eg energy savings, CO2 reductions etc)
 - through excel-based impact calculation models at local level (M17 and M35)
- **Assessment** of the mid-term (M18) and final result (M36).



To do in local impact monitoring and evaluation plan:

- **Data collection** – base line (M16-18) and “after” data (M32-34) at local level
- **Calculations** of the system impacts (eg energy savings, CO2 reductions etc) – through excel-based impact calculation models at local level (M17 and M35)
- **Assessment of** the mid-term (M18) and final result (M36).