INTERREG Alpine Space Project

"Sustainable Mobility Behaviours in the Alpine Region – SaMBA"

BEHAVIOUR CHANGE POLICIES STATE OF THE ART REPORT

November 2018

Short Description
This Report is one of the deliverables foreseen within the WP T2 "Transnational Community and Strategy", Activity T2.2 "Behaviour change policies best practices and literature review". It collects some lessons from the best international experiences on mobility change behaviour policies, as well as to elaborate a common method to analyse and compare different case studies, in order to support, with a sound basis, the implementation of the nine SaMBA Pilot Cases (WP T3) in five Alpine Space countries (Austria, France, Germany, Italy, Slovenia). It is focussed on the most important points for behaviour change policies implementation such as: citizens/stakeholder engagement, reward/pricing schemes, costs benefits, barriers/solutions, territorial cultural peculiarities.

Document Details	
Project	SaMBA
Action	WP T2 Activity A.T2.2
Deliverable	D.T2.2.1
Due date	2018.11.23
Delivery date	2018.11.30
Dissemination	PPs
Origin	PP2
Authors	Stefania Mauro, Alessandro Musco

Version	Date	Author	Organization
Draft	16.11.2018	Stefania Mauro, Alessandro Musco	PP2 - SiTI
Final version	30.11.2018	Stefania Mauro, Alessandro Musco	PP2 – SiTI

Table of Contents

Abbreviations and Definitions

AS	Alpine Space
ASP	Alpine Space Programme
BP	Best Practice
EU	European Union
GHG	Greenhouse Gases
ICT	Information and Communication Technologies
NGO	Non-Governmental Organizations
PCR	Pilot Cases Responsible
PP	Project Partner
PT	Public Transport
WP	Work Package

1   INTRODUCTION

"Sustainable Mobility Behaviours in the Alpine Region" (SaMBA) is a project co-financed by the European Union via Interreg Alpine Space Programme and implemented by a partnership of thirteen Alpine Space bodies, led by Regione Piemonte (Italy) with the support of thirty-six observers.

It has started in April 2018 and will end in April 2021.

This Report is one of the deliverables foreseen within the WP T2 "Transnational Community and Strategy", Activity T2.2 "Behaviour change policies best practices and literature review".

The goal of the activity is to gain some lessons from the best international experiences on mobility change behaviour policies, as well as to elaborate a common method to analyse and compare different case studies, in order to support, with a sound basis, the implementation of the nine SaMBA Pilot Cases (WP T3) in five Alpine Space countries (Austria, France, Germany, Italy, Slovenia).

The international best practice analysis helps to define the most appropriate features and the best solutions that SaMBA Pilot Cases should implement, in order to be effective and result-oriented. Indeed, this Report proposes a whole analysis of the twenty-nine BPs about reward system and seven BPs about pricing system in order to give valuable inputs to the other activities of Work Package T3.

The Report is divided into three sections (excluding the introductory one), the content of which is briefly illustrated below.

Section "Literature review", after a focus on general studies on human behaviour change, describes the state-of-the-art of public policies concerning the mobility behaviour change, in particular linked to reward and pricing systems, in the EU context. It is based on the critical analysis of official EU documents, study and findings and on the review of the main undergoing initiatives and actions concerning this specific sector.

Section "International Best Practices of Behaviour change policies" includes the study approach: it explains the methodology used for the collection of best practices and for their analysis, the elaboration of the data collection form, the data collection, the best practice selection and the methodology approach used for the evaluation with a quantitative-qualitative analysis. Finally, it presents a comparison between BPs and SaMBA Pilot Cases to highlight relevancy and relations between them.

Section "Lessons Learned" identifies some success factors encountered during the BPs analysis, providing tips for a successful change behaviour policy mainly targeted to SaMBA pilot cases.

A final section "Annexes" containing the BPs forms about reward and pricing systems has been included.

2   LITERATURE REVIEW

In this first section of the report a brief literature review is presented. The specific objective is to analyse and compare the behavioural change policies, already implemented, in the context of mobility in order to outline the state of the art and, subsequently, identify best practices that could act as guidelines to PPs when implementing their pilot cases scheduled in the project.

The complexity and vastness of the subject emerges immediately, since human behaviour comes into play. Many environmental problems such as air quality, pollution, climate change are closely related to traffic and congestion and therefore to people's mobility choices. For this reason, in order to face the work in the best possible way and to obtain and provide results and considerations that are really useful, it was preferred to investigate firstly, from a more general point of view, the aspects and factors that could influence a person in his actions and in his choices and subsequently enter into more detail with regard to mobility.

Many studies have been carried out in the field of sociology, psychology and marketing in this regard. In this preliminary phase researches, which study the way and ability of people to act and react, to assimilate and receive both in habitual and in novelty situations, have been examined. The final intent is to understand, by focusing afterwards the attention on behaviours and choices related to mobility, which are the key influencing factors, which can be the actions of intervention aimed at changing people's behaviour and, above all, in what modalities a real change should be promoted.

2.1   Human behaviour change

Many researches have shown and demonstrated how psychographic variables (personality, lifestyle, social class, etc.) are better predictors of human behaviour than demographic ones (age, sex, income, education, etc.). Attitude, personal motivation, interest and opinion of the individuals are factors of considerable value when explaining the behaviour assumed. Equally important is the historical-social context since norms, indications and positive examples can encourage the occurrence of certain behaviours.

Interesting in this sense is the theory of the researchers *Le Bon*[1] and *Durkheim*[2], according to whom, the behaviour of the crowd could be understood only by evaluating the social context in which it took place. Even for *Wundt*[3], who distinguished a branch of psychology defined as *"of peoples"* since it studied the phenomena produced by the mutual interactions between individuals, the behaviour of the individual could not be understood without referring to the social context in which he is

---

[1] Le Bon, G. (1895), "La psychologie des foules".

[2] Durkheim, E. (1895), "Les règles de la méthode sociologique".

[3] Wundt, W.M. (1905), "Völkerpsychologie".

located, because there is a relationship between mind and conscience on the one hand and society on the other.

Like *Wundt*, also *George Herbert Mead*[4] believed that human actions could be understood only in relation to language, society and culture. Moreover, if for *Wundt* it was difficult to explain the relationship between individual and society, *Mead* overcomes the problem by questioning the existence of a separation between these two levels and claiming that individual and society are interdependent and communication is at the base of interactions between living beings.

According to *Mead* the basic element of communication is the gesture that becomes a significant symbol when it is able to evoke in others the same response that the issuer expects. The symbols are the basis of interaction, social life and the human mind. Social relations, therefore, provide a basis for the development of the person. In a given situation, the "role" we assume will always be a function of those assumed by others.

Differently from the *Wundt* model, *J. Watson*[5], one of the fathers of behaviourism, argued that since it was not possible to penetrate the experience and therefore the conscience of other people, it was impossible to approach scientifically the topic. This thought thus, marks the beginning of the separation between social psychologies of psychological orientation and of sociological orientation.

Mead's thought belongs to the sociological one, which, as previously mentioned, believed that individual behaviour was always connected and coordinated with that of other people and that personal conduct could be truly understood only by comparing it with that of others and with the history of the reciprocal relationship between the interacting subjects. *V. Burr*[6] also wanted to demonstrate the thesis that our behaviour would depend on the situation or context in which we find ourselves claiming that, in whatever way we act, our behaviour always and necessarily relates to shared social meanings.
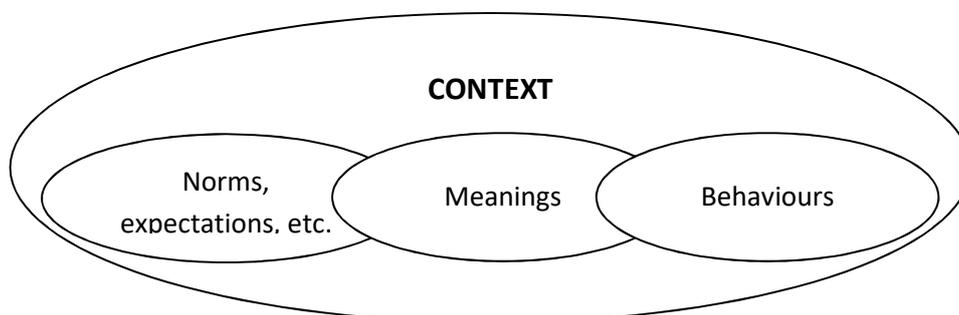

Figure 1. *Context's influence on human behaviour (source: Burr).*

---

[4] Mead, G.H. (1934), "Mind, Self and Society".
[5] Watson, J.B. (1924), "Behaviorism".
[6] Burr, V. (2002), "La persona in psicologia sociale".

From these early indications, it is possible to see how **behaviour cannot be understood as the outcome of objective events but springs from the symbolic meaning that these events take for people**. The cultural specificity of these meanings prevents from presuming that our way of understanding behaviour within our culture can be directly applied to members of other cultures or to other historical periods. On the contrary, **behaviour becomes comprehensible only if it is placed within the models of assumptions, traditions and ways of life of the social group in which it is inscribed**, otherwise it could be misunderstood. At the same time, due to their shared nature, these meanings allow to evaluate the intentions, expectations and responses of other members of our culture.

Belongs to this field, given the need in recent years to develop psychological models aimed at predicting and explaining behaviour by placing it in a wider system of beliefs, values, norms, attitudes and shared knowledge, also the *Theory of Reasoned Action* of *Ajzen* and *Fishbein*[7], which aims to explain and understand how individuals behave in the specific situational context. The model is very general and does not refer to specific behaviours, so this factor makes it applicable to different studies. The theory is based on the identification of three predictive factors:

A. the intention of behaviour, *"which exercises direct and primary action towards a specific conduct and which, in turn, is determined in a contemporary way by personal attitude and subjective norms"*;
B. the personal attitude towards behaviour, *"that is the attitude that an individual has in adopting or not adopting a specific behaviour"*;
C. the subjective norm, *"which is the influence that the opinions of others exercise on the choices of the individual"*.

Personal attitude can be understood as the judgment (positive or negative) that a subject attributes to a particular behaviour. This subjective evaluation can arise from the sum of the products of two variables:

→ beliefs, i.e. the possibility that behaviour can generate certain results and produce specific outcomes (in terms of cost-benefit);
→ the evaluation, that the individual subject attributes to the specific outcome.

The subjective norm instead represents the level of influence that the opinions of the "other referents" (parents, friends, partners, work colleagues, etc.) have on the behaviour of the individual. This influence is in turn given by the product of two variables:

• normative beliefs, i.e. beliefs about what certain referents expect with respect to a specific behaviour;
• the availability, that the individual has in adapting his behaviour to the expectations of his referents.

---

[7] Ajzen, I. and Fishbein, M. (1975), "Belief, attitude, intention and behaviour: An introduction to theory and research".

Subjective attitudes and norms exert an indirect influence on behaviour through intentions.
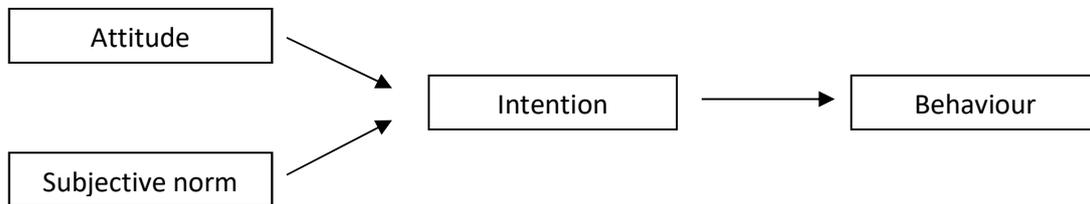

Figure 2. *Simplified Theory of Reasoned Action (source: Ajzen).*

However, there have been criticisms of this theory since it seems to presume that behaviour is always under the volitional control of people, while it is now known that there are behaviours that do not depend completely on people's will, but on situational circumstances.

In overcoming this, *Ajzen* and *Madden* have introduced the *Theory of Planned Behaviour*[8], which considers a new predictor of intentions and behaviour: perceived behavioural control, that is how much the individual thinks it is easy or difficult to carry out a certain action in order to achieve certain results. In many circumstances, he will have no intention of undertaking a certain behaviour if he does not feel able to achieve the desired result. Similarly, to subjective attitudes and norms, perceived behavioural control can be influenced by past experience, experience gained by others and finally by feedback we receive from other people who are significant to us as friends and/or acquaintances.

To understand, therefore, the conduct of a person we must necessarily refer to the context, taking into account personal characteristics, social, environmental and political influences and cultural perspectives. Several experiments were conducted on social influence in the mid-twentieth century by *Hood* and *Sherif*[9] demonstrating how subjective judgment is influenced by third-party assessments, as if one was complying with a standard instead of acting independently.

In another experiment conducted by *Asch*[10] the results obtained seemed to show that taking part in a group situation weakens the assessment and reasoning skills of individuals, whom tend to conform to the majority even without being minimally obliged or encouraged to do so, without their judgment depended on material consequences or without that there were particular reasons for being loyal to other members of the group who were perfect strangers, but perhaps out of fear of feeling different.

---

[8] Ajzen, I. and Madden, T.J. (1986), "Prediction of goal-directed behavior: attitudes, intentions and perceived behavioral control" Journal of Experimental Social Psychology.

[9] M. Sherif, O.J. Harvey, B.J. White, W.R. Hood and C.W. Sherif (1961), "Intergroup Conflict and Cooperation: The Robbers Cave Experiment".

[10] Asch, S.E. (1952), "Social psychology".

Also *S. Milgram*[11]'s experiments on obedience, as a deeply rooted behavioural tendency, showed to what extent the morality and responsibility of an individual could be quickly undermined by social influence by highlighting how **individual behaviour is**, to a large extent, **under the control of social forces, environmental contingencies and situational control factors**.

After this full immersion, aimed at identifying and understanding the factors that condition human behaviour, attention has shifted to intervention strategies aimed at changing behaviour itself. Various theories have been elaborated in attempt to explain how and why this change takes place with the aim of being able to predict its outcome and to take the necessary and appropriate actions to obtain certain results. For example, learning theories of behaviourists such as *B. F. Skinner*[12] assert that complex behaviour is learned gradually through the modification of simpler behaviours. Imitation and reinforcement assume important roles since individuals learn by duplicating behaviours they observe in others and rewards are essential to ensuring the repetition of desirable behaviour.

Very interesting results also come from *The Fogg Behaviour Model (FBM)*[13], a design behaviour change model proposed by *B. J. Fogg* that claims behaviour is composed of three different factors: **motivation**, **ability** and **triggers**. According to this model, to succeed at behaviour change any person needs to be motivated, have the ability to perform the behaviour and needs a trigger to perform it. BJ Fogg defines different motivators such as pleasure or pain, hope or fear, social acceptance or rejection. Ability, instead, refers to the self-efficacy perception at performing a target behaviour. Elements that characterize high ability or simplicity of performing a behaviour could be time, money, physical effort, brain cycles, social deviance, non-routine etc. Finally, examples of triggers can be alarms, text messages or advertisement. One of the most important aspects of a trigger is timing as only certain times are best for triggering certain behaviours.

Another key element is to understand how to promote behaviour change. Personalized communications and tailored messages are more effective to be read and remembered and could represent a good method to incentivize behaviour change and improve its impact. This approach could be used to generate an emotional response such as fear, hope or anxiety and to promote the comparison between actual and ideal behaviours. The three most used mediators in this mechanism are attitude, perception of performance and self-efficacy. The last one, meant as an individual's impression of their own ability to perform a challenging task, could be a predictor of the amount of effort that an individual will expend in initiating and maintaining a behavioural change.

Equally important is to understand how to maintain a certain stable behaviour over time, and so the results achieved, after the first active phase of intervention and change since a fundamental question in behaviour change research is how long positive gains can be sustained without additional long-term support. **In the majority of cases, intervention effects on lifestyle behaviours are often strongest in the one or two years closest to active intervention. Without additional support,**

---

[11] Milgram, S. (1974), "Obedience to authority: an experimental view".

[12] Skinner, B.F. (1953), "Science and human behaviour".

[13] Fogg, B.J. (2002), "Persuasive technology".

positive effects tend to decrease or vanish over time. Factors that contribute to this include external factors such as weather or seasonal changes, and/or personal issues a person is dealing with.

So, behavioural change maintenance requires an understanding of the surrounding context that can either facilitate or impede the behaviour change process, the specifics of the behaviour being targeted, the intervention settings, and the mechanisms of change. The identification of essential features of an intervention is important for the development, implementation, and evaluation of interventions designed to enhance long-term behavioural maintenance. It should be individually oriented and congruent with participants' demographics, cultural norms, and social context.

In this scenario the theory of "*nudge*" has made its way. From the second half of the last century the behavioural sciences have intensified their studies on the decisive push of *Herbert Simon*, psychologist, computer scientist and Nobel laureate of 1978. There are those who have greatly benefited from the discoveries of social psychology and behavioural economics on the modes of functioning of the human mind. Mechanisms that in the marketing of large companies have found large space over the years, but much less in public policies. Companies know how to use those mechanisms to affect the propensity to use or purchase products by consumers. The state and public administration hardly ever pose the problem of how to use the knowledge acquired on the functioning of the human mind to help the citizen make the best choices for himself.

However, in the last decade, also governments have started to introduce behavioural sciences in public administration policies to improve citizens' well-being since have emerged government programs that go under the name of "*nudge*", or "gentle push", as the title of a successful book by *Sunstein* and *Thaler*[14]. It is a proposal for a program of governmental interventions based on the developments of the discoveries of *Kahneman* and *Tversky*[15]. It is about directing decisions by emphasizing and highlighting those choices that lead to the most beneficial behaviour, counting on the inertia of people.

Nudging, in fact, is an economic approach, based on behavioural economics and in particular on the analysis of behaviour, a branch of psychology that starts from a premise: the irrationality of acting human. The proposal of the nudge derives from the fact that man has many weaknesses in will, in memory and in attention, he is very lazy and is subject to contradictions, errors and emotional perturbations. So, the starting question is how to govern a society and make intervention in favour of citizens. Fundamental is the concept call *"architecture of choice"*, which is exactly what the nudge focuses on. An architecture of choice can structure an environment so that it tends to make certain decisions. The problem is when the nudge becomes compulsive, when it does not preserve freedom of choice. It aims to compensate for the irrational and self-injurious tendencies of citizens by gently pushing them to decide in a rational way and for their own good. The goal is to give the final word to the result of deliberative and conscious processes of the citizen who can always oppose the gentle

---

[14] Thaler, R.H. and Sunstein, C.R. (2009), "Nudge: Improving Decisions About Health, Wealth, and Happiness".
[15] Kahneman, D. and Tversky, A. (1979), "Prospect Theory: An Analysis of Decision Under Risk".

push. It does not act on preferences, on goals, but it helps to find the best way to reach destination and satisfy preferences. It makes them less prone to evaluation errors. The nudges should have these characteristics, mere aids to enhance the ability to choose.

A systematic application of nudging strategies makes it possible to invent persuasive public interventions that, while resting on the limits of human rationality, do good to people. A recent review by *Sunstein*, *Thaler* [16]and collaborators shows that British and US government programs have managed to achieve benefits for the well-being of people in the most disparate areas. From health to taxes, from training to energy saving, from financial behaviour to pension planning. These governmental initiatives are gradually expanding into the world by showing the beneficial and proactive side of this revolution in the ways of conceiving the human mind. The intrinsic limitations of our perception, attention and decision can be addressed to a good purpose. Often it is a work of regulatory or procedural simplification, to obtain greater efficiency. It should be understood that even in the choice of public policies, not only are instruments such as laws, regulations, incentives or economic sanctions available. But also other "behavioural impact" options.

In the framework of a *nudge* application it could be for example considered a new mass communication strategy adopted to direct citizens towards the decisions that the government considers best for health, well-being and money management. Or techniques to silently influence people in the choices to change their behaviour in order to make them more rational and more useful for the collective well-being. The *nudge* acts in a subliminal way, reducing free will but at the same time increasing autonomy. It starts from the assumption that sometimes we are not in control of our decisions and that we act in an unconscious way, conditioned by biological, chemical and relational factors. The *nudge* is therefore more "kind" than an incentive, a law or a sanction.

The following box summarizes the most interesting insights about human behaviour change.

Human behaviour change insights
• Psychographic variables (personality, lifestyle, social class, etc.) are better predictors of human behaviour than demographic ones (age, sex, income, education, etc.). • Attitude, personal motivation, interest and opinion of the individuals are factors of considerable value when explaining the behaviour assumed. • Historical-social context is very important since norms, indications and positive examples can encourage the occurrence of certain behaviours. • Behaviour becomes comprehensible only if it is placed within the models of assumptions, traditions and ways of life of the social group in which it is inscribed. • Personal characteristics, social, environmental and political influences and cultural perspectives should be taken into account to understand the conduct of a person. • Individual and society are interdependent and communication is at the base of interactions between living beings. • Tailored messages are more likely to be read and remembered.

---

[16] Thaler, R.H. and Sunstein, C.R. (2009), "Nudge: Improving Decisions About Health, Wealth, and Happiness".

- Motivation, ability and triggers are key elements to succeed at behaviour change.
- It's important to understand how to maintain a certain stable behaviour over time, after the first active phase of intervention. It requires an understanding of the surrounding context that can either facilitate or impede the behaviour change process.
- Nudging is an economic approach, based on behavioural economics and in particular on the analysis of behaviour, that directs decisions by emphasizing and highlighting those choices that lead to the most beneficial behaviour, counting on the inertia of people.

2.2 Mobility behaviour change

As seen in the previous paragraph, since, from a sociological and anthropological point of view, individuals are not separable from the culture and the society they live in, the role of society, community of belonging and social norms in influencing individual actions and choices is very relevant. Factors influencing individual's actions cannot be recognized only in intra-individual ones but have to take in due consideration group dynamics, the position of the individuals in the social structure, the culture and sub-culture of belonging, etc.

This type of considerations also applies in the context of mobility, and in particular on the user's choice of how to move. For example, the *DriveGreen* project, whose main goal is to develop a culture-sensitive and environmentally responsible smartphone app for motivating people to change their mobility habits to reduce emissions of greenhouse gases produced by traffic, explored the foundations on which daily mobility patterns are based and tried to define factors that influence the habits of individuals and communities in traffic.

But there are several other factors that push an individual to travel in a certain way, using a particular mode of transport. The first aspect taken into account is certainly the **monetary cost** that the trip requires. Equally important is the **travel time**, the **flexibility** in the choice of the route and the **convenience** and **comfort** in reaching the desired destination. Also the trip purpose, the trip time and the trip frequency (whether it is routinely or not) can influence the choice of the mode/means of transport.

Despite the improvements of public transport services, sharing mobility services increase and the implementation of policies in disfavour of private transport, nowadays the most used mode of transport is still the private car. Statistically, transport is a major contributor to the production of greenhouse gases and particularly private transport accounts for a large amount of total CO_2 emissions, thus significantly contributing to global warming. Next to negative environmental consequences, congestion also leads to economic effects as it reduces productivity, in terms of wasted time as well as stress and health implications.

To achieve sustainable mobility and trigger a shift from private car to others modes of transport, appears indispensable that immediate actions should be taken by legislators, industry, and private individuals because even small changes in people's individual behaviour can lead to significant results. The common objective of these policies should be characterized as fulfilling the mobility

needs of all citizens while reducing car congestion, pollution, greenhouse gases and energy consumption.

Since each individual has a different background and preferences with respect to mobility behaviour and attitudes towards sustainability, various innovative business models should be developed to reduce the negative effects of congestion, not only on the environment, but also on the economy and the lives of individuals. Tools that actively support people in engaging in a more sustainable life-style without restricting their mobility are needed and it's important to understand the different aspects of this challenge from a technological and cognitive perspective, based on an overview of the main information processes that may influence mobility behaviour. For someone who has no choice as to use private transport, or does not know of any alternatives to perform an activity equally effectively, more targeted forms of communication are needed. The successful approaches to the promotion of sustainable mobility are the ones that appeal to the satisfying experience, utility, attractiveness and emotional value of reducing car dependency, rather than "moral" duty of caring for the environment.

In order to know how behaviour could be changed in the future, it's necessary to know how people have behaved in the past. Behaviour change requires becoming aware of current and past behaviour, as well as about the existence of possible past and future alternatives. It's also required a way to approve or disapprove of past behaviour, as well as rate and rank planned future behaviour, both against a previously defined norm or goal. In fact, analysing the past alone is not sufficient to provide useful suggestions for behaviour change. A user needs a way to plan alternative future behaviour.

There are several difficulties realizing behaviour change without the support of information technology. People are rarely aware of their routine behaviour, since large parts are carried out subconsciously: this makes it challenging to effectively self-monitor behaviour. It is difficult to become aware of alternatives to established behaviour, because people are influenced by the availability of their past routines and thus have difficulties taking in consideration other possibilities. Moreover, efficiently dealing with many goals at a time could exceed the cognitive capabilities of most people and may be one reason why they often do not succeed in integrating main goals with daily necessities. Also the rating and ranking of possible future behaviour is difficult because it is often not possible to determine an activity's impact, especially in a dynamic context.

A way of effectively influencing user behaviour is to communicate sustainable alternatives in a meaningful way taking into account psychological, sociological and technical aspects. In fact, it's possible to distinguish between instructional, motivational, and supportive ways of encouraging a more sustainable mobility behaviour. Instructional approaches include education, advice, and self-monitoring. Motivational approaches include setting goals, allowing for comparison, keeping one engaged. Supportive approaches include providing people with communicative tools, ways to self-control behaviour, and rewards for the accomplishment of some target behaviour. In particular, a system should strive for offering a high number of motivational affordances.

Technology can persuade in various ways:

- as a tool, through making some behaviour easier to do, rising user's ability for some task;
- as a social actor, through furnishing positive feedback, building a relationship between the user and the system;
- as a medium, by allowing one explore cause and effect relationships, providing people with experience and helping them to develop an expertise.

Another interesting example is the "gamification" approach set for giving users rewards for some performed activity. To obtain meaningful scores, selected indicators should be standardized comparing them to a user's own past, the behaviour of others, established norms and conceivable alternatives. This standardization method compares an activity's indicator with what a user might have done instead. This requires a detailed understanding of the user's goals as well as restrictions imposed upon the user. It might make more sense to choose a personalized standard, such as minimizing CO_2 savings with respect to one's own past or in competition with others, in order to keep a user's motivation alive.

As important is the distinction whether a user is intrinsically or extrinsically motivated. In general, intrinsic motivation is desired, as it allows long-lasting behaviour change. People who are intrinsically motivated should not be exposed to extrinsic forms of motivation, e.g., by giving them rewards for their behaviour. Intrinsic motivation should be controlled by giving positive feedback, or alternatively letting a user experience "freedom" and choice in terms of which goals wants to pursue. In contrast, people who are extrinsically motivated can be presented with a variety of action choices to increase their sense of intrinsic motivation.

So, influencing or changing one's mobility behaviour is a matter of great interest. It results very important to understand how people can be motivated to change behaviour and what are effective mechanisms that can keep users motivated once the novelty effect of such a system has worn off. Planning tools, that can automatically take into account several users, offer decision support for multiple goals, provide knowledge integration with past behaviour and that attempt to integrate personal information with spatial-temporal information, are required to connect higher-level goals with low-level activities. For this reason, an increasing array of smart apps and price comparison tools are available to travellers to manage their journeys in a way that both cuts costs and saves time.

3 INTERNATIONAL BEST PRACTICES OF BEHAVIOUR CHANGE POLICIES

After the literature review work, considering the objective of SaMBA project, to better know which is the state-of-the-art about mobility change behaviour policies, actions and initiatives which are relevant in this field have been analysed. In fact, there are many international studies focused on active mobility as well as many public transportation related interventions which have direct and indirect effects on people's behaviour.

To measure the effectiveness of these interventions, great attention has been given, during the analysis, to identify which factors are important to stimulate people's mobility behaviour changes, what are the effects of the interventions on mobility, which type of intervention is more effective and which are the tools used to monitor and examine people's mobility behaviour.

Then, to build a solid basis of case examples from which it is possible to deduct, according to given criteria, useful best practices, studies that provide systems of reward and pricing and gamification and enforcing approach to encourage the single citizen to change his habits, moving in a more sustainable way in usual and non-conventional journeys, have been taken into consideration. This is because gamification can transform a simple and boring everyday action into a fun task to do.

The BPs have been gathered by the PP2 on the basis of a "Best Practice description" sheet. Each SaMBA Project Partner has filled in some sheets concerning national and international BPs they were aware of, and PP2 has integrated them in the database.

3.1 The study approach

3.1.1 Best Practices data collection

The first step was the collection and identification of case study of application of reward and pricing systems to foster sustainable mobility resulting from experimentations funded by European projects or actions carried out independently by local administrations or public transport providers.

A survey of existing change behaviour policies in the five countries involved in the SaMBA Project (Austria, France, Germany, Italy, and Slovenia) has been developed. In addition to relying on the knowledge and experience of the SaMBA project partnership, it has been performed a research on the web capturing some already spread cases to complete the panorama even in countries that are not part of the Alpine Space area. The main sources used are, for example, *SAVEMYBIKE, iSCAPE* and other relevant studies. Only the most SaMBA-goals related cases have been included in the database in order to obtain a wide range of cases that should be different in type, size and characteristics.

3.1.2 *"Best Practice description" sheet*

For each of the case studies considered consistent and useful according to the final objective, certain aspects and elements that could quickly and effectively represent starting points and positive tips for subsequent experimentations in the pilot cases of the project, have been highlighted. For this purpose, PP2 has developed the following BP description sheet for the collection of the BP-related information in order to have an easy-to-use tool to collect and summarize the most significant success stories occurred (or ongoing) over Europe and in some parts of the world. Elements such as technologies used, business models implemented and results achieved have been considered fundamental in order to provide a basis of positive experiences from which to take an example in the case where information on target users, problems to solve and objective were similar between the best practices already implemented and the pilot cases SaMBA will develop.

ID	PROJECT NAME
Promoters	Bodies carrying out and/or funding the initiative/project.
Duration	MM-DD-YYYY – MM-DD-YYYY / MM-DD-YYYY – ongoing.
Project area	Territory affected by the initiative: administrative level and short description.
Alpine Space Territorial type	Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas.
Problems to solve	Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.).
Project objectives	Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.).
Short description	Concept of the initiative/project.
Target users	The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...).
Stakeholders involved	Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.
Technologies used	Such as ICT tools, smart phone apps, tracking devices, etc.
Business model	Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used.
Communication activities	Communication channels used in relation to the target users (social networks, media campaigns, etc.).
Results	Quantitative data results such as number of users, CO_2 saved, etc.
Still ongoing or interrupted	State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption.
Lessons Learned	Lessons that the case study offers for a replication that is effective and sustainable.
Website address	Sources and reference.
Contact reference	Used in case further investigations might be required.

Table 1. "Best Practice description" sheet.

17

In this way, if a SaMBA PP responsible of a pilot case has as objective, for example, to reduce the private car trips of employees of a local company or of the students in their home-school trips he or she could easily find references to other cases already experienced and know and learn methods of communication used, innovative aspects developed and results obtained which could be replicated in their own case.

The aim of this task, in fact, is precisely that of drawing up, on the basis of other experiences, guidelines that trace the road to anyone who wants to propose initiatives that promote sustainable mobility by changing the behaviour of people in more or less similar socio-environmental contexts.

3.1.3 Quantitative-qualitative analysis

After having identified the example cases and having filled in all the fields of the form, a quantitative-qualitative analysis has been performed considering the entire aggregate sample, in order to highlight the frequency of some quantifiable fields included in the "Best Practice description" sheet. This is to understand if the success stories have common factors that contribute to enhance their performances.

3.1.3.1 Reward systems

Twenty-nine reward system cases have been identified, as indicated in the **Table 2**.

ID	PROJECT NAME
01	SWITCH in Vienna
02	WeCity
03	GoEco!
04	TrafficO2
05	MIMOSA - Making Innovation for MObility Sustainable Actions
06	DEMOCRITOS - DEveloping the MObility CRedits Integrated platform enabling travellers to improve urban TranspOrt Sustainability
07	TRACE
08	Travel Smart Rewards
09	MoveUs
10	Spitsmijden experiment
11	Sharing cities
12	SUNSET - Sustainable Social Network services for Transport
13	NuRide
14	EMPOWER - Empowering a reduction in use of conventionally fuelled vehicles using Positive Policy Measures
15	MUV - Mobility Urban Values
16	MOBI - Promoting Smart Mobility to Employees
17	Bike2Work - Smart choice for commuters
18	STARS - Sustainable Travel Recognition and Accreditation for Schools
19	STREETLIFE
20	Sopotniki Institute - Free transport for elders
21	Občina Ljutomer - MOVECIT project
22	Checkliste Wohnbau

23	Samo - Policy for the municipality of Werfenweng - STARTER project
24	Orangener Punkt (Orange Point)
25	Campaign "Save your car!"
26	ClimateFair
27	Gscheid mobil - New citizens' mobility packet in Munich
28	Bike kilometric allowance for commuters
29	Challenge "CHANGER D'APPROCHE"

Table 2. Reward systems collection.

In most cases, **PROMOTERS** and funding bodies are linked to initiatives at European level. *01-SWITCH*, *16-MOBI*, *17-Bike2Work*, *18-STARS* and *23-STARTER* are co-funded by the Intelligent Energy Europe Programme of the European Union. *06-DEMOCRITOS*, *09-MoveUs*, *12-SUNSET* and *19-STREETLIFE* receive funding from the European Union's Seventh Framework Programme for research, technological development and demonstration. *07-TRACE*, *11-Sharing cities*, *14-EMPOWER* and *15-MUV* receive funding from the European Union's Horizon 2020. *05-MIMOSA*, instead, is part of CIVITAS initiative and *21-MOVECIT* is an Interreg Central Europe. Other projects such as *08-Travel Smart Rewards*, *13-NuRide* or *22-Checkliste* are promoted by the state and local government or transport authorities. For the developing of smartphone apps *02-WeCity*, *03-GoEco!* and *04-TrafficO2* are respectively involved the University of Modena and Reggio Emilia, the Swiss National Science Foundation with the Swiss Competence Center for Energy Research and MIUR with PUSH - Palermo Urban Solution Hub.
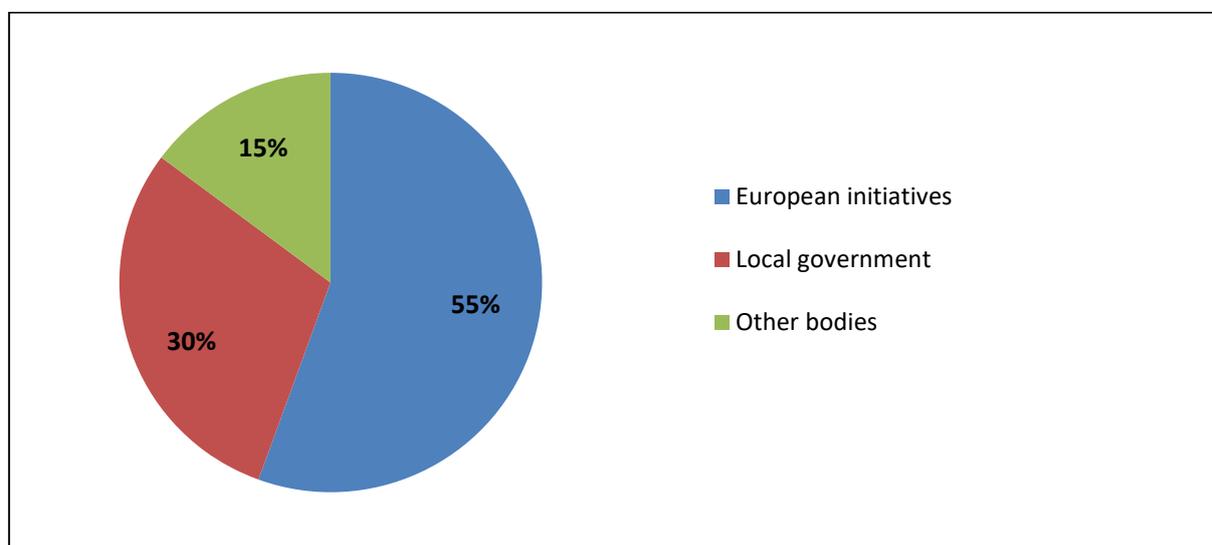
Figure 3. Frequency of promoters of BPs.

Regarding the **PROJECT AREA** and the **ALPINE SPACE TERRITORIAL TYPE**, there are five different typologies identified: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas. In the majority of cases, actions and initiatives are implemented in Alpine metropolises and cities. In the case of *20-Free transport for elders* promoted by the Sopotniki Institute, *21-MOVECIT* project in Ljutomer community, *24-Orangener Punkt* in the Municipality of Heuweiler and *26-ClimateFair* promoted by a cooperation between Klimaschutz+ Stiftung e.V., Federal Ministry of Education and Research, GLS Treuhand and Climate

Alliance, stable or growing rural areas are taken into consideration. Tourism area is, instead, the territorial type within *23-STARTER* project in the municipality of Werfenweng (Pongau, AUT).
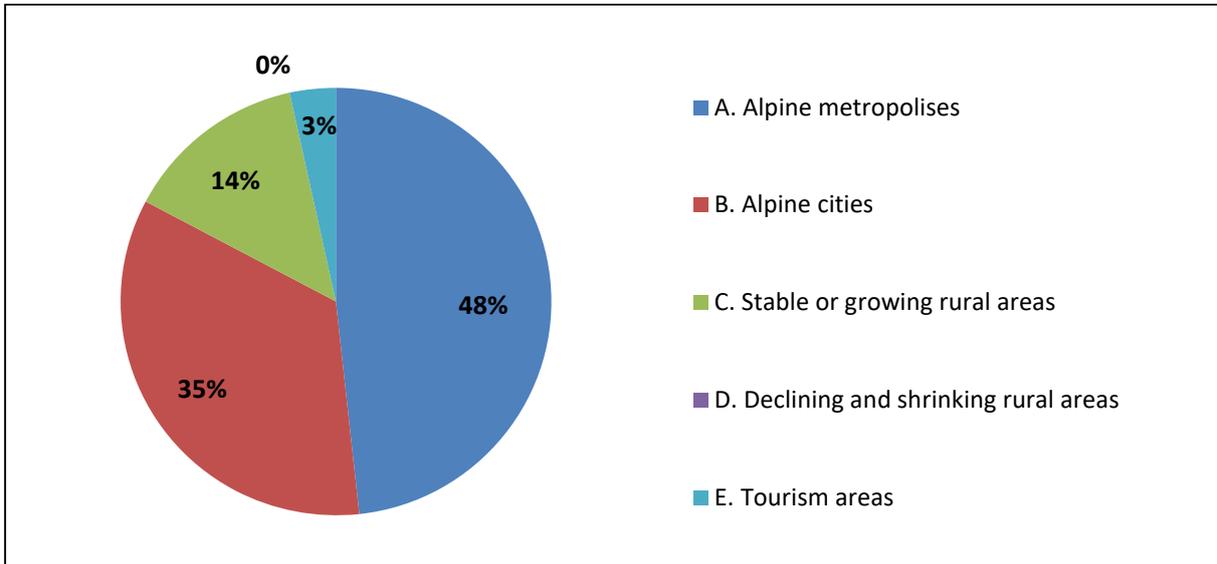
Figure 4. Frequency of Alpine territorial type in BPs implementation.

PROBLEMS TO SOLVE are, more or less, always the same: high use of private car and consequently congested road, parking space and use of land, security and safety issues, air pollutant emissions and noise, high energy consumption and negative impacts on health and quality of life. In particular, in *18-STARS* problems are related to safety and accessibility of routes to and from schools, *20-Sopotniki Institute* actions want to solve mobility of elders that live in rural areas, in *24-Orangener Punkt* the lack of mobility options for people with restricted access to mobility is the point of weakness. *08-Travel Smart Rewards*, instead, faces high demand for peaks hours travel on board of the MRT (Mass Rapid Transit) and LRT (Light Rail Transit) railway network.
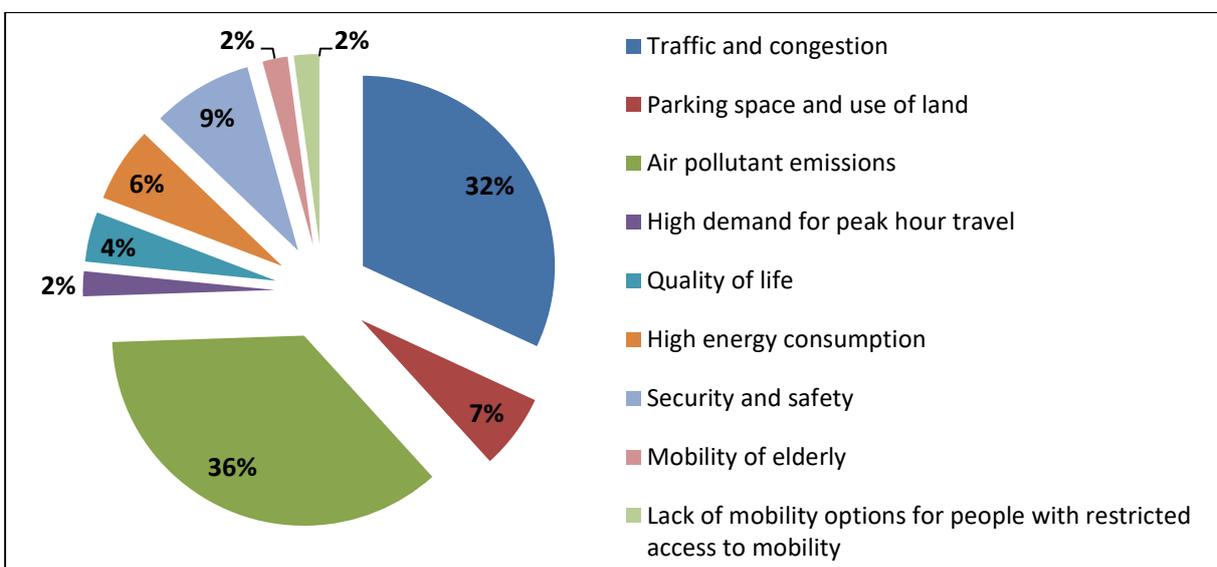
Figure 5. Problems to solve identified in BPs implementation.

20

Consequently, to the problems identified and mentioned, the **OBJECTIVES** set in the projects are mainly the reduction of private car use, especially in urban areas, in order to decrease traffic, greenhouse gas emissions and primary energy consumption. In parallel, it's promoted a shift towards more sustainable forms of mobility encouraging people to change their mobility habits and to go on foot or by bicycle, to use public transport or car-sharing and car-pooling systems through the application of specific and tailored rewards and incentives systems and, in some cases, the use of smartphone app.

For example, *07-TRACE* project aims to increase and optimise the use of ICT tracking services for the promotion and planning of cycling and walking routes in cities. *16-MOBI* encourages employers and their employees to use more energy efficient transport modes for their commuter journeys.

Similar is the main objective of *17-Bike2Work* that want to achieve a significant modal shift from motorized transport to cycling by introducing behaviour change programs to employers & employees. *18-STARS*, instead, moves its attention to school children and their parents and families.

In *23-STARTER* project the implementation of sustainable mobility options provided residents and tourists with alternative solutions for transport and increased their awareness regarding energy and environmental impacts.

Sometime the objective is more specific such as in the Utrecht pilot case of *05-MIMOSA* where the measure consists in rewarding motorists for avoiding rush hour in Utrecht-West area.

Also the *10-Spitsmijden experiment* involves rewarding of commuters for avoiding travelling by car during the peak hours on the Dutch A12 motorway corridor from Zoetermeer towards The Hague.
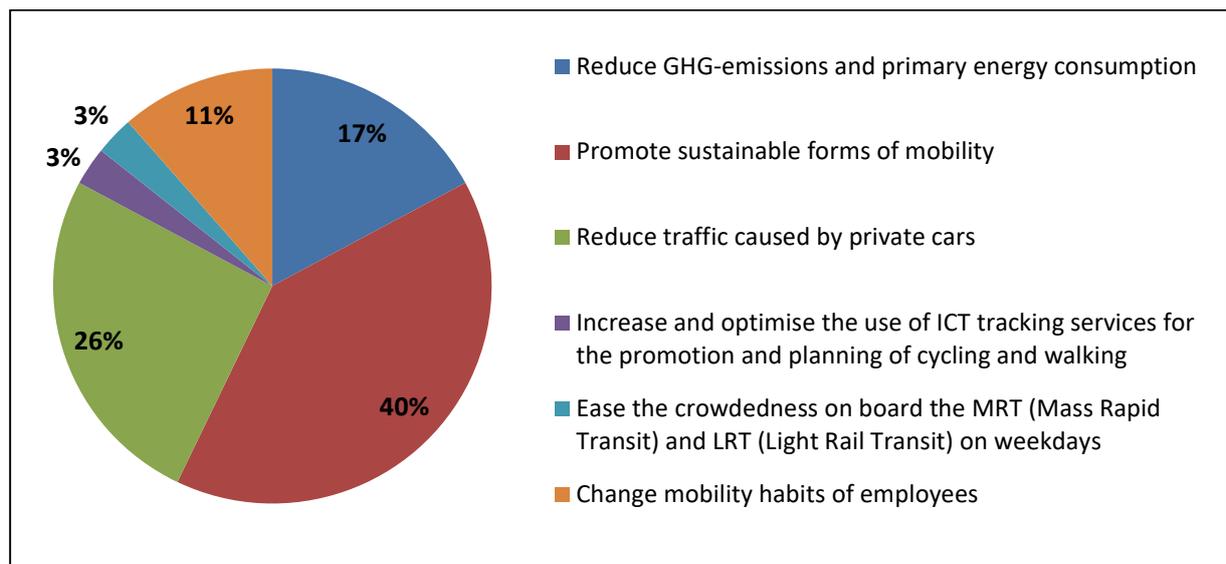
Figure 6. Objectives identified in BPs implementation.

TARGET USERS involved are principally citizens: residents and tourists, commuters, employers and employees, university students and school children, car owners or public transport users or cyclist. In Vienna, during the *01-SWITCH* campaign, attention is turned on life change moments: people who have access to a car and have recently moved houses, people who received medical advice to increase their physical activities, people who recently experienced changes in their household structures.
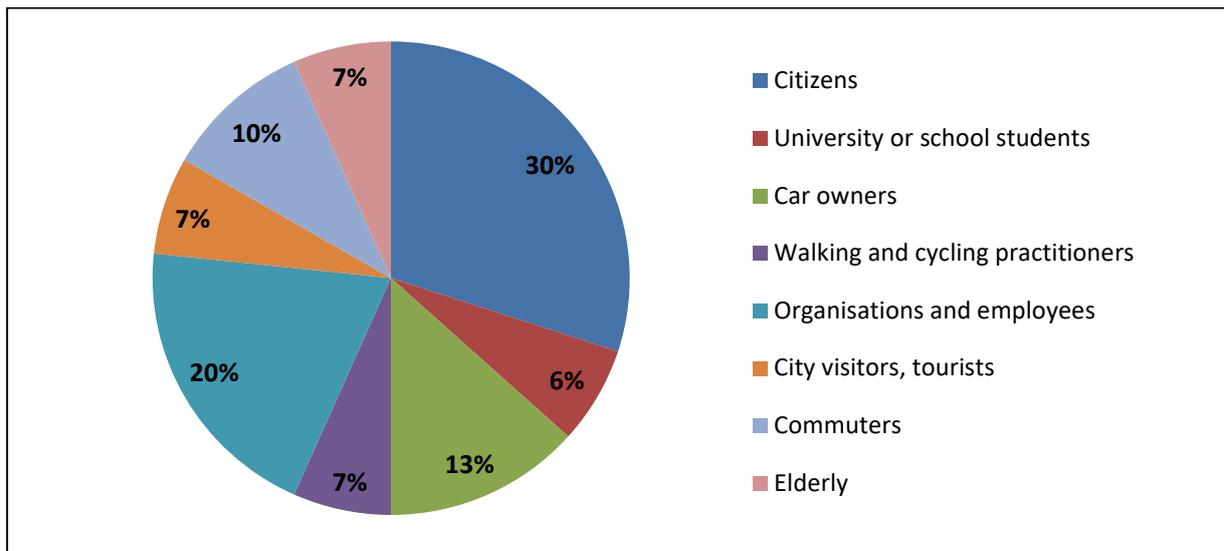
Figure 7. Target users of BPs implementation.

STAKEHOLDERS INVOLVED, instead, are citizens, local governments, municipalities and regional authorities, policy makers, public transport associations and operators, traffic management centres, mobility and technology providers, product developers (ICT), networks and non-governmental organisations, industry and small and medium-sized enterprises, schools, health and bicycling associations, hotels and other holiday accommodations, local sponsors and businesses.
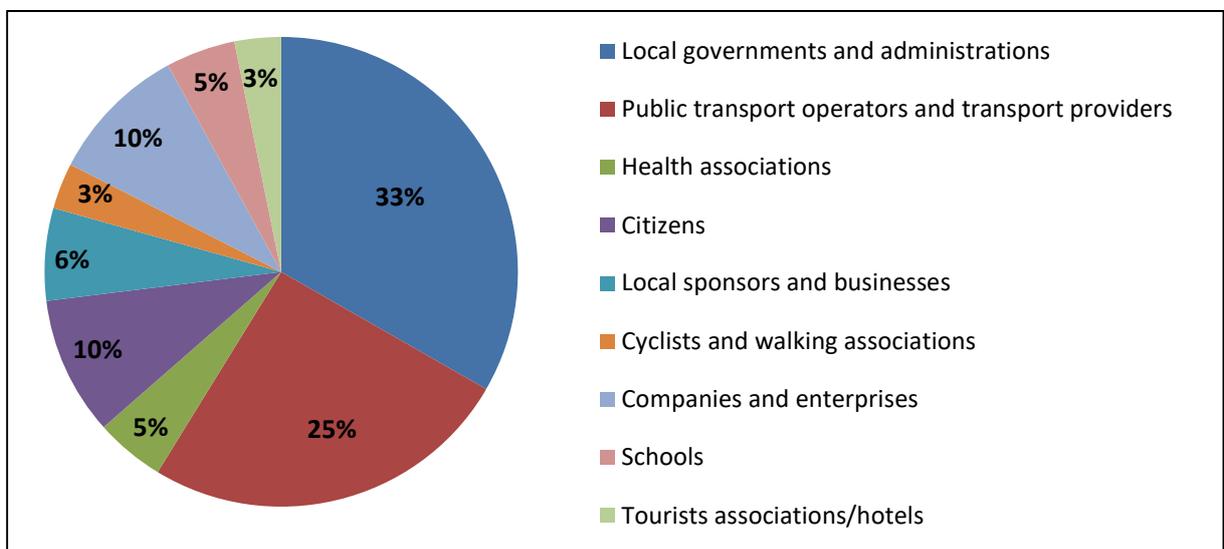
Figure 8. Stakeholders involved in BPs implementation.

22

ICT TOOLS and smartphone or web apps are the technologies mostly used to track people mobility behaviour, collect data, boost users' motivation through competition and reward those who move in a sustainable way. For example, in *01-SWITCH in Vienna* case study has been used the "*Wien zu Fuß*" (Vienna on foot) smartphone application, provided by the Mobility Agency of Vienna, which included a step counter and a treasure hunt game, the smartphone app "*AnachB*" (AtoB), which offered a routing for pedestrians and the SWITCH-tailored version of the "*Moves app*", which allowed to track the daily physical activity.

02-WeCity is an app that certifies each gram of CO_2 that has not been emitted in the atmosphere and transforms it in virtual money to reward sustainable commuting. The system calculates the route taken and the CO_2 saved: this is translated into points that each user can use on the *WeCity* store. *03-GoEco!* and *GoEco! Trackers*, applications for smartphones, monitor people movements and use elements typical of the game world to encourage them to change their mobility choices.

The *04-TrafficO2* mobile app interweaves game and info-mobility by interacting users through challenges and giving useful information to improve their performance. Each route is described according to the distance travelled, the cost in euros, the environmental cost in terms of CO_2, the calories expended and finally in O2 points, i.e. the environmental sustainability credits.

In *05-MIMOSA* project, instead, have been used cameras on selected locations to identify license plates. The ones who were identified more than three times within two weeks were selected and invited by letter to participate. The comparison between the number of trips registered during the pilot project period and the number registered during the first stage of the measure enabled to determine which cars owners contributed effectively to the measure and should therefore be rewarded.

Within *07-TRACE* project two types of tracking tools have been developed: behavioural change and mobility planning. Of the first type there are three: *Positive Drive*, based on "doing and rewarding the right transport choice", *Traffic Snake Game*, that encourages primary school pupils to travel more sustainably to school and *Biklio*, that encourages citizens to ride their bikes near checkpoints positioned at urban local shops, assigning a score to each participant to reward him. The *Tracking for planning tool* (*TAToo*) is an instrument for tracking data analysis for urban mobility planning and policy making purposes.

09-MoveUS will deliver a cloud-based mobility management platform, an API toolkit offered as a platform extension, a set of innovative user-centric services supported by an effective incentive-based model, a fully integrated smart mobility application (*MoveUS APP*) and energy efficiency assessment tools.

In *10-Spitsmijden experiment* the participants had an electronic device installed in their cars, allowing for the automated registration of their car travel behaviour on the Dutch A12 motorway corridor from Zoetermeer towards The Hague since the objective was to reduce vehicles on weekdays morning. The registration system was further complemented with licence plate recognition cameras.

In *16-MOBI* is provided, instead, the implementation of the on-line sustainable mobility game based on the award winning *From5To4* commuter challenge game (*F5T4*) originating from the Netherlands.
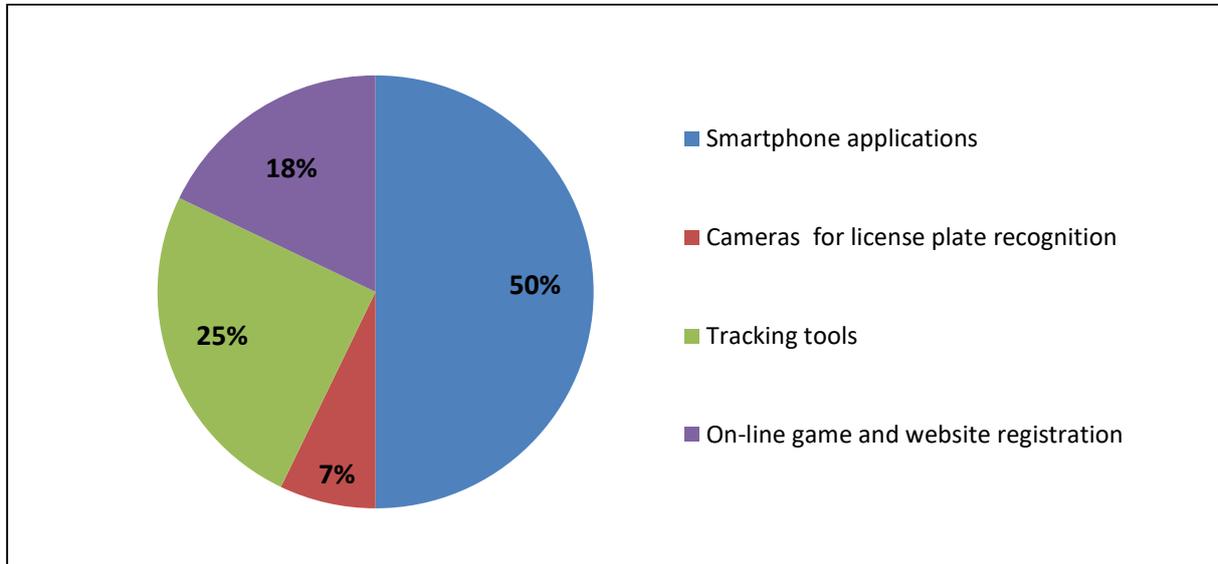
Figure 9. Technologies used in BPs implementation.

The following boxes summarize the most interesting technologies used in reward systems implementation.

01	SWITCH in Vienna

ICT tools used in Vienna case study:
- the "*Wien zu Fuß*" (Vienna on foot) smartphone application, provided by the Mobility Agency of Vienna, which included a step counter and a treasure hunt game;
- the smartphone app "*AnachB*" (AtoB), which offered a routing for pedestrians;
- the SWITCH-tailored version of the "*Moves app*", which allowed to track the daily physical activity and to provide this data to the *SWITCH* consortium voluntarily.

06	DEMOCRITOS

The concept of the *Mobility Credit Model* is based on four basic pillars:
- define a sustainable load of GHG in an urban area;
- convert this load into a "total amount of credits", that will become the common "currency" to be spent within the assigned budget limits using an Electronic GHG wallet, and will be distributed to all the travellers;
- define a set of rules to use the credits;
- exchange credits allowing travellers with a negative balance of credits to buy extra-credits from other travellers who are credit-positive.

The *Mobility Credits Platform* (MCP) allows to create a behavioural context where the travellers can experience the effects of changing attitudes and choices in mobility with a range of possible implementations, from a "pedagogic tool" to a "mandatory demand management scheme", from a "social network" to "enterprise applications".

07	TRACE

TRACE developed two types of tracking tools, according to the final objective they pursue: (1) behaviour change and (2) mobility planning.

1. The behaviour change tools are three:
- *Positive Drive*: is based on "doing and rewarding the right transport choice". It uses only positive incentives, such as coaching, prizes, social status, and achievements. *TRACE* extended and improved Positive Drive to offer users better feedback on walking and public transport, in addition to bikes and cars.
- *Traffic Snake Game*: encourages primary school pupils to travel more sustainably to school. *TRACE* developed a Traffic Snake Game tracking app, in order to digitalise the campaign and therefore improve the campaign's ambitions and impact.
- *Biklio*: encourages citizens to ride their bikes near checkpoints positioned at urban local shops, assigning a score (cycle-and-score scheme) to each participant to reward him. *TRACE* created an open paradigm to promote the involvement of local businesses as checkpoint providers, making it more appealing to join for both citizens as well as local businesses.

2. The *Tracking for planning tool* (*TAToo*) is an instrument for tracking data analysis for urban mobility planning and policy making purposes.

09	MoveUs

MoveUS means ICT cloud-based platform and mobility services for all users. *MoveUS* delivered:
- a cloud-based mobility management platform, which will collect input data from distributed heterogeneous sources and process these data to infer valuable information of the traffic status and users' mobility patterns, ensuring data privacy and security all along the handling process;
- an API toolkit offered as a platform extension, which will provide developers and third parties access to these data;
- a set of innovative user-centric services supported by an effective incentive-based model, aimed at assisting users' mobility and fostering behavioural changes towards sustainable transport modes;
- a fully integrated smart mobility application (*MoveUS APP*), running either on users' smartphones or control centres owned by Local Authorities or Transport Operators;
- energy efficiency assessment tools to measure users' carbon footprint and the energy gains vs. consumption for the ICT solutions applied to each pilot.

17	Bike2Work – Smart choice for commuters

Online real-time display of statistics encourages competition, boosts motivation (especially by keeping personal track records) and helps identify winners and give away prices. Some campaigns developed their own online platforms but others used third party applications were customised to their specific needs.
- www.lovetoride.net
  This application has been used by 14.000 companies worldwide, including 3 *Bike2Work* partners.
- www.cyclingchallenge.eu
  An app that helps to identify the best cycling city in the EU. User has to register with his

> city and let the app count cycling kilometres helping his city to win the Cycling Challenge.
> - ivelo.ro
>   An app delivered by *Bike2Work* campaign in Romania. It tracks statistics, navigates and searches for optimal routes, has a list of 'points of interests' set by users, informs about route incidents and allows to track your cyclist friends on a real-time map.
> - www.radeltzurarbeit.at
>   Easy-to-use application providing all relevant statistics: user registers, cycles and tracks kilometres, measures calories burned, CO_2 emissions saved and can win some prizes for his team.

All the **TYPES OF REWARDS** and incentive systems encountered during this research work go from unimodal direct discount policies, as the registration to bike-sharing systems or the promotion of public transport, to points/credits accumulation systems directly connected to economic discounts or to a market place where to buy products with increasing discounts with the level of score achieved.

In Vienna, during the *01-SWITCH* campaign, to motivate people to register for the campaign and to stay in all three subsequent evaluation surveys a raffle with different prizes was organised. Then to motivate people to test new behaviours a set of incentives such as multifunctional scarfs, bike saddle covers, shoelaces and reflecting snap bands were offered. *02-WeCity* provides a store, where to use points accumulated daily to the first 100 km moving sustainable: with the bicycle the user receives 16 credits every km, with carpooling 4 credits per km if in two into car, 5 credits per km if in three, 6 credits per km if in four and with the public transport 4 credits every km. Within Utrecht pilot case in *05-MIMOSA* project, instead, a participant was rewarded with € 4 when he avoided roads in Utrecht-West area during the morning rush hours on working days between 6 AM and 10 AM.

In *08-Travel Smart Rewards* every trip on rail network taken during the non-peak timing, gives 10 points, or 15 points if company of commuter is under the corporate tier scheme, regardless of distance. For every 1,000 points, gets SGD$1. Similar scheme is adopted in *10-Spitsmijden experiment.* Upon registration, the participants chose one of two types of reward. The first one was an amount of money (€7 to avoid the entire morning peak, €3 if travelling in the shoulder periods - 7h30 to 8h and 9h to 9h30) for each morning rush-hour that the participant avoided. The second type comprised credits that, when a sufficient number were earned, allowed keeping a "Yeti" smartphone at the end of the trial. During the trial, the participants who chose this option could already use the Yeti.

The system of *11-Sharing cities* project is based on a virtual/digital market, that is a sort of marketplace in which, reached one certain level of credits, you can reserve prizes that can be monetary or not. Both local companies and public administrations have a role in the reward system: from administrations to citizens, the reward includes free tickets/season tickets for mobility services and free tickets/season tickets for visits to cultural sites; from administrations to companies, incentives for green procurement, discounts on the energy bill; from businesses to citizens, discounts on products for sale.

In *13-NuRide,* points are awarded for the first two trips recorded in the account each day. One-way trips give 100 points and round trips give 200 points. It's possible to redeem points for restaurant coupons, retailer discounts, and tickets to shows & attractions. Rewards vary regionally and USD$300 is the amount a typical active *NuRide* member redeems in rewards each year.

In the tourism area of the municipality of Werfenweng, during *23-STARTER* project, several special offers for locals willing to change their mobility behaviour have been provided. Different packages, e.g. leave car at home for one day/week and get 10x e-bike rental, 30 tickets for municipal buses, 5 tickets for local shuttles and 5x ticket for local night shuttles for free.

Other systems can be based on non-real rewards: in this case there are no material prizes but virtual awards such as rankings and positive feedbacks if the user has adopted the recommended behaviour. It's the case of *03-GoEco!* app: to those who accept challenges and manage to complete them, at the end of the week, gives a medal (badge), which is shown prominently on the page of their profile. If the app automatically detects that the user has made particularly sustainable mobility choices, he also receives surprise trophies and medals. Moreover, every week, the best ones in achieving their personal goal are rewarded with high visibility in the Hall of fame section.
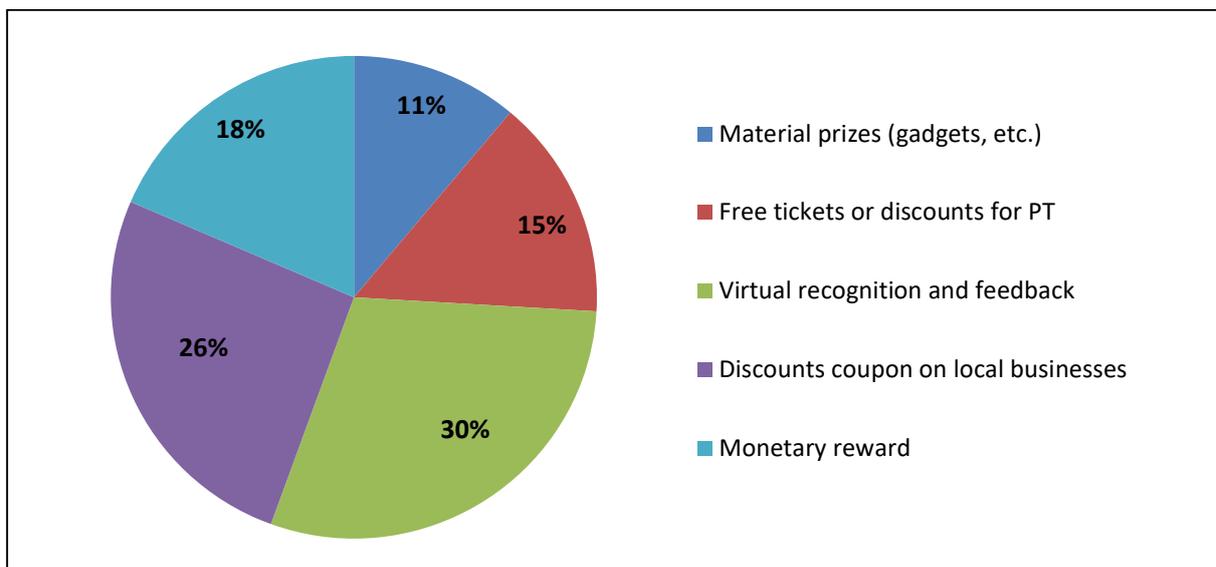
Figure 10. Type of rewards of BPs collected.

The following boxes summarize the most interesting business models developed in reward systems collected.

07	TRACE

Positive Drive uses only positive nudges (coaching, prizes, social status, achievements, etc.). The game originates from the Netherlands and is developed by *IJsberg* (marketing consultants). As soon as the consumer turns on the app it starts measuring and rewarding good behaviour and giving direct feedback. The user can see all rewards achievements, share this through social media and play for prizes in the game room. The coaching program is also driven by these achievements and is tailored to each individual user.

The *Traffic Snake Game* encourages primary school pupils to travel more sustainably to school. The game originates from Belgium and is developed by *Mobiel 21* (non-profit organization). Schools which sign up for the game receive a large (five-meter-long) snake banner, large green stickers and smaller dots that depict a sustainable mode of travel. A reward scheme incentivises the kids to complete the snake as soon as they can. Rewards consist of gadgets, extra playing time, an excursion, an apple, no homework for a day, etc.

Biklio is a mobile application that creates a network of recognition and benefits to bicycle users, linking them to local businesses and the cycling community for the good of their city. People who cycle are recognized with benefits from *Biklio* spots at the destination of their trips. Users can see in the app map where and what are the spots, what benefit they offer and what are the existing cycling facilities. The app also involves the community of users to cycle for their city and for their own good, informing each user on his individual and the community's contribution to a more healthy, sustainable and pleasant city. Any type of consumer-oriented business can participate: may this be a café, a restaurant, a store, a clothing shop, a museum, an ice-cream shop or a pharmacy.

11   Sharing cities

The system is based on a virtual/digital market, that is a sort of marketplace in which, reached one certain level of credits, users can reserve prizes that can be monetary or not. Riding bike, using car-sharing, car-pooling or public transport, citizens receive the credits/points to access, for example, free tickets for the bus, a voucher for shopping in the shops of the city. So, the prizes can be issued both by the Municipal Administration and by the companies.

Both local companies and public administrations have a role in the reward system:
- from administrations to citizens, the reward includes:
  - free tickets/season tickets for mobility services;
  - free tickets/season tickets for visits to cultural sites;
- from administrations to companies:
  - incentives for green procurement;
  - discounts on the energy bill;
  - free tickets/season tickets for mobility services;
  - inclusion of advertising related to products;
  - insertion of advertising of targets reached by groups;
- from businesses to citizens:
  - discounts on products for sale.

Also **COMMUNICATION ACTIVITIES** represent a key element for the best success of actions finalized to change people mobility behaviour. Communication with citizens and involvement of the whole community is a central pillar for the development of effective projects. There are many ways to make people aware about environmental problems connected to their mobility choices and consequently stimulate and encourage them to have a more sustainable behaviour when they move. Setting up of website for social networking *(LinkedIn, Twitter, Facebook, Flickr)*; dedicated project website, newsletters and other dissemination tools; presentation of the project in different occasions on the

field with events organized to encourage adhesion; cutting-edge marketing, communication and information tools to reach and involve citizens, schools, companies and institutions in function of target users and objective; project leaflets presenting goals, partnership, activities and expected results at a glance; brochures, posters, flyers, coverage in press; training webinars, seminars, workshops, conferences.
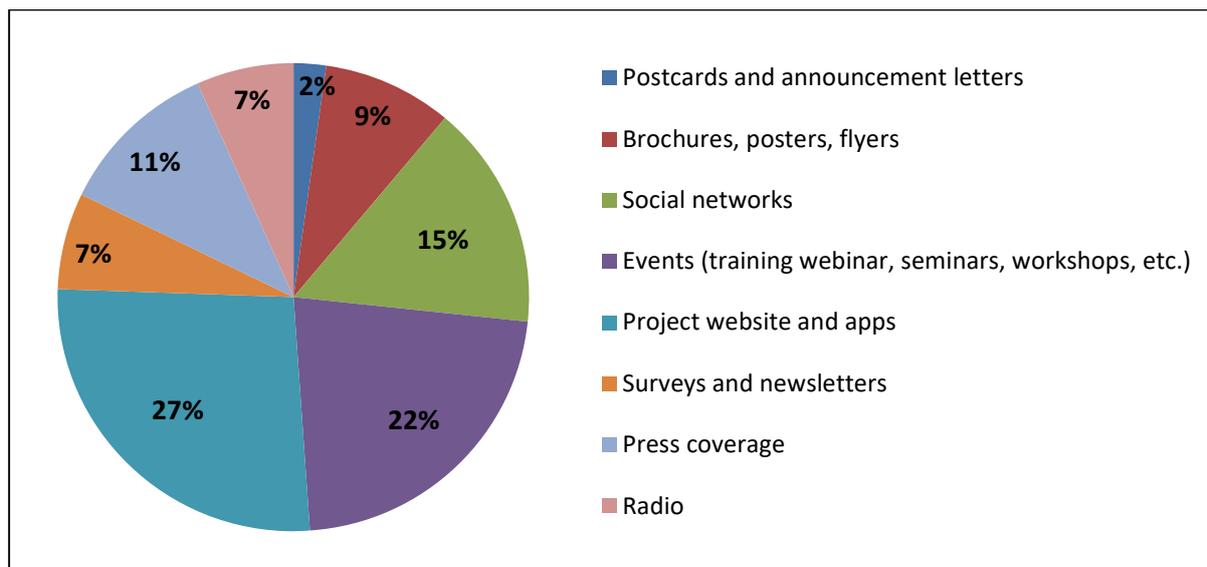
Figure 11. Communication activities conducted.

The following boxes summarize the most interesting communication activities conducted in reward systems collected.

01	SWITCH in Vienna

In Vienna a dense campaign of two months was foreseen:
- the contact to people who recently moved houses happened through real estate developers, neighbourhood associations, specific events such as the Smart Citizen Labs, face-to-face interviews at new housing projects, as well as through address data provided by the Austrian postal service and university mailing lists;
- the group of people who recently received medical advice to increase their physical activity level appeared to be a hard-to-reach group. Partnerships with different doctors, hospitals and health centres were established and announcement postcards were disseminated. Weekly get-togethers of Nordic Walking groups of elderly people were visited as well as specific public events such as the "Viennese Diabetes Day" or the "Experience" exhibition for active elderly;
- for other groups, face-to-face at leisure and recreation areas, like parks, public events and open-air swimming pools.

20,600 registration postcards and about 10,000 announcement letters were distributed through various channels. More than 3,700 different maps and brochures, like the Vienna walking and cycling maps, were requested by the SWITCH participants.

07	TRACE

- A project leaflet presenting the *TRACE* objectives, partnership, activities and expected results at a glance. 1000 copies in English and electronic version available on the project website.
- Twice yearly electronic newsletters to ensure a regular flow of information to local authorities, those working in the field of walking and cycling, other identified target groups and all interested stakeholders.
- A roll-up poster for promoting the project at events and form a coherent identity with other communication elements of the *TRACE* brand. The roll-up highlights the *TRACE* measures and promotes the website as a source for more information.
- The *TRACE Toolkit* which summarises the project outputs of other WPs into practical recommendations and guidelines on using tracking data for behavioural change initiative and mobility planning. It is printed in 500 copies as a glossy brochure in English.
- The dedicated project website is the project's main gateway to the outside world, providing information on objectives, partners, methodologies, results, publications, news and success stories.
- Social media: LinkedIn, Twitter, Facebook, Flickr.
- Training webinar, seminars, workshops, final conference.

08	Travel Smart Rewards

Land Transport Authority has established a Travel Smart Grant to encourage organisations to implement or trial some Travel Smart initiatives within their organisations. Organisations can claim up to $160,000 annually (for 3 years) to co-fund Travel Smart measures which support the adoption of flexi-travel by their employees. To increase awareness and participation in the initiative, the National Transport Authority organized a van that distributed food in one day and served over 1,000 meals to passers.

11	Sharing cities

- Citizens' engagement, developing new approaches and tools to improve the public's understanding of how smart cities should operate and promoting their active participation.
- Social media (e.g. Twitter, LinkedIn).
- Collaboration with businesses partners.
- EUROCITIES has supported in the production of graphic materials (e.g. extra posters for events, locally used event materials) and setting up of local communication platforms (e.g. Milan local website).

Finally, it's very important to analyse and quantify, where available, the **RESULTS** achieved by each project or initiative to understand if the policies implemented have obtained the goals prefixed. For example, in Vienna at the end of *01-SWITCH* campaign was measured, for one week, that 4,278 car kilometres, 855.6 kg of GHG-emissions and 342.24 litres of primary energy consumption have been saved, with an increase of 977 days with more than 30 minutes of physical activity.

02-WeCity app was launched nationwide between March and April 2015 and within a few months reached almost 20,000 downloads, with over 1 million kilometres pedalled, around 10,000 per day, and more than 200 tons of CO_2 saved. Moreover, it is still active.

On the contrary, *03-GoEco!* is no longer available: however, it has registered behaviour change only in some areas and only for "systematic" movements. At the conclusion of *05-MIMOSA* campaign in Utrecht the traffic level was reduced between 500 and 700 cars during the morning rush hours, thus the objective of decreasing 1,000 cars was not fully reached: the most challenging barriers in the implementation were related to the technical difficulties with the licence plate recognition.

The results of the *10-Spitsmijden experiment* are promising. Without reward, 40% of the participants were a part of the rush hour, during the period of the test however, a reduction to 20% was noticed. The total car-use has seen a slight decrease, from 70% to 65%, mainly due to an increase in the use of public transport. However, after the testing period, almost all of the participants changed back to their former travelling habits. Starting from this experiment, three new projects have been developed: *SpitsScoren*, *Spitsvrij* and a second *Spitsmijden* project in several Dutch areas.

13-NuRide, that is still ongoing*,* on its website shows many of results achieved, such as 58,185,507 greener trips, 1,152,521,152 miles not driven, 53,907,885 gallons of gas saved, $629,696,493 money saved, 529,798 tons of emissions prevented, etc. Also *16-MOBI* registered successful results in changing the travel to work behaviour of employees: the share of sustainable modes increased from 58% to 80%, the modal share of private car reduced from 65% to 42%, motorcycle from 5% to 1%, while carpooling increased from 5% to 16%, public transport increased significantly, from 19% to 28%, walking from 2% to 4% and cycling from 4% to 8%. However, of the around 33,000 employees who were directly invited to play, only 2,127 did engage in the game as registered players, of whom 1,133 provided travel data for more than 80% of the days on which a local competition took place.

Then, at the end of National *17-Bike2Work* campaigns, countries with an already high share of cyclists were able to gain 10-11% new permanent cyclists and countries with a medium share of bicycle traffic managed 13% increase with 8,870 tons of fuel and 52,299 tons CO_2 savings during the project. During *18-STARS* project, more than 51,000 students have been involved in the campaigns. A 5.7% modal shift from motorised modes to active modes of transport has been recorded for primary schools and a 8.8% for secondary schools with 894 ton CO_2 saved by all STARS schools in two years.

Other projects are still ongoing and quantitative data results are not available yet. In other cases have not been found in an explicit way but in descriptive form. However, for a better comprehension and knowledge of every BPs case identified it's possible to consult the forms, reported in the *Annex 1*, of each project analysed where are also reported a contacts reference in order to investigate if more information about policies implemented are needed.

3.1.3.2 Pricing systems

Seven pricing systems cases have been identified, as indicated in the **Table 4**.

ID	PROJECT NAME
01	London's congestion charge
02	Stockholm's charged area
03	Milan Area C
04	Greater Manchester congestion charge
05	Gothenburg congestion tax
06	San Francisco congestion pricing
07	Electronic Road Pricing - Singapore

Table 4. Pricing systems collection.

In all cases collected, **PROMOTERS** are linked to local administrations or government: in *01-London's congestion charge* the Mayor, with the synergy of 'Transport for London', in *02-Stockholm's charged area* the Municipality and the Swedish government, the Government's Transport Innovation Fund for *04-Greater Manchester congestion charge.* For *06-San Francisco congestion pricing* mobility and pricing study are carried out by the San Francisco County Transportation Authority (SFCTA) and the initiative is supported by the U.S. Department of Transportation.

PROJECT AREA is always the central inner area of the city involved in the pricing or charging strategy, affecting specific zone such as, for example, *03-Milan Area C.*

TARGET USERS involved are principally car drivers, who enter, drive or cross the city centre. They could be residents, visitors or tourists. However, some classes of vehicles are exempt and the recognition of license plates for foreign vehicles is not always simple and sometimes they are exempt from the charge.

PROBLEMS TO SOLVE AND OBJECTIVES are often similar and closely related to each other: congestion charges are implemented to reduce the chronic traffic jams, promote sustainable mobility, decrease the existing levels of smog, and obtain funds for infrastructure investments.

The amount of tax could vary by day and by time of day and, as in London, there may be discounts for some users. About **TECHNOLOGIES USED**, in Stockholm vehicles passing the control points are identified through automatic number plate recognition. The equipment, consisting of cameras, laser detectors, antennas, and information signs are mounted on a set of gantries at each control point. There are no payment booths at the control points, they are all unmanned and drivers are sent a monthly bill. A similar system is used in Singapore: the scheme consists of Electronic Road Pricing (ERP) gantries located at all roads linking into Singapore's Central Area. It is a system of sensors on 2 gantries, one in front of the other. Cameras are also attached to the gantries to capture the rear license plate numbers of vehicles. A device known as an In-vehicle Unit (IU) is affixed on the lower right corner of the front windscreen within sight of the driver, in which a stored-value card, the CashCard, is inserted for payment of the road usage charges. Sensors installed on the gantries communicate with the IU via a dedicated short-range communication system, and the deducted

amount is displayed to the driver on an LCD screen of the IU. It is mandatory for all Singapore-registered vehicles to be fitted with an IU if they wish to use the priced roads.

To evaluate public reaction referendums were held, as in the case of Manchester where Congestion Charge proposal was rejected on 12 December 2008.

However, **RESULTS** obtained till now by these initiatives demonstrate that significant shifts in travel patterns can be achieved in a relatively short amount of time. For example, in London the reduction in vehicles subject to the full congestion charge was about 20% although it was accompanied by an increase in trips not subject to the charge (taxis and private hire vehicles). Trips by transit increased from 29% of the 2002 total to 37% in 2015 (most of this by bus) while trips in cars fell from 46% to 36% over the same period. The share of bike trips doubled from 1% to 2%. Stockholm witnessed a drop in traffic volumes across the cordon of about 25%. Of this, about 10% represented work trips that switched to transit and another 6% were changes to discretionary trips - those that switched destination, reduced frequency or were subject to combining trips that would previously have been separate. In Singapore, the Land Transport Authority reported that road traffic decreased by nearly 25,000 vehicles during peak hours, with average road speeds increasing by about 20%. Within the restricted zone itself, traffic has gone down by about 13% during ERP operational hours, with vehicle numbers dropping from 270,000 to 235,000. It has been observed that car-pooling and public transport has increased, while the hours of peak vehicular traffic has also gradually eased and spread into off-peak hours, suggesting a more productive use of road space.

3.1.4   *Relevancy and relations of BPs with SaMBA pilot cases*

To make all data collected for each project in the "Best practice description sheet" clearer and more legible, a synoptic table has been constructed. It crosses the cases pilot with the selected BPs identifying the issues and elements that in some way could associate the two situations according to the problems faced, the territorial type of implementation, the target users and the innovative aspects introduced.

In the following synoptic table only BPs about reward systems have been considered since BPs about pricing systems refer to specific area of cities, involving only motorists who enter, drive or cross these zones not offering information about business models or innovative aspects for SaMBA pilot cases. However, BPs forms about pricing systems are gathered in *section 5.2 - Annex 2*.

PILOT CASES		BEST PRACTICES																													
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
MUNICH	Territorial type	x	x		x	x	x	x		x		x			x	x			x	x						x		x	x	x
	Target users	x	x	x			x		x	x			x			x				x								x		
	Problems faced	x		x		x					x		x	x		x					x	x	x	x					x	
	Innovative aspects	x	x	x	x		x	x		x		x	x		x	x	x	x									x			
PADOVA	Territorial type																				x	x			x		x		x	x
	Target users				x			x				x	x	x	x	x				x									x	
	Problems faced		x	x	x	x						x	x	x	x		x						x			x	x	x		
	Innovative aspects					x					x				x	x	x			x									x	
SALZBURG	Territorial type			x		x		x				x	x		x	x			x	x			x						x	x
	Target users																													
	Problems faced																													
	Innovative aspects																													
ISERE	Territorial type			x		x		x				x	x		x	x			x	x			x						x	x
	Target users		x	x			x	x		x		x	x	x		x	x	x		x		x		x	x	x	x	x	x	
	Problems faced	x	x	x	x	x	x	x		x	x	x	x	x	x	x		x	x	x		x	x	x		x	x		x	
	Innovative aspects	x	x	x	x		x	x		x			x		x											x				
CHIERI	Territorial type			x		x		x				x	x		x	x			x	x			x						x	x
	Target users			x			x		x			x			x	x	x	x								x				
	Problems faced			x			x						x		x		x	x								x				
	Innovative aspects					x						x	x	x	x	x		x	x		x		x		x			x		
KOPER	Territorial type			x		x		x				x	x		x	x			x	x			x						x	x
	Target users					x	x				x		x	x	x	x				x		x	x	x				x		x

	Problems faced				x	x	x				x			x		x	x			x		x	x	x		x	x	x	x	x
	Innovative aspects	x	x	x	x			x		x		x	x		x	x	x			x					x	x				
VERCORS	Territorial type																				x						x	x		
	Target users		x	x		x	x		x	x		x	x	x					x			x	x						x	
	Problems faced			x	x		x		x	x		x									x	x		x	x				x	
	Innovative aspects				x						x	x	x	x		x			x			x		x	x					
KRANJ-GORENJSKA	Territorial type																				x						x	x		
	Target users		x	x		x	x		x	x		x	x	x					x			x							x	
	Problems faced	x		x	x		x		x	x		x	x		x				x	x	x	x		x	x			x	x	
	Innovative aspects	x		x		x		x		x	x					x			x						x					
CITY CICLING+	Territorial type	x	x		x	x	x	x		x		x			x	x		x	x					x		x	x	x		
	Target users		x	x			x	x				x			x	x	x	x		x		x		x			x			
	Problems faced			x	x			x		x			x	x		x		x	x	x						x		x		
	Innovative aspects		x	x	x			x				x		x		x	x			x										

Table 4. Synoptic table Pilot Cases / Best practices. The cross sign indicates that the considered aspect (e.g. Territorial type, target users, etc.) is the same both for the Pilot Cases and the Best Practices.

4   LESSONS LEARNED

The main objective of this chapter is to highlight the strengths and weaknesses of the international actions and initiatives already implemented and collect the interesting indications provided by them in order to identify some tips and recommendations, useful for the right development of the nine pilot cases scheduled in the project, on the basis of successful past experiences indicated in the previous paragraphs. Indeed, some key issues should be addressed in this chapter such as the identification of activities or areas needing additional effort and the identification of effective activities or strategies as well as the identification of the root of problems that occurred in the studied cases in order to help pilot cases responsible in avoiding those problems.

Although there are external factors related to the political, cultural and socio-economical context, which may affect the success of the implementation and development of a sustainable mobility policy, there are many others factors related to the implementation of the policy that may influence positively or negatively its success.

The following is a list of 6 keys and most common successful / unsuccessful aspects to be considered when implementing a behavioural mobility change policy, which however, cannot be considered exhaustive:

1. **Clear definition of the Pilot context: problems, objectives, target groups**
   Doubtless, what is very important is a very clear definition of the objectives and goals the Pilot Cases Responsible (PCR) wants to achieve in its pilot. The objectives derive from the problem that is occurring in the study area or only from the willingness of improving mobility conditions. To better understand and validate the objectives, a diagnosis of the context should be performed evaluating mobility supply and demand. After having clear in mind the objectives, it will be easier to define target groups and stakeholders that can affect the project or can be affected by the project (e.g. target users and stakeholders identification is already part of the A-T3.1 of SaMBA Project). It has been proved, by the analysis of BPs, that having a well-defined target group can pursue an effective implementation of pilots. However, to change their habits, target users should have: motivation (such as pleasure or pain, hope or fear, social acceptance or rejection), ability (self-efficacy perception at performing a target behaviour) and triggers (reward, prize).

2. **Stakeholders' engagement and alliances to co-manage the Pilot**
   It is evident, from the BPs study, the need to establish a solid relationship among stakeholders involved in the project. Sometimes it is difficult to persuade local stakeholders to join the network since they require the identification of a concrete need in order to create cooperation. Nevertheless, enable their participation in the decision-making and action-taking process it is fundamental to achieve sound results, since the co-management and co-operation are among the most common factors of success. The aim is to agree on particular

lines of interests and objectives and to achieve a common ownership on the implementation of the campaigns. It requires coordinated action and direct involvement of all interested stakeholders (municipal governments, local communities, transport operators, etc.), great commitment and capacity to work together in a "working group". Depending on their field of work, the support of stakeholders can be various, e.g. by providing information material or supporting the contact, delivering and personal consulting phase. Integration across different sectors is also a relevant element and should be considered at the beginning of the process depending on the objective (for example between private and public or among different type of actors such as: trade associations, mobility providers, LAs, schools, museums, etc.).

3. **Differentiated and multi-level communication strategies**

Linking to the previous points, it can be stated that from one side ensuring project visibility is essential for the stakeholders' engagement and, from the other side, having a strong strategic partnership can help in taking contact to the right target people. For this reason, it is very important that the PCR works on a good media coverage, clarifying topics tailored to each target audience (in fact, it is advisable to provide different communication channels depending on the target users to reach). The target people could be involved, for example, through marketing campaigns. Having an entry questionnaire that maps both their demographic characteristics and psychographic characteristics could help to evaluate the success of the interventions against the participants' characteristics. Potential participants are attracted by personal and credible messages, which use personal addresses and names and logos or other visual identification of local authorities and institutions, even including signatures of regional politicians, mayors or other public exponents. The big variety of the dissemination channels and approaches increases the chances to reach every target group. A participatory approach, made of public meetings, workshops and information campaigns, is effective to encourage active transport. The organisation of inclusive events and activities is also a good opportunity to gather data and information, making an effort to involve more participants in order to make the results more visible. Moreover, the communication strategies should count on simple concepts, understandable to a wide public. From past experiences, it results that: a) the theme "health" is one of the most important reasons for travellers to use active modes, i.e. cycling or walking; b) the success of walking promotion programs depends on the quality of the walking infrastructure; c) bad weather and travel time are the most important barriers for cycling; d) communication with parents (who mainly choose how children travel to and from school) is a key factor in projects that want to involve primary schools students and e) it's important, when involving employers and employees, to understand the needs of the organization and the staff before approaching them, making their specific benefits clear from the start, since large companies are sometimes already providing transport options to their employees, like company buses or train tickets making very difficult to convince the organization as well as the employees of the need to change commuter habits.

4. **Reward and pricing systems as effective policy instrument**

The positive effect of rewards generating the desired change in behaviour has been psychologically proven. When people are given the right information and incentives at the right time, they are more willing to change their mobility behaviour. Incentives and rewards don't need to be high in cost and can be both virtual and real. Only strongly tailored incentives leveraging on the personal preferences and context of the traveller can effectively influence individual and group-based travel behaviour in a sustainable way. Awards and recognition are also essential parts of the motivation to participate and keep playing. The awards need to be clear from the start and people should be able to monitor their progress easily. So, it's necessary to conduct research on the target area before deciding to start a rewarding measure and seek sponsors for prizes, remembering that individual prizes motivate more than team prizes and that the material rewards are more stimulating than the virtual ones. Incentive schemes are most effective when they target commuters.

Road pricing and congestion charge are other strategies employed over the world as a structural intervention in order to avoid the entrance of vehicles in cities centres and to solve problems such as congestion, pollution and parking. Road users should pay for using road network within cities and they respond in various ways in term of their behaviour against this local mobility actions. In fact, different types of pricing methods can have different impacts. For example, tolls may affect travel routes and destinations, a time-based pricing may shift trips to other times. Moreover, type of trip and traveller is also important: commute trips are less elastic compared to recreational or shopping trips, and individuals with high income are less sensitive compared to low income individuals. Availability of quality alternatives may also increase the price sensitivity.

5. **Gamification, competition and feedback**

The idea of gamification to change behaviour is generally very well accepted. The innovative character and graphical design is liked. The integration of gamification into individual mobility planning in combination with appropriate incentives can contribute to reach a more balanced urban transportation system with a higher level of sustainability. The real challenge behind gamification is not getting new users when the game starts, but finding a system for rewarding virtuous behaviour in the long term and keeping these users involved and engaged over time. The added element of a competition can lead to an increase in motivation and achievement. Leaderboards, social comparison and peer pressure, as well as setting objectives and goals, can influence a user's motivation both towards using the system and changing behaviour. The ideal frequency of feedback results difficult to determine because it depends on several context-related factors, including a user's motivational stage. Someone who contemplates behaviour change needs different forms of feedback than one who is actively preparing to change. In addition, people's motivational needs such as the innate needs for autonomy, competence, and relatedness can act as guiding principles on how and what type of information is provided. Timing is equally important and the challenge is to find the right moment for feedback. It often involves a combination of elements of the

environment, user characteristics and the currently performed activity. In general, feedback should be given timely in relation to the behaviour that triggered it to ensure a user perceives the consequences of his or her actions. Also high intensity feedback may have negative effects. A choice of measurement units can help to provide users with easily understandable feedback. For example, scores and results can have different scale levels, simplifying their communication, depending on the user and context, through classification into understandable categories. Another possibility to ensure comprehension of feedback is to use analogies instead of quantitative measurements. Recommending actions is more effective if they are highly personalized for a specific user in a given context since the type of wording of a suggestion can determine whether or not it leads to desirable behaviour.

6. **Technology support**

Also ICT solutions and innovations have the potential to change individual mobility habits and its impact on urban mobility. Apps/services should be more tailored towards specific stakeholders associated target groups seamlessly integrated with lifestyle-compliant look, feel and preferences. ICT tools should be used for motivation and to support behaviour changes by providing practical information such as maps, the location of rental bicycles or noise-reduced walking routes, parking facilities or travel information and to allow a self-tracking and friendly competitions with others. Furthermore, thanks to these emerging technological solutions, it's also possible to applicate to a wide area and to capture the base case of travel behaviour, asking participants to install app and use it. However, it seems that users are interested in using social networks in transport mainly for receiving information concerning their personal trips rather than providing information to the community.

5 ANNEXES

5.1 Annex 1 – The BPs forms about reward systems

01	SWITCH in Vienna	
Promoters Bodies carrying out and/or funding the initiative/project	Project co-funded by the Intelligent Energy Europe Programme of the European Union with a partnership of five European cities and eight experts in alternative travel, health or economical aspects of mobility.	
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	06-01-2014 – 05-31-2016. Vienna case study: from Spring to Autumn 2015; 9 months total.	
Project area Territory affected by the initiative: administrative level, short description	Five cities: Antwerp, Donostia/San Sebastian, London Hounslow, Gdansk and Vienna. In Vienna (inhabitants: 1.8 million; size: 415 km^2) the focus was on suburban areas with car oriented commuting flows.	
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	A. Alpine metropolises	
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congested road and parking space, air pollutant emissions.	
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The main objective of the SWITCH project was to reduce GHG-emissions and primary energy consumption by switching car trips to walking and cycling for short urban trips. In Vienna, the infrastructural changes are expected to enable a growth of cycling from 7% in 2015 to 10% in 2025. The major motivational factors in favour of walking (already very popular, 27%) are the nice surroundings of the pathways and the simplicity of this travel mode.	
Short description Concept of the initiative/project	"Encouraging a SWITCH from car-based to active mobility using personalized information and communication technology approaches". The aim is to improve air quality, health, and quality of life in urban areas by reducing greenhouse gas emissions helping transport policies to deliver an increase in walking and cycling for short journeys in urban areas. It is used a personalised travel planning (PTP) approach addressing frequent car users, using arguments from public health and mobility campaigning, and the use of ICT solutions. All SWITCH campaigns were applied to people in a period of life change in order to maximise the positive impact.	

Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	The SWITCH campaign in Vienna focused on the following life change moments: • people who have access to a car and have recently moved houses; • people who received medical advice to increase their physical activities; • people who recently experienced changes in their household structures.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Local governments, public transport associations and operators, health associations and mobility managers. The Mobility Agency for the City of Vienna was the key partner in the campaign developed in Vienna case study.
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	ICT tools used in Vienna case study: • the "Wien zu Fuß" (Vienna on foot) smartphone application, provided by the Mobility Agency of Vienna, which included a step counter and a treasure hunt game; • the smartphone app "AnachB" (AtoB), which offered a routing for pedestrians; • the SWITCH-tailored version of the "Moves app", which allowed to track the daily physical activity and to provide this data to the SWITCH consortium voluntarily.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Incentives used in Vienna case study: 1. to motivate people to register for the campaign and to stay in all three evaluation surveys: • a raffle with different prizes, including a bicycle, a premium trolley, step counters, umbrellas etc. was organised. 2. to motivate people during the campaign to test new behaviours, a set of incentives were offered: • multifunctional scarfs; • bike saddle covers; • shoelaces with instructions; • reflecting snap bands. The most preferred incentive was the multi-functional scarf, which had a strong connection to walking and cycling.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	In Vienna a dense campaign of two months was foreseen: • the contact to people who recently moved houses happened through real estate developers, neighbourhood associations, specific events such as the Smart Citizen Labs, face-to-face interviews at new housing projects, as well as through address data provided by the Austrian postal service and university mailing lists; • the group of people who recently received medical advice to increase their physical activity level appeared to be a hard-to-reach group. Partnerships with different doctors, hospitals and health centres were established and announcement postcards

	were disseminated. Weekly get-togethers of Nordic Walking groups of elderly people were visited as well as specific public events such as the "Viennese Diabetes Day" or the "Experience" exhibition for active elderly; • for other groups, face-to-face at leisure and recreation areas, like parks, public events and open-air swimming pools. 20,600 registration postcards and about 10,000 announcement letters were distributed through various channels. More than 3,700 different maps and brochures, like the Vienna walking and cycling maps, were requested by the SWITCH participants.
Results Quantitative data results such as number of users, CO₂ saved, etc.	In Vienna the following impacts was measured for one week: • number of car kilometres saved: 4,278 km; • amount of GHG-emissions saved: 855.6 kg; • amount of primary energy consumption saved: 342.24 litres; • increase in number of days with more than 30 minutes of physical activity: 977 days.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information currently is available).
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	In Vienna: • have a well-defined target group; • provide different communication channels depending on the target users to reach; • have strong strategic partnership supporting the contact to target persons; • have highly motivated staff that believes in the campaign message.
Website address	www.switchtravel.eu
Contact reference Used in case further investigations might be required	Institute for Transport Studies, University of Vienna, Austria Name: Wiebke Unbehaun E-mail: Wiebke.unbehaun@boku.ac.at Tel: +43 1 47654 5304

02	WeCity
Promoters Bodies carrying out and/or funding the initiative/project	Designed and developed by the engineers of the Enzo Ferrari Department of the University of Modena and Reggio Emilia (Unimore).
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	App launched nationwide between March and April 2015 - ongoing
Project area Territory affected by the initiative: administrative level, short description	Rome, Milan, Turin, Bologna, are some of the cities where WeCity is currently more widespread, but there are no geographical limits to the use of the app.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	A. Alpine metropolises
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Greenhouse gas emissions.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Project aimed at promoting sustainable forms of mobility, mainly urban and suburban, and the diffusion of electric propelled vehicles, through social networks and a prize game based on mobility.
Short description Concept of the initiative/project	The project through the use of the app and the concept of gamification stimulates the user to assume a sustainable mobility behaviour. The app allows to track the movements and calculate the kilometres travelled and the CO_2 saved by walking, by bike or using public transport. The savings are converted into points that can be used on the online store to take advantage of discounts for purchases.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Local public administrations, citizens, bicycle and cycling wear and equipment sellers (Masciaghi, Girardengo, etc.).

Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	An App that certifies each gram of CO_2 that has not been emitted in the atmosphere and transforms it in virtual money to reward sustainable commuting. Allows citizens to interact with the Kyoto protocol provisions, thanks to ISO 14064-II certification on CO_2 reduction. The system calculates the route taken and the CO_2 saved: this is translated into points that each user can use on the WeCity store.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	The awards are always linked in some way to sustainable mobility: from electric bikes to eco-trips, from vouchers to spend in various car sharing services to season tickets or tickets for public transport services, to equipment for bicycle lovers. Accumulable credits daily to the first 100 km: • With the bicycle receive 16 credits every km; • Carpooling: 4 credits in two, 5 in three, 6 in four (per km); • With the public transport receive 4 credits every km. SETA (Società Emiliana Trasporti Autofiloviari) awards sustainable mobility: when the user accumulates credits CO_2, he gets 50% discount on monthly subscription to the bus in the provinces of Modena, Reggio Emilia and Piacenza. If the user has an annual season ticket for public transport, he can access an exclusive prize: €250 for the purchase of one of the best folding bikes or a 100% discount for an already discounted model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Website, mass media campaign through printed and web press.
Results Quantitative data results such as number of users, CO_2 saved, etc.	The app was launched nationwide between March and April 2015 and within a few months reached almost 20,000 downloads, with over 1 million kilometres pedalled, around 10,000 per day, and more than 200 tons of CO_2 saved.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	App still available.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	WeCity proves that citizens want to get involved and contribute to respect the environment.
Website address	www.wecity.it
Contact reference Used in case further investigations might be required	wecity s.r.l. Strada Contrada 309, 41126 Modena info@wecity.it

03	GoEco!
Promoters Bodies carrying out and/or funding the initiative/project	Financed by the Swiss National Science Foundation – National Research Programmes (NRP), PNR71 "Managing energy consumptions" and the Swiss Competence Center for Energy Research – Efficient Technologies and Systems for Mobility (SCCER Mobility).
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	2016-2017
Project area Territory affected by the initiative: administrative level, short description	Zurich, Canton Ticino.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	B. Alpine cities
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	High use of the car, high-energy consumption and negative impacts on health and safety.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Encourage people to go on foot or by bicycle, to use public transport and car-sharing and car-pooling systems or even to replace physical travel with virtual meetings. The main goal of *GoEco!* is to understand if and how informational feedback and social interactions are effective in encouraging changes in personal mobility choices.
Short description Concept of the initiative/project	The project, through the use of the app and the concept of gamification, stimulates the user to assume a sustainable mobility behaviour. The app allows to track the movements and calculate the kilometres travelled and the CO_2 saved by walking, by bike or using public transport rewarding virtually the users.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Local public administrations, citizens.

Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	*GoEco!* and *GoEco! Trackers*, applications for smartphones, monitor people movements and use elements typical of the game world to encourage them to change their mobility choices. To deepen the perceptions, attitudes and choices of the participants, at the end of the experimentation was conducted a survey. Furthermore, a part of the participants was followed closely by individual interviews.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	To increase the user's awareness and stimulate him to make progress towards his personal goals, every day *GoEco!* provides feedback on the routes taken and on the means of transport used, also indicating the energy consumption and CO_2 emissions related to them. In addition, each week proposes challenges with itself. Those who accept the challenge and manage to complete it at the end of the week get a medal (badge), which is shown prominently on the page of their profile. If the *GoEco!* app automatically detects that the user has made particularly sustainable mobility choices, he also receives surprise trophies and medals. At the end of each week *GoEco!* offers users feedback on progress towards their personal goal. If they hit the target, *GoEco!* encourages them to choose a more ambitious target or to change the type of objective for the following week; otherwise, it spurs them to do better the next week or to choose an easier target with which to start. Finally, *GoEco!* allows to compare the personal progress with those of other users: every week the best ones in achieving their personal goal are rewarded with high visibility in the Hall of fame section. To keep up the motivation to participate, sometimes *GoEco!* also proposes to participate in group events, such as bike rides or car-free walks in the city, open to family and friends.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Launching events, flyers and presentations, research papers, press releases, winner of the first place at the Energieschweiz AppWelt 2014 contest.
Results Quantitative data results such as number of users, CO_2 saved, etc.	*GoEco!* app has been able to produce a certain change in individual mobility styles, reducing average energy consumption per kilometre as well as average CO_2 emissions per kilometre. However, this change appears: • only for "systematic" movements, that is those carried out frequently and with a certain regularity; • and only in Ticino. In fact, in Zurich the use of public transport is already very common.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	App no longer available.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	Eco-feedback information and social interaction (social comparison and peer pressure) can be effective triggers to foster changes in personal mobility behaviour, to facilitate the long-term challenge to reduce private motorized transport and to promote a transition to more energy efficient mobility options, such as vehicle-sharing, intermodal use of means of transport, public transportation and slow mobility.

Website address	www.goeco-project.ch
Contact reference Used in case further investigations might be required	Francesca Cellina – Scuola universitaria professionale della svizzera italiana (SUPSI) Telefono: +41 58 666 62 61/62 95 e-mail: francesca.cellina@supsi.ch Dominik Bucher – Institut für Kartografie und Geoinformation (IKG) Phone: +41 44 633 28 52 e-mail: dobucher@ethz.ch

04	TrafficO2
Promoters Bodies carrying out and/or funding the initiative/project	80% MIUR, 20% PUSH
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	May 2014 – May 2015
Project area Territory affected by the initiative: administrative level, short description	• First phase: three experiments with a sample of students from the University of Palermo. • Second phase: Palermo and Milan.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	A. Alpine metropolises
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Road congestion and air pollution.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The aim is to reduce the traffic and pollution caused by private cars, favouring the meeting between user groups and the urban entrepreneurial fabric, proposing a fair agreement for all: prizes in exchange for sustainable travel.
Short description Concept of the initiative/project	The innovative idea is to combine in a serious game two of the complementary actors involved in the urban traffic scene: the community of workers/students and the local retail businesses. Depending on their destination, users, thanks to trafficO2, can receive information on the different urban mobility options classified by emissions, costs and calories: the more environmentally friendly grant more points. Users who collect points, win prizes and discounts from affiliated local businesses.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	University students during experimentation.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations,	Local administrations, universities, local sponsors, public transport operators.

transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	The trafficO2 mobile app interweaves game and info mobility by interacting users through challenges and giving useful information to improve their performance. Each route is described according to the distance travelled, the cost in euros, the environmental cost in terms of CO_2, the calories expended and finally in O2 points, i.e. the environmental sustainability credits.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Based on the user's mobility habits, the experimentation tracks personal sustainability goals, which can be reached thanks to the use of the app. The user collects the O2 points and wins prizes and discount coupons which are made available by partners and sponsors. Extra points and discounts can be accumulated thanks to some flash quizzes.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Communication on social networks and on the field with local events organized to encourage the adhesion.

Results
Quantitative data results such as number of users, CO_2 saved, etc.
	First phase: Sustainable Urban Values Challenge (SUV Challenge)
	1. May-June 2014
	  • travel mode: walking, cycling
	  • testers: 22
	  • local business: 12
	  • total amount of prizes: 450€
	  • km registered: 678
	  • CO_2 saved: 4,500g
	2. November-December 2014
	  • travel mode: walking, cycling, carpooling
	  • testers: 128
	  • local business: 78
	  • total amount of prizes: 4,500€
	  • km registered: 7,473
	  • CO_2 saved: 17,300g
	3. April-May 2015
	  • travel mode: walking, cycling, carpooling, bus
	  • testers: 161
	  • local business: 76
	  • total amount of prizes: 4,700€
	  • km registered: 10,528
	  • CO_2 saved: 33,360g
	Second phase: by eliminating material prizes, there has been a significant drop in the number of active testers, demonstrating how the stimulus of "real" gratification was in that case the most important spring.

Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information is currently available).
Lessons Learned Lessons that the case study offers	In this case the material rewards result more stimulating than the virtual ones.

for a replication that is effective and sustainable	
Website address	www.traffico2.com
Contact reference Used in case further investigations might be required	PUSH – Piazza Sant'Anna, 3 - 90133 Palermo (+39) 091-6164848

05	MIMOSA - Making Innovation for MObility Sustainable Actions
Promoters Bodies carrying out and/or funding the initiative/project	CIVITAS initiative co-financed by European Union.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	10-15-2008 – 10-14-2012 The pilot project in Utrecht was applied during a period of 13 weeks.
Project area Territory affected by the initiative: administrative level, short description	Five pilot-projects: Bologna, Funchal, Gdansk, Tallinn, Utrecht (area of 99.3 km², growing population of 300,000).
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine metropolises and cities.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Quality of life, environmental conditions, congestion, energy efficiency, security and safety.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	One of the measures in Utrecht: "Rewarding motorists for avoiding rush hour". The specific objective of the measure was to reduce the number of private cars in Utrecht-West area during the morning rush hours (6 am – 10 am) by giving financial incentives to car drivers who chose another itinerary, use another transport mode, or drive before or after the morning peak hours.
Short description Concept of the initiative/project	The *MIMOSA* approach is based on a clear set of measures that have been developed by: • monitoring traffic flows and analysing of mobility demand and supply; • identifying problems and opportunities; • planning initiatives that public administrations and citizens can implement to tackle the problems; • identifying the most suitable demonstration actions (i.e. a mix of tested good practices and bold, innovative actions), pushing citizens towards the desired behavioural shift; • implementing the actions and showcase them for replication or inspiration in other urban contexts.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Car owners who drive in Utrecht-West area during the morning rush hours.

Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Municipalities and regional authorities. Region of Utrecht (BRU), the city of Utrecht and the national highway authority (RWS).
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Cameras on the selected locations. The license plates of the ones who were identified more than three times within two weeks were selected. From the 15,555 people that were selected and invited by letter to participate, 4,026 car owners decided to participate. For each of the 4,026 cars participating, the frequency of use per week of the all main roads leading to the city in the morning rush hours was measured. To do so, a second subcontractor placed surveillance camera system along other strategic main traffic axes. The comparison between the number of trips registered during the pilot project period and the number registered during the first stage of the measure enabled to determine which cars owners contributed effectively to the measure and should therefore be rewarded.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Within this pilot a participant was rewarded with €4 when he avoided these roads during the morning rush hours on working days between 6 AM and 10 AM. Experiences with rewards in another pilot in the Netherlands were used to determine this amount, and naturally the available budget relating to the desired number of avoided trips in the rush hours also determined this amount.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Communication with citizens and involvement of the whole community was a central pillar of the project. Cutting-edge marketing, communication and information tools to reach and involve citizens, schools, companies and institutions formed an essential part of the work in the *MIMOSA* cities.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Utrecht aimed to decrease the number of cars during rush hour by a least 1,000 vehicles during the period of construction works in Utrecht-West. The impact evaluation focuses on indicators in the transport sector. By distributing between 767 and 923 rewards per working day it was concluded that the traffic level was reduced between 500 and 700 cars during the morning rush hours. Thus, the objective of decreasing 1,000 cars during the morning rush hour was not fully reached. The most challenging barriers in the implementation were related to the technical difficulties with the licence plate recognition. The subcontractor guaranteed 90 to 95% recognition of the licence plates. At the start they spotted only 40%. Additionally, lease companies were not always willing to participate in the experiment, which reduced the number of potential participants. In Utrecht, a large number of car drivers are making their trip with a leased car.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	After a successful first pilot, the second pilot did not go ahead due to non-performance of the subcontractor. This was due to technical reasons. It resulted in a delay and subsequently the road works on the target stretch of highway were already (nearly) finished and the pilot became obsolete. This led to the decision to not implement a second pilot anymore after all.

Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	• Make an effort to involve more participants in order to make the results on the roads more visible. • Make it appealing for private organisations to apply new techniques. • Make it appealing for private organisations to offer Value Added Services like information about parking facilities or travel information. • Conduct research on the traffic in the target area before deciding to start a rewarding measure. • Invite mainly people who were registered on those roads where the reduction in vehicle needs to be achieved to participate.
Website address	www.civitas.eu/content/mimosa
Contact reference Used in case further investigations might be required	Comune di Bologna, Piazza Maggiore 6, 40124 Bologna, Italia Andrea Arcelli Tel.: +39 0512194746 andrea.arcelli@comune.bologna.it

06	**DEMOCRITOS - DEveloping the MObility CRedits Integrated platform enabling travellers to improve urban TranspOrt Sustainability**
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the European Union's Seventh Framework Programme for research, technological development and demonstration.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	10-01-2009 – 09-30-2011
Project area Territory affected by the initiative: administrative level, short description	Genova, Stuttgart, Lisbon and Craiova.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	A. Alpine metropolises
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion, air pollution and noise, use of land.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The project's objective is to identify new options in urban mobility and find ways of providing new mobility models.
Short description Concept of the initiative/project	The *DEMOCRITOS* project introduces the 'Mobility credits model' as a transport specific platform that will enable travellers, mobility providers, technology providers and transport planners to understand the implications of climate policy and increasing prices for greenhouse gas emissions and to identify new opportunities in urban mobility first and in extra-urban mobility later.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations,	Municipalities and regional authorities, policy makers, mobility and technology providers.

transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	The concept of the Mobility Credit Model is based on four basic pillars: • define a sustainable load of GHG in an urban area; • convert this load into a "total amount of credits", that will become the common "currency" to be spent within the assigned budget limits using an Electronic GHG wallet, and will be distributed to all the travellers; • define a set of rules to use the credits; • exchange credits allowing travellers with a negative balance of credits to buy extra-credits from other travellers who are credit-positive. The Mobility Credits Platform (MCP) allows to create a behavioural context where the travellers can experience the effects of changing attitudes and choices in mobility with a range of possible implementations, from a "pedagogic tool" to a "mandatory demand management scheme", from a "social network" to "enterprise applications".
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	It is based on the premise of establishing targets for GHG, basically CO_2 production, in order to define how many 'credits' commuters can spend. The rationale of the Mobility credits model is based on setting as quantitative target the 'sustainable load of Greenhouse gases' of the study area. Subsequently, the GHG load is converted into a 'total amount of mobility credits' distributed to all the travellers of the area.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Setting up of the website for social networking, which allows internet users to simulate the application of a mobility credits policy in the four test case cities. Publication of project website, newsletters and other dissemination tools; presentation of the project in different occasions.
Results Quantitative data results such as number of users, CO_2 saved, etc.	At the end of the project, the following results will be obtained: • municipalities and regional authorities of the consortium will have a sound basis to decide upon the adoption of the 'Mobility credits platform' as a mean to influence the travellers' choices in order to reduce greenhouse gases; • consultancies will have a clear understanding of the concept and of the associated technologies to assist public administrators, municipalities, enterprises, interest groups, communities and citizens in Europe and outside Europe to implement the platform. **Note:** The MCM concept was first simulated in the Municipality of Genova in 2005. The number of car journeys was reduced by 12-27%; PM10 emissions were reduced by 5-17%; and those of CO_2 fell by 6-22%.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information is currently available).
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	• Communication strategies should simplify the concept to make it understandable to the users. • Technological solutions (e.g. on-board units and Smartphone applications) could enable the application to wide areas.

	• Start from smaller local MCP schemes to develop the full-operating scheme.
Website address	cordis.europa.eu/project/rcn/92752_en.html
Contact reference Used in case further investigations might be required	Roberto Ionna – Comune di Genova Tel.: +390105577412

07	TRACE
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the European Union's Horizon 2020 research and innovation programme.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	06/01/2015 - ongoing
Project area Territory affected by the initiative: administrative level, short description	Eight pilot sites: Breda (NL), Agueda (PT), Southend on Sea Borough (UK), Bologna (IT), Esch (LU), Belgrade (RS), Plovdiv (BG) and Flanders (BE).
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine metropolises and cities.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion and air pollution.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	*TRACE* aimed to increase and optimise the use of ICT tracking services for the promotion and planning of cycling and walking in cities through: • an open knowledge base on cycling and walking tracking possibilities, challenges, solutions and benefits; • open access tools addressing fundamental ICT challenges to be used by market-oriented application developers; • market-oriented tools to be used in *TRACE* sites and elsewhere; • direct involvement of commercial actors interested in developing tools for cycling and walking promotion; • 8 pilots that became successful examples for other sites to follow; • widespread promotion and take-up of *TRACE's* tools and approaches by cities and related stakeholders, thanks to the project's extensive dissemination and take-up activities.
Short description Concept of the initiative/project	The project targets established measures to promote cycling and walking to the workplace, to school, for shopping purposes or simply for leisure. More particularly, *TRACE* assessed the potential of ICT-based tracking services to optimise the planning and implementation of such measures and to enhance their attractiveness and potential impact.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens, walking and cycling practitioners.

Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	City administration, mobility planners and policy makers, product developers (ICT), cyclists and walking associations, local businesses.
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	*TRACE* developed two types of tracking tools, according to the final objective they pursue: (1) behaviour change and (2) mobility planning. 1. The behaviour change tools are three: *Positive Drive*: is based on "doing and rewarding the right transport choice". It uses only positive incentives, such as coaching, prizes, social status, and achievements. *TRACE* extended and improved Positive Drive to offer users better feedback on walking and public transport, in addition to bikes and cars. *Traffic Snake Game*: encourages primary school pupils to travel more sustainably to school. *TRACE* developed a Traffic Snake Game tracking app, in order to digitalise the campaign and therefore improve the campaign's ambitions and impact. *Biklio*: encourages citizens to ride their bikes near checkpoints positioned at urban local shops, assigning a score (cycle-and-score scheme) to each participant to reward him. *TRACE* created an open paradigm to promote the involvement of local businesses as checkpoint providers, making it more appealing to join for both citizens as well as local businesses. 2. The *Tracking for planning tool* (*TAToo*) is an instrument for tracking data analysis for urban mobility planning and policy making purposes.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	*Positive Drive* uses only positive nudges (coaching, prizes, social status, achievements, etc.). The game originates from the Netherlands and is developed by *IJsberg* (marketing consultants). As soon as the consumer turns on the app it starts measuring and rewarding good behaviour and giving direct feedback. The user can see all rewards achievements, share this through social media and play for prizes in the game room. The coaching program is also driven by these achievements and is tailored to each individual user. The *Traffic Snake Game* encourages primary school pupils to travel more sustainably to school. The game originates from Belgium and is developed by *Mobiel 21* (non-profit organization). Schools which sign up for the game receive a large (five-meter-long) snake banner, large green stickers and smaller dots that depict a sustainable mode of travel. A reward scheme incentivises the kids to complete the snake as soon as they can. Rewards consist of gadgets, extra playing time, an excursion, an apple, no homework for a day, etc. *Biklio* is a mobile application that creates a network of recognition and benefits to bicycle users, linking them to local businesses and the cycling community for the good of their city. People who cycle are recognized with

	benefits from *Biklio* spots at the destination of their trips. Users can see in the app map where and what are the spots, what benefit they offer and what are the existing cycling facilities. The app also involves the community of users to cycle for their city and for their own good, informing each user on his individual and the community's contribution to a more healthy, sustainable and pleasant city. Any type of consumer-oriented business can participate: may this be a café, a restaurant, a store, a clothing shop, a museum, an ice-cream shop or a pharmacy.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	- A project leaflet presenting the *TRACE* objectives, partnership, activities and expected results at a glance. 1000 copies in English and electronic version available on the project website. - Twice yearly electronic newsletters to ensure a regular flow of information to local authorities, those working in the field of walking and cycling, other identified target groups and all interested stakeholders. - A roll-up poster for promoting the project at events and form a coherent identity with other communication elements of the *TRACE* brand. The roll-up highlights the *TRACE* measures and promotes the website as a source for more information. - The *TRACE Toolkit* which summarises the project outputs of other WPs into practical recommendations and guidelines on using tracking data for behavioural change initiative and mobility planning. It is printed in 500 copies as a glossy brochure in English. - The dedicated project website is the project's main gateway to the outside world, providing information on objectives, partners, methodologies, results, publications, news and success stories. - Social media: LinkedIn, Twitter, Facebook, Flickr. - Training webinar, seminars, workshops, final conference.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Not yet available.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information is currently available).
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	- Significant travel behaviour changes observed when travellers acquired personalized information feedback or instructions. - Strong effects on changing travel behaviour suggest that providing free transport cards to employees is a successful intervention that can be implemented by other employers, such as universities.
Website address	www.h2020-trace.eu
Contact reference Used in case further investigations might be required	Prof. Paulo Ferreira INESC ID, Rua Alves Redol, 91000-029 Lisboa, Portugal paulo.ferreira@inesc-id.pt

08	Travel Smart Rewards
Promoters Bodies carrying out and/or funding the initiative/project	Land Transport Authority – Singapore Government.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	First launched in 2012, the *Travel Smart Rewards* (TSR) programme was modelled after the Incentives for Singapore's Commuters (INSINC) pilot. The updated version came into effect in April 2017.
Project area Territory affected by the initiative: administrative level, short description	Singapore.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Not applicable.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	High demand for peak hour travel.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Ease the crowdedness on board the MRT (Mass Rapid Transit) and LRT (Light Rail Transit) on weekdays by distributing the load, resulting in a more effective and efficient use of Singapore's rail network.
Short description Concept of the initiative/project	TSR incentivises and encourages commuters to shift their travel patterns and move out of the peak travel periods while earning points and cash rewards at the same time.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Organisations (like BP Singapore, CapitaLand, Citi Singapore, Ernst & Young, IBM Singapore, JTC Corporation, KPMG Singapore, Public Service Division, Rajah & Tann, SPRING Singapore, Urban Redevelopment Authority and LTA itself), employees, commuters.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Organisations, public transport providers.
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	To sign up for the rewards programme, is needed to first register the EZ-link card of own choice on the *Travel Smart Rewards* site by the Land Transport Authority. It's possible to change and use a different EZ-link card

	of own choice later.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	The aim is to travel during non-peak hours to earn points. For every 1,000 points, user gets SGD$1. Every trip user takes during the non-peak timing earns 10 points, or 15 points if his company is under the corporate tier scheme, regardless of distance. Currently, regardless of distance, it'll take approximately 100 trips to even earn SGD$1 — if user takes one off-peak MRT trip a day. Points and cash rewards can also be earned from the TSR game, The Ride One, which promises cash rewards up to S$200 if user completes the game successfully.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	LTA has established a Travel Smart Grant to encourage organisations to implement or trial some Travel Smart initiatives within their organisations. Organisations can claim up to $160,000 annually (for 3 years) to co-fund Travel Smart measures which support the adoption of flexi-travel by their employees. To increase awareness and participation in the initiative, the National Transport Authority organized a van that distributed food in one day and served over 1,000 meals to passers.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Travel Smart started in July 2012 with a two-year Travel Smart pilot that involved 12 organisations (BP Singapore, CapitaLand, Citi Singapore, Ernst & Young, IBM Singapore, JTC Corporation, KPMG Singapore, Public Service Division, Rajah & Tann, SPRING Singapore, Urban Redevelopment Authority and LTA itself). Following the successful conclusion of the pilot, a new Travel Smart Network was launched on 30th July 2014 whereby Travel Smart Network organisations are able to tap on two initiatives: • Corporate-Tier Travel Smart Rewards for which employees of Travel Smart Network organisations can enrol and enjoy an attractive sign-up points bonus; • Travel Smart Grant of up to $160,000 annually for three years to co-fund the cost of measures which organisations put in place to support the adoption of flexi-travel arrangements by their employees.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	Personalised travel planner messages to encourage participants to shift their commute outside of the morning peak period results a good action, especially if a great number of commuters participate in the programme. In this way, in fact, it's possible to have more accurate data in pinpointing the change in travel patterns that participants have to make.
Website address	www.travelsmartrewards.lta.gov.sg
Contact reference Used in case further investigations might be required	LTA-TravelSmart@lta.gov.sg

09	MoveUs
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the European Union's Seventh Framework Programme for research, technological development and demonstration.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	10-2013 – 09-2016
Project area Territory affected by the initiative: administrative level, short description	Pilot cases: Madrid, Genoa, Tampere.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine metropolises.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Emissions and energy consumption.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	One of the main objectives is to encourage people to change their transport habits and increase the share of sustainable mobility.
Short description Concept of the initiative/project	Provide green, personalized, sustainable services in the smart cities' environment through the development of technological applications in the cloud and through the promotion of the benefits of using them among the stakeholders and the citizens in the city.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Local Authorities, Transport Operators.
Technologies used Such as ICT tools, smart phone	*MoveUS* means ICT cloud-based platform and mobility services for all users. *MoveUS* delivered:

apps, tracking devices, etc.	• a cloud-based mobility management platform, which will collect input data from distributed heterogeneous sources and process these data to infer valuable information of the traffic status and users' mobility patterns, ensuring data privacy and security all along the handling process; • an API toolkit offered as a platform extension, which will provide developers and third parties access to these data; • a set of innovative user-centric services supported by an effective incentive-based model, aimed at assisting users' mobility and fostering behavioural changes towards sustainable transport modes; • a fully integrated smart mobility application (*MoveUS APP*), running either on users' smartphones or control centres owned by Local Authorities or Transport Operators; • energy efficiency assessment tools to measure users' carbon footprint and the energy gains vs. consumption for the ICT solutions applied to each pilot.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	*MoveUs* project has designed and developed a complete system where positive incentives can be gained by using 'soft' mobility modes such as shared vehicles, bicycle and public transportation. The three Living Labs in Madrid, Genoa and Tampere have developed custom incentive schemas and initiatives to fit the local needs and situation with the aim to achieve less energy consumption and smaller carbon footprint in urban mobility. Based on the journey option emissions, green points are assigned to users to promote the more environmentally friendly options like walking or biking. These points can be exchanged for incentives such as discounts in local stores, by using the *MoveUs app*.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Official website, leaflets, press releases. Living Labs approach for the *MoveUs* pilots, which emphasize the participation of representative samples of the urban population in the phases of requirements collection, co-creation, use and evaluation of the mobility services.
Results Quantitative data results such as number of users, CO_2 saved, etc.	• For citizens: incentives and rewards that stimulate healthier lifestyle while protecting environment and contributing to the reduction of global warming. • For public authorities: integrated set of services and cloud-based platform that reduces the cost of implementation, deployment and maintenance for eco-efficient urban mobility management. • For transport operators: tools and services that enable customer loyalty, as well as optimization of services. • For external business: new ways and channels to contact customers and offer advertising or indirect sales.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Ongoing.
Lessons Learned Lessons that the case study offers	• Establish an interactive process between the planning, development and testing of services in the field of smart mobility.

for a replication that is effective and sustainable	- Develop custom incentive schemas and initiatives to fit the local needs and situation. - The feedback and suggestions for improvements from the users are an important part the development of the application.
Website address	www.moveus-project.eu
Contact reference Used in case further investigations might be required	Atos Spain Susana Palomares - susana.palomares@atos.net Juan Bareňo - +34912148800

10	Spitsmijden experiment
Promoters Bodies carrying out and/or funding the initiative/project	Funded by the TRANSUMO foundation.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	The trial was launched on October 2nd, 2006 and lasted for thirteen weeks (the two weeks before and one week after the ten-week trial period are unrewarded).
Project area Territory affected by the initiative: administrative level, short description	The test area was the Dutch A12 motorway corridor from Zoetermeer towards The Hague.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Not applicable.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Traffic congestion.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Reduce vehicles heading towards The Hague on this stretch of motorway on weekday mornings.
Short description Concept of the initiative/project	The *Spitsmijden* experiment involved rewarding of commuters for avoiding travelling by car during the peak hours (7.30-9.30), using automated vehicle identification.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	341 participants, frequent rush-hour travellers on the A12 motorway stretch (minimum three trips per week).
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Local Authorities, Transport Operators.
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Before the start of the experiment the participants had an electronic device installed in their cars, allowing for the automated registration of their car travel behaviour on the corridor under consideration. The

	registration system was further complemented with licence plate recognition cameras, in order to extend the coverage of the study area. A second source of behavioural information is the logbook (a travel diary). The participants completed for every day (Monday–Friday) a web form presented on a personal webpage.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	The participants in the trial could earn a reward for not travelling by car from Zoetermeer to The Hague during the morning rush-hour. Upon registration, the participants chose one of two types of reward. The first type of reward was an amount of money (€7 to avoid the entire morning peak, €3 if travelling in the shoulder periods (7h30 to 8h and 9h to 9h30)) for each morning rush-hour that the participant avoided. The second type comprised credits that, when a sufficient number were earned, allowed keeping a "Yeti" smartphone at the end of the trial. During the trial, the participants who chose this option could already use the Yeti. The Yeti provided them with traffic information during the trial.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	The objective was to recruit 500 participants. Three recruitment waves were organised. The first two waves were based on license plate observations. A last recruitment wave was organised, using a 'member-get-member' approach and a renewed invitation to vehicle owners that had not reacted in the first two waves.
Results Quantitative data results such as number of users, CO_2 saved, etc.	The results of the test are promising. Without reward, 40% of the participants were a part of the rush hour, during the period of the test however a reduction to 20% was noticed. Most participants earned their rewards because they adjusted the moment they take off to work to the rush hour. In most of the cases this implicated an agreement with their employer about going into a flexible working pattern. Although the most significant progression was made by leaving to work earlier, one did also notice an increase in car-use after the rush hour. The total car-use has seen a slight decrease, from 70% to 65%, mainly due to an increase in the use of public transport. However, after the testing period, almost all of the participants changed back to their former travelling habits.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Starting from the results of the *Spitsmijden* project, three new projects have been developed: *SpitsScoren*, *Spitsvrij* and a second *Spitsmijden* experiment in several Dutch areas.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	• Reward can be used as effective policy instrument. • Behavioural analysis: shifting departure time is likely to be a more important behavioural response to policies for congestion relief, compared to a modal shift or teleworking.
Website address	www.spitsmijden.nl
Contact reference Used in case further investigations might be required	_

11	Sharing cities
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the European Union's Horizon 2020.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	01-01-2016 – ongoing (60 months).
Project area Territory affected by the initiative: administrative level, short description	'Lighthouse' cities: London, Milan, Lisbon 'Fellow' cities: Bordeaux, Warsaw, Burgas
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine metropolises and cities.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Air quality, pollution.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Improve urban mobility, increasing the energy efficiency and reducing carbon emissions.
Short description Concept of the initiative/project	The idea is to create new digital services for citizens to incentivize them to sustainable mobility. By fostering international collaboration between industry and cities, the project seeks to develop affordable, integrated, commercial-scale smart city solutions with a high market potential.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Cities and public bodies, networks and non-governmental organisations, industry and small and medium-sized enterprises.
Technologies used Such as ICT tools, smart phone	The system runs in background in an APP installed in the user's cell phone, collecting the credits. It is left to the Administration the decision of the

apps, tracking devices, etc.	different weights/credits to be assigned to each mobility behaviour, the reward thresholds and the final targets/objectives. The weights/credits assigned for each type of behaviour must, however, be transparent to users and public.

Business model
Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used
	The system is based on a virtual/digital market, that is a sort of marketplace in which, reached one certain level of credits, users can reserve prizes that can be monetary or not. Riding bike, using car-sharing, car-pooling or public transport, citizens receive the credits/points to access, for example, free tickets for the bus, a voucher for shopping in the shops of the city. So, the prizes can be issued both by the Municipal Administration and by the companies.
	Both local companies and public administrations have a role in the reward system:
	• from administrations to citizens, the reward includes:
	    o free tickets/season tickets for mobility services;
	    o free tickets/season tickets for visits to cultural sites;
	• from administrations to companies:
	    o incentives for green procurement;
	    o discounts on the energy bill;
	    o free tickets/season tickets for mobility services;
	    o inclusion of advertising related to products;
	    o insertion of advertising of targets reached by groups;
	• from businesses to citizens:
	    o discounts on products for sale.

Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	• Citizens' engagement, developing new approaches and tools to improve the public's understanding of how smart cities should operate and promoting their active participation. • Social media (e.g. Twitter, LinkedIn). • Collaboration with businesses partners. • EUROCITIES has supported in the production of graphic materials (e.g. extra posters for events, locally used event materials) and setting up of local communication platforms (e.g. Milan local website).
Results Quantitative data results such as number of users, CO_2 saved, etc.	Ongoing project.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	Ongoing project.
Website address	www.sharingcities.eu
Contact reference Used in case further investigations	NATHAN PIERCE Programme Director

might be required	Greater London Authority pmo@sharingcities.eu
	BERNADETT KÖTELES-DEGRENDELE Communication & Replication EUROCITIES bernadett.degrendele@eurocities.eu +32 479 52 04 81

12	SUNSET-Sustainable Social Network services for Transport
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the European Union's Seventh Framework Programme for research, technological development and demonstration.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	02/01/2011 – 02/01/2014
Project area Territory affected by the initiative: administrative level, short description	Living Labs in Enschede (NL), Göteborg (SE) and Leeds (UK).
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine cities.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion, accidents and pollution.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The project's objective is to increase personal mobility and at the same time reduce congestion, increase safety, and protect the environment.
Short description Concept of the initiative/project	SUNSET develops and evaluates a set of services that use social networks and incentives to encourage people to travel more sustainably in urban environments. The project uses a human-centred approach and wants to achieve system goals like reduced congestion, reduced air pollution or improved safety by influencing personal goals in terms of stimulating people to change their individual travelling behaviour. To influence behaviour, it makes use of rewards and incentives, rather than restrictions.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Employees/commuters, cyclists, city visitors.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations,	Local government, individuals, communities (e.g. a company's employees) and 3rd party service providers.

transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Smartphone application named *Tripzoom* featuring challenges and rewards to move smarter. A personalized, multimodal coaching approach to traffic and mobility management, based on rewarding good behaviour.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Challenges (using points without an exchange value): • every user who exhibits certain travel behaviours (e.g. cycling or walking) will be awarded points. This can be related to a competition with other users based on points (akin to on-line games). Challenges (using points with an exchange value): • challenges set by the system or by the 3rd parties. • periodic offers akin to a loyalty card. For instance, once a user reaches 100 points, he or she can redeem the points to a tangible reward.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	• Brochures / posters / flyers. • Coverage in press. • Website for the general public. • Event targeting general public (festival, conference, exhibition, science café).
Results Quantitative data results such as number of users, CO$_2$ saved, etc.	Experiments showed in general: • providing users with information has the potential to change behaviour; • users need time to respond to the challenge set in the experiments; • the level of the rewards does not seem to affect the users too much; • users agree challenges and rewards have the potential to change behaviour; and for behavioural change with a focus on challenges: • challenges to shift the departure times show that the morning peak can be reduced by challenging participants to travel either before or after the peak hour. Although car drivers don't show a large response, the behavioural change is enough to reduce the number of departures in the peak moments by 3%; • shifting users to other travel modes proved successful in switching from public transport to the bike in Gothenburg. It proved to be difficult to motivate car drivers to use public transport; • In terms of using the social networks concepts users are most interested in information useful for themselves and less interested in providing others with their experiences and sharing info.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information is currently available)
Lessons Learned Lessons that the case study offers for a replication that is effective	• In order to capture the base case of travel behaviour, asking participants to install the *Tripzoom* app and use it for two weeks was not the most effective approach.

and sustainable	• Only strongly tailored incentives leveraging on the personal preferences and context of the traveller can effectively influence individual and group-based travel behaviour in a sustainable way. • Apps/services should be more tailored towards specific stakeholders associated target groups seamlessly integrated with lifestyle-compliant look, feel and preferences. • Users seem to be interested in using social networks in transport mainly for receiving information concerning their personal trips rather than providing information to the community.
Website address	www.sunset-project.eu
Contact reference Used in case further investigations might be required	Dr. Marcel Bijlsma Stichting Novay, Enschede, The Netherlands Email: Marcel.Bijlsma@novay.nl Mobile: +31 6 51514135

13	NuRide
Promoters Bodies carrying out and/or funding the initiative/project	Funded by state and local governments, so there is no cost to users.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	Launch date 01-2003
Project area Territory affected by the initiative: administrative level, short description	NuRide is available in select parts of the United States (Chattanooga, Massachusetts, Commute PA, Rhode Island, Connecticut, Richmond VA, Delaware, Rochester MN, Hampton Roads VA, San Antonio TX, Maine, Vermont).
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Not applicable.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	High use of private car.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Mission is to take motorized vehicles off the road.
Short description Concept of the initiative/project	*NuRide* is an American rewards program supported by governments, businesses and sponsors that provides its members rewards for using alternative forms of transportation, such as carpooling, vanpooling, biking, walking, telecommuting, and public transit. The system is simple: user takes greener trips, records them and gets rewards.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Employees/commuters.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Local government, individuals and 3rd party service providers.

Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Smartphone application with a social network.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Points are awarded for the first two trips that user records in his *NuRide* account each day. One-way trips earn 100 points and round trips earn 200 points. User has only to join *NuRide* and to get rewards when he walks, bikes, telecommutes, carpools, vanpools, takes the train, subway, or bus, or works a compressed week. Then he can redeem his points for restaurant coupons, retailer discounts, and tickets to shows & attractions (351 rewards). USD$300 is the amount a typical active *NuRide* member redeems in rewards each year. Rewards vary regionally.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Website.
Results Quantitative data results such as number of users, CO_2 saved, etc.	From launch date, January 2003 (continuously updated on the website): 182,829 members 58,816,742 greener trips $5,879,511 rewards redeemed 24,918,324 shared rides 23,559,511 transit trips 4,585,805 walking trips 3,974,216 biking trips 1,684,466 telecommutes 94,420 compressed work weeks 1,162,994,440 miles not driven 54,387,924 gallons of gas saved $635,403,543 money saved 534,516 tons of emissions prevented 2,947,828,028 calories burned
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	The simplicity in the registration of data and movements by users and the conversion of points in discounts to be used on a wide network of commercial activities keeps the user's stimulus alive.
Website address	www.nuride.com
Contact reference Used in case further investigations might be required	_

14	EMPOWER - Empowering a reduction in use of conventionally fuelled vehicles using Positive Policy Measures
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the European Union's Horizon 2020 research and innovation programme.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	05-01-2015 – 04-30-2018
Project area Territory affected by the initiative: administrative level, short description	Four experimental Living Labs in the cities of Enschede, Gothenburg, Helsinki and Manchester. Seven Take-Up Cities: Antwerp, Bologna, Budapest, Milan, Newcastle, Odense and Reading.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine metropolises and cities.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Pollution and congestion.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Reduce the use of conventionally fuelled vehicles (CFV) in cities by influencing the mobility behaviour of CFV drivers and users towards fundamental change.
Short description Concept of the initiative/project	*EMPOWER* sets out to substantially reduce the use of conventionally fuelled vehicles (CFV) in cities and recognises that a step change in driver behaviour is needed to improve urban traffic flows, increase air quality and reduce CO_2 emissions and oil consumption. Adopting a 'reward rather than punishment' approach, *EMPOWER* explore the use of positive incentives delivered through smartphone technologies and the web to persuade people to make modest shifts in their transport choices.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Car owners.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local	Local government, public transport operators and providers.

authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	*EMPOWER* mobility apps (Zwitch, Commute Greener, SMART).
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Through a set of software tools, travellers are rewarded for changing their behaviour, from using cars to use more sustainable modes of traveling. Incentives, such as points and discounts, for changing behaviour are provided by incentive providers. Lead beneficiaries monitor travel behaviour and develop interventions, such as challenges and competitions, to encourage travellers to change behaviour.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Website, smart-apps, surveys, social media, campaigns to raise awareness.
Results Quantitative data results such as number of users, CO₂ saved, etc.	For example, in Enschede: in order to evaluate the impact of using positive incentives to stimulate cycling, a survey among 1.800 employees in Enschede and vicinity was firstly conducted. Results show that most employees commute by bicycle, but differences in cycling frequency were observed among different employers. In addition, most employees consider cycling as pleasant, healthy, and refreshing. Results show that health is one of the most important reasons for cycling to work. Equally important, the use of smartphone apps to stimulate cycling to work has potential, but employees need to be approached accordingly. Employees who sometimes cycle to work are more receptive to rewarding schemes delivered via smartphone apps. Conversely, non-cyclists are more reluctant to give away the convenience and comfort of their cars.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information is currently available)
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	• Information campaigns are effective to encourage active transport. • Health is the single most important reason for travellers to use active modes, i.e. cycling or walking. • Success of walking promotion programs depend on the quality of the walking infrastructure, on the other hand, bad weather and travel time are the most important barriers for cycling. • Incentive schemes are most effective when they target commuters (with commute distances below approximately 20 kilometres).
Website address	www.empowerproject.eu
Contact reference Used in case further investigations might be required	Institute for Transport Studies (ITS) - University of Leeds Telephone: +44 113 343 9906 Email: info@empowerproject.eu

15	MUV – Mobility Urban Values
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the European Union's Horizon 2020 research and innovation programme.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	06-01-2017 – 05-31-2020
Project area Territory affected by the initiative: administrative level, short description	Amsterdam (NL), Barcelona (ES), Fundao (PT), Ghent (BE), Helsinki (FI), Palermo (IT).
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine metropolises and cities.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Traffic in cities.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Raise citizen awareness on the quality of the urban environment where they live in order to promote a shift towards more sustainable mobility choices.
Short description Concept of the initiative/project	*MUV* promotes a shift towards more sustainable and healthy mobility choices by engaging in a positive way local communities, local businesses, policymakers and Open Data enthusiasts. *MUV* uses gamification, ICT and data science to translate people's needs into new sustainable mobility solutions.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Commuters.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Local authorities, local businesses, policy makers, public transport providers.
Technologies used	Mobile app tracking users' daily routes and assigning points for sustainable

Such as ICT tools, smart phone apps, tracking devices, etc.	behaviours and a network of sensing stations designed by the makers' community. Mobility and environmental data gathered via the mobile app and the monitoring stations will allow policymakers to enhance planning processes and civic hackers to build new services able to improve cities' quality of life in a more effective way.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Urban commuters co-create and then test different game dynamics and their achievements are rewarded by a network of local businesses that benefit from the advertising provided by the MUV platform. MUV represents the large-scale evolution of trafficO2.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Workshops that involve the community of citizens and stakeholders of six different neighbourhoods in six different cities.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Ongoing project.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	Ongoing project.
Website address	www.muv2020.eu
Contact reference Used in case further investigations might be required	info@muv2020.eu Coordinator: PUSH – Piazza Sant'Anna, 3 - 90133 Palermo (+39) 091-6164848

16	Promoting Smart Mobility to Employees - MOBI
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the Intelligent Energy Europe Programme.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	03-08-2013 – 03-07-2016
Project area Territory affected by the initiative: administrative level, short description	6 partners from the Netherlands, Belgium, UK, Bulgaria, Romania and Portugal.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Not applicable.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Emission reduction.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Encourage employers and their employees to use more energy efficient transport modes for their commuter journeys.
Short description Concept of the initiative/project	The *MOBI* project uses the award winning '*From5To4*' commuter challenge tool to encourage travel behaviour change. Its overall aim is to reduce traffic by 20% in the peak hours by encouraging employees to travel more smartly, for example by walking, cycling, public transport, car sharing or working from home.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Employees.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Employers and their employees, cities, public transport and electric vehicle providers.
Technologies used	Implementation of the on-line sustainable mobility game based on the

Such as ICT tools, smart phone apps, tracking devices, etc.	award winning *From5To4* commuter challenge game (*F5T4*) originating from the Netherlands. The aim of the game is to encourage employees to travel to work more smartly as well as having fun whilst competing against their friends and colleagues.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Playing as part of a team, employees can compete with other teams to see how many sustainable trips are made each week. In return, the *F5T4* website gives employees bespoke information about how much energy they have saved and calories burned as well as the opportunity to win prizes. For every workday, one day smarter commuting. In addition to walking, cycling, public transport and car sharing, employees can also be incentivised to use e-modes (bikes, scooters and cars). This serious game approach is suited to organisations that experiences accessibility problems and are keen to help their employees make a positive difference in their local area.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	An estimated 100,000 employees took notice of the game via articles, presentations, events and other promotion materials. Although 70% of organisation expressed an interest in the game when contacted, only about 5% followed through with the game. Of all the employees invited to join the game only about 7% actually participated in the game.
Results Quantitative data results such as number of users, CO_2 saved, etc.	The game succeeded in changing the travel to work behaviour of employees. The share of sustainable modes increased from 58% to 80%. The modal share of private car reduced from 65% to 42%, motorcycle from 5% to 1%, while carpooling increased from 5% to 16%. Public transport increased significantly, from 19% to 28%, walking from 2% to 4% and cycling from 4% to 8%. While over 200 organisations engaged in the game, players registered at least 500 trips in only 39 organisations. Of the around 33,000 employees who were directly invited to play, only 2,127 did engage in the game as registered players, of whom 1,133 provided travel data for more than 80% of the days on which a local competition took place. In response to a questionnaire sent to 250 players over one month after the end of the game show, 39% of the respondents stated that their opinion on cycling had improved, and 43% stated they were more likely to use this mode in the future. 49% of respondents said their opinion on walking had improved and were more likely to use this mode in the future. Carpooling also became more highly regarded, with 38% of the respondents improving their opinion and 28% stating they would use it in the future. On the other hand, the opinion on car got worsened for 18% of the respondents.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Now that the MOBI project is finished, the From5To4 game will continue to be implemented – not only in Europe but also beyond. First pilots were carried out in Germany, Hungary, the US, Colombia and New Zealand.
Lessons Learned Lessons that the case study offers	• The idea of gamification to change behaviour is generally very well received. The innovative character and graphical design is liked;

for a replication that is effective and sustainable	• Try to understand the needs and concerns of the organization and the staff before approaching them. Making their specific benefits clear from the start. Focus on companies with high social responsibility and human resource concerns; • Awards and recognition are essential parts of the motivation to participate and keep playing. The awards need to be clear from the start; people should be able to monitor their progress easily; • Large companies are sometimes already providing transport options to their employees, like company buses or train tickets. This makes it very difficult to convince the organisation as well as the employees (of the need) to change commuter habits.
Website address	www.mobi-project.eu
Contact reference Used in case further investigations might be required	DTV Consultants, Netherlands Name: Mr Johan Jansen E-mail: j.janse@dtvconsultants.nl Tel: +31 76 513 6631 Name: Mr Sander Buningh E-mail: s.buningh@dtvconsultants.nl Tel: +31 (0)76 5136630 Name: Mr Patrick Van Egmond E-mail: p.v.egmond@dtvconsultants.nl Tel: +352 691 040175

17	Bike2Work – Smart choice for commuters
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the Intelligent Energy Europe Programme.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	09-2014 – 09-2017
Project area Territory affected by the initiative: administrative level, short description	12 partners: Austria, Bulgaria, Croatia, Denmark, France, Germany, Italy, Malta, Romania, Slovenia, The Netherlands, United Kingdom.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Not applicable.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion, high CO_2 emissions, air pollution and low levels of physical activity.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The main objective of *Bike2Work* is to achieve a significant modal shift from motorized transport to cycling by introducing behaviour change programs to employers & employees.
Short description Concept of the initiative/project	The *Bike2Work* project actively promotes a significant energy-efficient modal shift from motorized transport to cycling. To achieve this goal, it encourages employers to introduce behavioural change programs that shift commuters' habits to take up more sustainable forms of transport. Besides leading to extensive energy savings and CO_2 reductions, *Bike2Work* has huge potential to improve employees' personal health and reduce money spent on transport.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Employers, companies, company representatives, business associations.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations,	• National, regional, local governments & administrations. • Commuters, consumer organisations, employee associations, media. • Campaign organisers & champions (NGOs, social businesses) • Health stakeholders.

transport operators, schools, etc.	• Public transport sector.
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Online real-time display of statistics encourages competition, boosts motivation (especially by keeping personal track records) and helps identify winners and give away prices. Some campaigns developed their own online platforms but others used third party applications were customised to their specific needs. • www.lovetoride.net This application has been used by 14.000 companies worldwide, including 3 *Bike2Work* partners. • www.cyclingchallenge.eu An app that helps to identify the best cycling city in the EU. User has to register with his city and let the app count cycling kilometres helping his city to win the Cycling Challenge! • ivelo.ro An app delivered by *Bike2Work* campaign in Romania. It tracks statistics, navigates and searches for optimal routes, has a list of 'points of interests' set by users, informs about route incidents and allows to track your cyclist friends on a real-time map! • www.radeltzurarbeit.at Easy-to-use application providing all relevant statistics: user registers, cycles and tracks kilometres, measures calories burned, CO_2 emissions saved and can win some prizes for his team!
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Incentives: • Mileage allowance (reimbursement for every km ridden). • Take part in government schemes – Tax breaks & other national incentives. • Prizes and awards.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Promotional campaigns aimed at a known audience: • employer, employer group; • department; • city; • country; • SMEs as a special case. Dedicated web portal, apps, devices.
Results Quantitative data results such as number of users, CO_2 saved, etc.	National *Bike2Work* campaigns: • countries with an already high share of cyclists i.e. Denmark, Germany were able to gain 10-11% new permanent cyclists; • countries with a medium share of bicycle traffic like Austria managed 13% increase; • UK research demonstrated that there is a 14% shift from car to bicycles; • Italy - Bike Challenge 2016: 202 companies (divided into six categories according to the number of employees), with over 3 thousand participants. 36 winning companies. Prizes: 40 subscriptions to the To-Bike made available by BicinCittà srl, 200 capes for cyclists made available by Regione Piemonte, 200 mobile

	phone holders made available by FIAB; the first 3 companies by category also received an overnight stay at a hotel in the Albergabici circuit (FIAB). In addition, racks donated by the City of Turin to the two winning schools. • on-going campaigns in project consortium partner countries currently have a baseline of about 326,500 participants 81,000 new cyclists created at a cost of €222 each. 8,870 tons of fuel savings and 52,299 tons CO_2 savings during the project.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information is currently available).
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	• Seek sponsors for prizes; remember that individual prices motivate more than team prices. • Build strong support from local and national partners, both corporate and public. • Organise inclusive events like picnics, bike parade, free repair of bicycles & kick-off events. • Work on good media coverage and clear arguments tailored to each target audience.
Website address	www.bike2work-project.eu
Contact reference Used in case further investigations might be required	Kevin Mayne ECF Director of Development Contact: k.mayne@ecf.com Dr. Randy Rzewnicki Project Manager Contact: randy@ecf.com Laetitia Lemmens Project Officer Contact: l.lemmens@ecf.com

18	STARS - Sustainable Travel Recognition and Accreditation for Schools
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the Intelligent Energy Europe Programme.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	08-03-2013 – 08-03-2016
Project area Territory affected by the initiative: administrative level, short description	London, Edinburgh, Krakow, Budapest, Madrid, Milan, Brussels, Bielefeld, Province of Noord Brabant.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine metropolises and cities.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion and emissions, safety and accessibility of routes to and from schools.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Achieve a modal shift away from the car to cycling and other active modes for the journey to and from school encouraging children and their parents and families.
Short description Concept of the initiative/project	The project wants to promote the use of sustainable modes of transport to school, to foster a positive attitude towards active travel in children, and at the same time encourage parents and families to reconsider how they travel. All of the activities can be adopted according to the city's or schools goals, target groups and budgets available.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Primary and secondary schools, students and their parents.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Local administrations, schools, students' families, bicycling associations.
Technologies used	A website was set up where students could track their cycle trips and

Such as ICT tools, smart phone apps, tracking devices, etc.	compete with their classmates, as well as against other schools in their city and across Europe.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	• The *STARS* Accreditation programme which allows primary schools to work independently to deliver increased cycling levels. The accreditation programme focuses on empowering primary schools (pupils, teachers and parents) to engage in cycling and is based on the principle of recognition. Schools work their way up an awards scale from a bronze to a gold star accreditation, based on how much they are doing to promote cycling and the mode shift they achieve. • The Peer-to-Peer engagement programme targets secondary school students aged between 11-19 years. The *STARS* peer-to-peer engagement programme aims to empower groups of students and give them the tools and ownership to develop, implement and monitor behavioural projects for peers in their schools, with a focus on increasing cycling and other sustainable modes. The principle of the programme is that students are more likely to persuade their peers using their own ideas and activities. Each *STARS* school, in the peer-to-peer programme, recruited a group of students to act as Youth Travel Ambassadors to encourage their classmates to actively participate in the Cycle Challenge and to design and carry out other activities to promote cycling and active travel.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	School recruitment and engagement, local workshops with teachers/school staff, local ceremonies and events, surveys.
Results Quantitative data results such as number of users, CO₂ saved, etc.	• The *STARS* Accreditation programme was delivered by all partner cities (minus Brussels). In total 188 primary schools were recruited across the project lifetime. • The *STARS* Peer-to-Peer programme was delivered by all partner cities with the exception of partner city Noord-Brabant. In total 84 schools set up Youth Travel Ambassador Schemes. More than 51,000 students have been involved in the campaigns. • Primary Schools: Over the course of the project a 5.7% modal shift from motorised modes to active modes of transport has been recorded. • Secondary Schools: over the course of the project an 8.8% modal shift from motorised modes to active modes of transport has been recorded. • 894 ton CO_2 saved by all *STARS* schools in two years.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information is currently available).
Lessons Learned	• The positive effect of rewards generating the desired change in

Lessons that the case study offers for a replication that is effective and sustainable	behaviour has been psychologically proven. Incentives and rewards do not need to be high in cost; • The added element of a competition can lead to an increase in motivation and achievement; • Activities are a good opportunity to gather data and information from cyclists; • Create a network of teachers and key stakeholders promoting cycling and other sustainable modes of transport to school; • Ensuring the project was visible was essential for engagement; • Communication with parents is a key factor, especially in primary schools, where they are more likely to choose how children travel to and from school. In order to ensure parents were engaged, activities were designed to bring parents, pupils and the school together.
Website address	www.starseurope.org
Contact reference Used in case further investigations might be required	London Councils, United Kingdom Name: Andrew Luck E-mail: Andrew.luck@londoncouncils.gov.uk Tel: 0207 934 9646

19	STREETLIFE
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the European Union's Seventh Framework Programme for research, technological development and demonstration (Specific Targeted Research Project - STREP).
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	10-01-2013 – 09-30-2016
Project area Territory affected by the initiative: administrative level, short description	Berlin (Germany), Tampere (Finland) and Rovereto (Italy).
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Cities involved can be compared to Alpine metropolises and cities.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Carbon emissions in cities.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Reduce the number of car trips by: • informing commuters about the existing transport alternatives and their real value (in terms of time, cost, carbon footprint); • enhancing public transport to meet the needs of the citizens and of the city; • promoting the usage of sustainable transports through (virtual or real) incentives.
Short description Concept of the initiative/project	*STREETLIFE* developed multimodal mobility information systems for urban areas. Personalised information on their smartphone will motivate people to select sustainable transport means for their travel. Traffic management centres and city administrations will benefit from sophisticated *STREETLIFE* solutions for monitoring and control of urban traffic.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Traffic management centres and city administrations.

Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Citizens have been equipped with mobile apps that provide multimodal personalised routing. Real-time data will be integrated and all kinds of available transportation modes will be considered. Depending on the individual pilot site, bike sharing, carpooling and Park&Ride services will also be offered to the people.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	• In the Berlin pilot trial, information has been made available to the people via the *STREETLIFE* Berlin App. In the "*Bike Rider*" game, users were able to collect "CO_2-reduction points" which encourage them to choose green transport modes. • The Rovereto pilot has organised two experimentation campaigns. The first experiment was based on the "*ViaggiaRovereto Play&Go*" app, which attributes "green" points to each sustainable trip made by users. The "*iPosto*" carpooling app has been developed for the second experiment, which gives users the possibility to offer and search lifts in their usual journeys or in case of random trips during the day. • Passengers of public transport took part in the Tampere pilot's large-scale experiment. In the public game, called "*Zone Hunter*", the users collected points in each postal zone, which they have not visited before. They could also find hidden trophies in certain areas.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	• Public information on fairs. • Distribution of dissemination material at fairs, bike parking areas, shops, cafés, etc. • Distribution of information via mailings towards various local and national mobility stakeholders and *STREETLIFE* Advisory Board. • Information about App available at Google Play Store on the Facebook, Twitter, LinkedIn account of Partner. • News on website.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Berlin: • Shift from Car (-1%) to Bicycle (+1.2%); • More bicycle trips (+9%); fewer car trips (-4%); • Bicycle mileage +10%; car mileage -5%; • Savings of 3.9% of daily emissions for targeted groups of users. Tampere: • Gamification increased trip length; • Shift from car to public transport; • 190,000 km could be not travelled by car each day; • savings of 7.4% of daily emissions (best case scenario). Rovereto: • 2,400 km saved thanks to Park&Ride solutions for big event; • 2.4% of km driven saved - especially for trips within urban Rovereto area; • ~7,000 km can be saved thanks to *STREETLIFE* car-pooling App; • Savings of 35% of emissions during a big event; • Car-pooling can save 1.5% of daily emissions for medium and long-distance trips.

Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated with direct contact, no information is currently available).
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	• The integration of gamification into individual mobility planning in combination with appropriate incentives, both virtual and real, can contribute to reach a more balanced urban transportation system with a higher level of sustainability. • The real challenge behind gamification is not getting new users when the game starts, but finding a system for rewarding virtuous behaviour in the long term and keeping these users involved and engaged over time. • ICT solutions have the potential to change individual mobility habits and its impact on urban mobility. • In order to ensure long term citizen acceptance and participation, well-commissioned packages of measures are needed. • The need to establish a solid and continuous relationship among public and private sector, since the existing difficulties that need an agreement among the two different actors are many, and on different levels. • It is essential to define the target of people that have to be reached with marketing campaigns.
Website address	www.streetlife-project.eu
Contact reference Used in case further investigations might be required	Project Coordinator: Silke Cuno – Fraunhofer FOKUS silke.cuno@fokus.fraunhofer.de Scientific Coordinator: Marco Pistore – Fondazione Bruno Kessler pistore@fbk.eu

90

20	Sopotniki Institute - Free transport for elders
Promoters Bodies carrying out and/or funding the initiative/project	Sopotniki (meaning: Cotravellers) Institute (non-profit organisation)
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	2014 - ongoing
Project area Territory affected by the initiative: administrative level and short description	Kozina, Divača, Sežana, Sevnica, Brežice, Postojna, Krško and Kočevje communities.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	C. Stable or growing rural area
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Mobility of elders. Elderly that live in rural areas often do not poses means for their mobility (cars) or cannot organise trip with their family and public transport is often not available to travel to distant city centres where most of health and other services are located.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	To help isolated or lonely elderly from rural areas integrate into active social life and to promote intergenerational cooperation.
Short description Concept of the initiative/project	Elderly citizens in need of transport contact the Institute by telephone or email one week prior. The Institute finds available volunteer and provides the information regarding start and end of the trip. Volunteer picks up the passengers on their home. If elderly user of this service decides to award money, proper paperwork for donations must be filled in.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Elderly in rural areas and volunteers that can provide service.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Private initiative, local authorities, communities.

91

Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Website, e-mail, telephone calls.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Sopotniki Institute is supported by donations from their users and also others. They actively seek other means of financing in cooperation with community authorities.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Website, Facebook, promotional events (mayor as volunteer, European Mobility Week, …)
Results Quantitative data results such as number of users, CO$_2$ saved, etc.	Expanding cooperation with other communities and municipalities.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	80% of trips are for doctor appointments. Approach that is easy to replicate to other regions. More cooperation and financial support is needed from local communities, as the problem that they are solving, support of elderly citizens, is in scope of other public agents. Long term plans include European Union financing sources.
Website address	https://www.sopotniki.org/home.html
Contact reference Used in case further investigations might be required	info@sopotniki.org +386 31 831 030 https://www.facebook.com/Sopotniki/

21	Občina Ljutomer – MOVECIT project
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the Interreg Central Europe Programme.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	June 2016 – ongoing (36 months).
Project area Territory affected by the initiative: administrative level and short description	City of Ljutomer community.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	C. Stable or growing rural areas
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Daily congestions and lack of parking spaces in the small city centre.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Wholesome traffic planning in a small city. Change mobility behaviour of employees of Ljutomer municipality as an example in order to reduce private cars usage with substitution to e-bikes.
Short description Concept of the initiative/project	Comprehensive citizens' and stakeholders' involvement in a small city. Citizens and relevant stakeholders were contacted in order to plan and execute an integrated transport strategy that corresponds to their needs. Concrete measures were implemented in order to facilitate a shift from traditional transport planning and measures. They engaged employees of City of Ljutomer in changing their travel habits with a designated bike storage, 3 electric bikes for employees to use for commuting and short work-related errands, and carpooling. They include: *MOVECIT* project activities; traffic-calmed neighbourhood Juršovka which physically prevents cars from driving too fast and creates a shared traffic space.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens and employees in local community administration - frequent users of small city road and city centre infrastructure.
Stakeholders involved	Bus transport operator, school bus operator, road safety council, local

Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	environmental NGO, police, local tourist organization, community council and administration.
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	E-bikes.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Financing from Interreg Central Europe MOVECIT project and city provided budget.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Facebook MOVECIT (https://www.facebook.com/movecit/), community and regional news websites, press conferences
Results Quantitative data results such as number of users, CO_2 saved, etc.	No more congestion. Public trust in proposed solution has become high.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	Lack of involvement and disagreement were encountered with this practice, but were mostly cleared up after the new traffic regime proved to be efficient and friendly. Transferable to other regions, especially those similar in size.
Website address	http://www.obcinaljutomer.si/ https://www.facebook.com/movecit/
Contact reference Used in case further investigations might be required	email: obcina.ljutomer@ljutomer.si more contacts: http://www.obcinaljutomer.si/stran/ob-ina-ljutomer/2081

22	Checkliste Wohnbau	
Promoters Bodies carrying out and/or funding the initiative/project	City of Salzburg.	
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	2012-2013.	
Project area Territory affected by the initiative: administrative level and short description	City of Salzburg.	
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	B. Alpine cities	
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Road congestion; air pollutant emissions; dependence on the private car due to long daily distances.	
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The main aim of the project was to support sustainable decisions in terms of housing location based on the assessment of location.	
Short description Concept of the initiative/project	Indicator-based tool for assessing locations for housing interactively. Sustainable locations for housing reduce daily mobility and prevent long distances to daily destinations. The location of residence has an impact on the individual mobility behaviour. Therefore, the identification of appropriate locations for housing projects is essential in the course of supporting sustainable mobility behaviour (attractive potential residential locations for of walking, cycling and public transport are upgraded).	
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Planning authorities, administrative authorities, residents, housing industry.	
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations,	Local authorities.	

95

sponsors, city associations, transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Web-application.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Funded by the city of Salzburg.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Developed for and together with the target user.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Web-application for assessing locations and supporting sustainable decisions concerning location planning of housing, provision of objective and comparable information.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Project ended in 2013.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	Have strong partnership and continuous communication with stakeholders, provision of objective and transparent information support decision-making and its communication.
Website address	https://ispace.researchstudio.at/checkliste
Contact reference Used in case further investigations might be required	iSPACE

23	Samo – Policy for the municipality of Werfenweng – STARTER project
Promoters Bodies carrying out and/or funding the initiative/project	Co-funded by the Intelligent Energy Europe Programme of the European Union.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	2012-2014 (STARTER Project). Samo (2012- ongoing).
Project area Territory affected by the initiative: administrative level and short description	STARTER: 5 sites in the EU. Samo: municipality of Werfenweng (Pongau, AUT) in the AS.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	E. Tourism area
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Reducing car traffic, reducing environmental impact (CO_2 emissions), rising demand for transport and mobility services in touristic areas, esp. during high season; improve effectiveness and efficiency of local transport.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	STARTER: sustainable transport for areas with tourism through energy reduction. Samo - Gentle mobility for citizens/tourists of Werfenweng: Special offers for people who sign on to use environmental friendly mobility in order to reduce emissions and save the quality of life within the municipality.
Short description Concept of the initiative/project	The STARTER project aimed to promote energy efficient and sustainable mobility through the cooperation of local parties. The concept of 'Local Travel Plan Networks (LTPN)' was applied in 5 sites (Noordwijk, Kos, Werfenweng, Fuerteventura and Lake Balaton region) to engage stakeholders in the adoption of a common strategy to shift tourists from private cars to more sustainable mobility options. The implementation of sustainable mobility options provided residents and tourists with alternative solutions for transport and increased their awareness regarding energy and environmental impacts.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Residents, tourists.
Stakeholders involved Entities involved in the implementation of the	Public authorities, mobility management centre, hotels and other holiday accommodations.

initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Samo card, e-vehicle fleet.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Samo: Content of agreement: several special offers for locals willing to change their mobility behaviour. Different packages: e.g. leave your car at home for one day/week and get 10x e-bike rental, 30 tickets for municipal bus, 5 tickets for local shuttle and 5x tickets for local night shuttle for free.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Local newspaper, wirSaMo vehicles parking in the centre of the municipality -> part of the townscape, cooperation with local hotels (-> websites of hotels).
Results Quantitative data results such as number of users, CO_2 saved, etc.	The STARTER demonstrations established their LTPNs at the very beginning of the project. In all sites, members of the LTPNs included representatives from the local authorities, tourism and transport sectors. The LTPN members were actively involved in the formulation of the Local Travel Plans, in terms of identifying the local mobility problems and the possible solutions to those problems (bottom-up approach). The participants of the LTPNs have their willingness to continue the network in their region after the end of the project and have already identified critical points that should be addressed for successfully doing so. Three soft mobility measures were implemented in each site, covering a variety of types of activities, namely: on-line information; policy and promotion measures; fleet-related measures and promotion of public transport. All the measures have a clear target towards the modal shift to sustainable modes of transport (bicycles, e-vehicles, public transport and walking), thus towards the reduction of car pollutant emissions and the achievement of energy savings. The STARTER evaluation showed that soft measures could influence significantly the tourists' travel behaviour towards sustainable transport modes. Energy savings and CO_2 emissions reduction, as a product of this modal shift, are significant for modal shifts towards public transport (especially in large regions were the tourists' vehicle kilometres sum up to large figures) and less significant, but equally important, for bicycling and walking (as, by default, bicycling and walking cannot cover great distances). The tourists in all pilot sites that were influenced by the implemented measures have saved approximately 0.4 tons of energy (fossil fuel savings) and have reduced CO_2 emissions by 1.1 tons CO_2e. In percentages of savings - among the sample of tourists - this is interpreted as 11% for Kos, 8% for Noordwijk, 16% for Balaton, 0.5% for

	Fuerteventura and 1.2% for Werfenweng. These differences are the result of the measures chosen in each of the sites and the local context.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Project ended in 2014, Samo policy is still going on, plan to expand policy to neighbouring municipalities.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	The LTPNs provided a discussion platform for local stakeholders and enabled their participation in the decision-making and action- taking process. Nonetheless, it was not "problem-free." Competition between and lack of ambition of the network members, lack of personal commitment to attend the meetings and hesitation/refusal when investments are concerned were some of the issues that arose from the STARTER experience. It became clear that sometimes it is difficult to persuade local stakeholders to join the network. They require the identification of a concrete need in order to create cooperation: I) problem(s) need to be experienced, or II) the entrepreneurs must feel threatened by external developments, or III) the entrepreneurs need to be curious or attach value to the status that the network provides. Despite the significance of the LTPN participation in the measures' implementation, this is not always something that should be taken for granted, since the local stakeholders are not always willing to participate and/or invest. Identifying and highlighting the win-in situation could lead to excellent examples of cooperation, such as those displayed by Noordwijk (combination voucher) and Fuerteventura (promotion of the new bicycle route). Touristic areas face seasonal traffic peaks and this should be taken into account when planning and implementing mobility measures that address tourists.
Website address	https://ec.europa.eu/energy/intelligent/projects/en/projects/starter#results
Contact reference Used in case further investigations might be required	_

24	Orangener Punkt (Orange Point)
Promoters Bodies carrying out and/or funding the initiative/project	Municipality of Heuweiler, Germany.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	09/01/2018 - ongoing
Project area Territory affected by the initiative: administrative level and short description	Small municipality in the region around Freiburg (Germany); local governance level.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	C. stable or growing rural areas
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Lack of mobility options for people with restricted access to mobility.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	• Creating of mobility options • Easy access to the mobility offer, also for the elderly • Offering shared rides in the region • Reduction of motorised private transport by increasing the filling rate of cars • Positive impact on the environment
Short description Concept of the initiative/project	Ridesharing on a voluntary basis. At several geographical points in the municipality, adult citizens can be offered a lift to municipalities close by (Gundelfingen, Denzlingen and Glottertal). All legal aspects are worked out, there is a voluntary list of persons offering and demanding the service. The project is now part of the online platform *Flinc.org*. All communication between driver and passenger takes place via this reliable website. E-Car-Sharing in the future: Installation of at least one electric car in Cooperation with a regional partner, hopefully together with the municipality. Central location with charging station. The electric car could also serve as the "municipality's car" or a "citizen bus".
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens with or without private cars, elderly people, persons without a driver's license.

Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	• Private initiative • Citizens of Heuweiler • Support from the local administration (and local authority)
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Smart phone app WhatsApp, internet platform flinc.org.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Private financing so far.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Website of municipality of Heuweiler, Website of involved citizens, local newspaper, exhibition booths at events.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Number of users so far: - 74 potential passengers (with passenger ID); - 52 potential drivers (with driver ID). Of these numbers: - 58 are part of a google group; - 42 persons use WhatsApp to communicate; - 10 persons use flinc.org. Positive effects are saved rides, but no quantitative survey has been carried out so far. Impacts on the environment cannot be quantified so far.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	A larger communication campaign and a better grid connection would be useful.
Website address	http://buergerrunde.heuweiler.net/ag-buergermobil/
Contact reference Used in case further investigations might be required	Burkhard Werner, Christian Ott, Jochen Ruf Heuweiler; e-Mail: orangenerpunkt@heuweiler.de

25	Campaign "Save your car!"
Promoters Bodies carrying out and/or funding the initiative/project	City of Mannheim in cooperation with climate agency Mannheim.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	04/01/2017 – 06/30/2017
Project area Territory affected by the initiative: administrative level and short description	City of Mannheim.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	A. Alpine metropolises (ca. 300.000 inhabitants)
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Several problems: High level of air pollution, road congestion because of high number of private cars (on average 1/household), noise pollution.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Showing households that having a private car is not necessary and that everything in the city can be done using car sharing, bike sharing and public transport.
Short description Concept of the initiative/project	25 households in Mannheim were asked to not use their private cars for 3 months. In return they were able to use the local public transport as well as a car sharing and bike sharing systems free of charge. Each household received a cargo bike for a week to test it. The campaign aimed at showing households that a private car is no longer the only option in mobility. A behavioural change towards multimodal, sustainable transport modes was aimed for.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Households of different sizes.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations,	Local authorities, agency for climate protection, transport operators (local public transport), car sharing service, bike sharing service, cargo-bike sharing service, radio station.

transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Smart phone app of the city's public transport system.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Exchange model: offering alternative transport model free of charge, introducing sharing systems while taking away financial barriers and overcoming inertia to try new mobility options such as cargo-bikes by providing them to households.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Radio, YouTube, press articles, Twitter (not regularly).
Results Quantitative data results such as number of users, CO_2 saved, etc.	Around 7.4 tons of CO_2 were saved; ca. 50 people participated; 5 cars were deregistered after the project. Several households stated that they would think about getting rid of their car permanently or using it less frequently. Due to the positive feedback to the campaign, there will be a follow-up project where private car owners get a free annual ticket for local public transport, if they deregister their car for a year.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Implemented as planned.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	Approach useful to demonstrate benefits of alternative, sustainable transport modes.
Website address	https://www.klima-ma.de/spardirdeinauto.html
Contact reference Used in case further investigations might be required	marianne.crevon@klima-ma.de

26	ClimateFair
Promoters Bodies carrying out and/or funding the initiative/project	• Klimaschutz+ Stiftung e.V. • Federal Ministry of Education and Research • GLS Treuhand • Climate Alliance
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	2017 - ongoing
Project area Territory affected by the initiative: administrative level and short description	City of Walldorf, further municipalities expected.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	C. growing rural areas
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Socio-ecological follow-up costs include financial, health and environmental costs that arise from the economic activities of individual actors, but are left to the general public instead of being borne by them.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	• Planning climate responsibly • Assuming follow-up costs • Protecting the climate • Supporting local projects
Short description Concept of the initiative/project	Mobility leads to ecological consequential costs - depending on the choice of means of transport in different amounts. To be fair, these costs should be paid by the polluters and not by the general public. Within the framework of the Climate Fair project, this is easily possible by validating the emissions and follow-up costs caused by mobility using a calculator. The users can decide on their own responsibility how much of these costs they want to transfer to a local citizens fund administered by the Klimaschutz+ Stiftung by means of a sub-foundation. At the same time, they become co-determining partners in the fund.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Administrative staff, Citizens, associations, small companies.
Stakeholders involved Entities involved in the	Municipalities, associations, NGOs.

implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Climate Fair Calculator (based on Tremod). Tool: https://climatefair.de/cf/about
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	The objective of Climate Fair Calculator is to achieve this: • to create transparency with regard to the socio-ecological consequential costs, in particular mobility. Essentially, these costs consist of the proportion of greenhouse gas-related and non-greenhouse gas-related external costs; • at the same time, the urgently needed introduction of a national incentive tax on greenhouse gas emissions ("CO_2 tax") from fossil fuels (coal, oil and natural gas) should be pointed out and supported. In particular, about the willingness to adopt these already today by means of Climate Fair and thus also to set a political signal for the demand for the introduction of a CO_2 tax which is binding for all.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Side effect of the systematic monitoring of all urban driving performance and fuel consumption: • Creation of a controlling instrument to compare the consumption of municipal vehicles over a period of several years; • Identifying high consumption vehicles; • Development of alternatives for the use and procurement of vehicles; • Saving CO_2 emissions and fuel costs.
Results Quantitative data results such as number of users, CO_2 saved, etc.	23 municipal citizen funds for climate protection and sustainable development have already been launched. 3,185 citizens, municipalities and companies already participate in the fund. 198.190€ have been contributed so far for the energy system transformation on site and sustainability projects worldwide.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	_
Website address	https://climatefair.de/cf/home
Contact reference Used in case further investigations might be required	City of Walldorf: Christian Horny - Christian.Horny@walldorf.de

27	Gscheid mobil – New citizens' mobility packet in Munich
Promoters Bodies carrying out and/or funding the initiative/project	Project is funded by the City of Munich and its public transport operator, the MVG.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	Pilot Project: Started in the year of 2016. Project activities still on-going.
Project area Territory affected by the initiative: administrative level, short description	The City of Munich. More specifically, the roughly 90,000 people who move into the City of Munich each year.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	A. Alpine metropolises
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Increasing the mode share of PT at the cost of individual cars in the city of Munich.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The main objective of the project is to inform new residents about the very good PT offer which already exists in the city. The end-goal is to encourage them to try out the PT options and eventually switch completely to sustainable modes of transport. The project is based on the idea that people undergoing a major change in life (in this case: moving to a new city) are more open to changing their behaviour. This project tries to capitalize on this opportunity to bring about a long-term mobility behaviour change in the people.
Short description Concept of the initiative/project	The first step involves the sending of a general information booklet about the city and a request form for information about sustainable transport mode offers to the new residents of the city (along with a return envelope and instructions in various languages). In case of no response, the people are contacted either by phone or my letter. In case of a request, the information packet is sent to the people along with trial-PT tickets or even trial-PT subscriptions. In certain cases, people are contacted on a later date and asked a couple of questions for the sake of evaluation of the efforts.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Newly moved-in residents of the city of Munich.
Stakeholders involved Entities involved in the implementation of the	Local government and public transport operator.

initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	This project is not technology intensive. The informing and surveying is done through letters and telephones.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	The project is funded by the city and the PT operator and it is not aimed at making profits but rather at bringing about an overall mobility behaviour change. Therefore, there is no particular business model needed for the financial sustainability of this project.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	The people are made aware of this project through the dedicated website where all the efforts and the key findings are published for everyone to see. Other online platforms such as the city of Munich website and YouTube videos are used for dissemination purposes.
Results Quantitative data results such as number of users, CO_2 saved, etc.	The results from the pilot project back in 2005/2006 are the following: • PT mode share among the experiment group was almost 8% higher than the control group; • PT (MIV) mode share among the experiment group was 3.3% lower than the control group. Other overall impacts: • Reduction in Private car km/year = 4.7 Million km/year; • Reduction in CO_2 emissions = 700 Tons; • Savings of overall costs = 940,000€.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	The results from the project show that when people are given the right information and incentives at the right time, they are more willing to change their mobility behaviour.
Website address	https://www.gscheid-mobil.dehttps://www.mvg.de/ueber/mvg-projekte/gscheid-mobil.html https://www.omniphon.de/case-studies/mobilitatskampagne-gscheid-mobil/ https://www.muenchen.de/rathaus/Stadtverwaltung/Kreisverwaltungsreferat/ Verkehr/Mobilitaetsberatung/Neubuerger.htmlfwef
Contact reference Used in case further investigations might be required	Kilian Kärgel, MVG E-Mail: kaergel.kilian@swm.de Johanna Balthesen, Landeshauptstadt München, KVR E-Mail: johanna.balthesen@muenchen.de

28	Bike kilometric allowance for commuters
Promoters Bodies carrying out and/or funding the initiative/project	Department of Isère.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	July 2015 - ongoing
Project area Territory affected by the initiative: administrative level and short description	Geographic area covering all the employees home and Department several offices.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Various: all territories are covered, since the Department perimeter includes a metropolis, a few alpine cities, mountain areas, rural areas, touristic areas.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Rationalization and concentration of the different Department offices, leading to a reinforcement of urban sites and therefore, a lack of parking spots.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Classic objectives: incentivize employees to abandon their car and use a bike, solve the problem of parking lots over-occupation, contribute to air quality improvement, congestion reduction, and healthier employees.
Short description Concept of the initiative/project	Every employee who commutes every day to work by bike is entitled to get a financial allowance calculated on the distance covered between home and work, by a kilometric rate (0,20 to 0,25 € per km).
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Department employees.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	None.
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	None. Paper forms to fill up every 3 months.

Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	No business model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Inside journal, intranet, word of mouth.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Results not documented yet.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	A money reward is a very effective way to incentivize modal shift. According to its level, it catches either the easiest fringe of commuters (ready in their mind, needing just a small nudge to switch to another mean of transport), or a wider range of people (not convinced by modal shift, but interested in the reward).
Website address	_
Contact reference Used in case further investigations might be required	Yvan Martinod +33(0)4 76 00 31 49 yvan.martinod@isere.fr

29	Challenge "CHANGER D'APPROCHE"
Promoters Bodies carrying out and/or funding the initiative/project	Mountain Wilderness (association) www.mountainwilderness.fr
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	Every year since ten years.
Project area Territory affected by the initiative: administrative level and short description	Alpine space, mainly in France but also in Europe.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	All types: generally from an Alpine cities to rural areas and touristic areas in mountains.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Atmospheric pollution and seasonal mass tourism flows. The idea is to be coherent by protecting mountains in which we like to hike, to ski, to climb…
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	- Change behaviours regarding the way people goes in mountains by using public transports (train, buses…) - Give ideas and good tricks to discover the territories - Make the trip by public transport the starting point of the adventure - Preserve mountains from car pollution and traffic
Short description Concept of the initiative/project	Every year, Mountain Wilderness organize a challenge to encourage people to declare themselves if they have done a trip in mountains without using their car. A jury selects the best testimony (original, repeatable…) and organize an awards ceremony in Grenoble city hall. The association edit also guides with ideas of activities in different massifs describing the access by public transport. The last guide produced is focused on the Parc of Vercors.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Citizens used to go in mountain for leisure (walking, climbing, skiing...).
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations,	Local authorities, associations, national or regional Parks, tourism professionals.

sponsors, city associations, transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Website for communication and to collect contributions.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	Associative process, permanents and volunteers involved for the organisation. Sponsors involved for prices and rewards.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Communication via website, flyers, partnership with online mountaineering communities (www.camptocamp.org), social networks.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Large database of 15 000 itineraries in mountain accessible without car.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing, more and more participants every years.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	• Going in mountain without car is possible • The approach is coherent with nature conservation
Website address	www.changerdapproche.org
Contact reference Used in case further investigations might be required	Carmen Grasmick: cg@mountainwilderness.fr

5.2   Annex 2 – The BPs forms about pricing systems

01	London's congestion charge
Promoters Bodies carrying out and/or funding the initiative/project	The Mayor, with the synergy of Transport for London.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	London's congestion charge regime started in 2003.
Project area Territory affected by the initiative: administrative level and short description	London Inner Ring Road.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion and pollution.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Make vehicular traffic more fluid, obtain funds for investments to make the public transport network more efficient and improve the quality of life in central London.
Short description Concept of the initiative/project	The Congestion Charge is an £11.50 daily charge for driving a vehicle within the charging zone between 07:00 and 18:00, Monday to Friday. It is not charged on weekends, public holidays or between Christmas Day and New Year's Day (inclusive). Many vehicles (taxis, buses, commercial vehicles) do not pay the charge at all, while local residents receive a 90% discount.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	People who drive or cross the Central zone of London.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations,	_

	transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	_
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	No business model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	_
Results Quantitative data results such as number of users, CO$_2$ saved, etc.	The reduction in vehicles subject to the full congestion charge was about 20% although it was accompanied by an increase in trips not subject to the charge (taxis and private hire vehicles). A significant shift from cars to transit (and to a lesser extent, biking and walking) has also been achieved, at least in part because congestion revenues were used to support improved transit. In particular, trips by transit increased from 29% of the 2002 total to 37% in 2015 (most of this by bus) while trips in cars fell from 46% to 36% over the same period. The share of bike trips doubled from 1% to 2%.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	London demonstrated that significant shifts in travel patterns can be achieved in a relatively short amount of time. The London Assembly (local government) is proposing a shift from its congestion charge to full road pricing.
Website address	https://tfl.gov.uk/modes/driving/congestion-charge
Contact reference Used in case further investigations might be required	_

02	Stockholm's charged area
Promoters Bodies carrying out and/or funding the initiative/project	Stockholm Municipality, Road Administration, Swedish government.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	The system has been in place since 2007.
Project area Territory affected by the initiative: administrative level and short description	Stockholm city centre.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Road traffic in Central Stockholm.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Reduce congestion, improve the environment and help to fund infrastructure investments.
Short description Concept of the initiative/project	Vehicles are charged in both directions when crossing the cordon, the system is not solely aimed at car trips to the central city. Rates vary by time of day with no charge on weekends or off-peak times (6:30 pm to 6:30 am weekdays). Costs for passing the cordon during peak times range from 1-2€ to a maximum of 6€ per day. Some classes of vehicles are exempt from the congestion tax. Cameras, at all entrances to the area, capture license plate numbers and drivers are sent a monthly bill. Part of the political deal for the cordon was the creation of a bypass highway that is not subject to the charges.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Drivers who enter in Stockholm central area.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local	_

authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	The vehicles passing the control points are identified through automatic number plate recognition. The equipment, consisting of cameras, laser detectors, antennas, and information signs are mounted on a set of gantries at each control point. There are no payment booths at the control points, they are all unmanned and payment is done by other means later.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	No business model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	Local consultative referendums regarding whether to permanently implement the congestion tax were held in Stockholm Municipality and several other municipalities in Stockholm County on 17 September 2006.
Results Quantitative data results such as number of users, CO_2 saved, etc.	Stockholm witnessed a drop in traffic volumes across the cordon of about 25%. Of this, about 10 percentage points represented work trips that switched to transit and another 6 percentage points were changes to discretionary trips—those that switched destination, reduced frequency or were subject to combining trips that would previously have been separate. Commercial vehicle drivers also modified their routes and planning so as to cross the cordon less often. Many of the affected drivers are occasional who cross the cordon three or less days per week. Thus, it is important to recognize that not all trips are work trips and there are many ways that drivers adapt to the congestion charge.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	The automatic number plate recognition has its shortcomings. Number plates from Finland and Lithuania have a similar format compared to Swedish number plates, with three letters and three digits. The system can't see the difference, and a Swedish owner might falsely be charged. Also stolen and forged plates have caused false payment demand on innocent people. All vehicles are photographed so people who notice the false charging and object will have the charge waived.
Website address	_
Contact reference Used in case further investigations might be required	_

03	Milan Area C
Promoters Bodies carrying out and/or funding the initiative/project	Milan Municipality.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	Area C was introduced on 16 January 2012, replacing the previous pollution charge Ecopass, and was definitively approved as a permanent program on 27 March 2013.
Project area Territory affected by the initiative: administrative level and short description	City centre of Milan.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Air pollution and health problems.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The objective of the program was to reduce the chronic traffic jams, to promote sustainable mobility and public transport and to decrease the existing levels of smog.
Short description Concept of the initiative/project	Area C is a congestion charge active in the city centre of Milan. It is based on the same designated traffic restricted zone or ZTL, corresponding to the central Cerchia dei Bastioni area. The ZTL encompasses about 8.2 km2 and 77,000 residents (4.5% and 6% of the city total, respectively). The area is accessible through 43 gates, monitored by video cameras. The charge applies to every vehicle entering the city centre on weekdays (except Saturday) from 7:30 am to 7:30 pm, on Thursdays the operation is limited to 6 pm. Every vehicle entering the charging zone must pay €5 regardless of its pollution level. Residents inside the restricted area must also pay to reach their houses but they have 40 free accesses per year and a discounted fare of €2. Access to the area is forbidden for diesel Euro 3 or below, gasoline Euro 0, and private vehicles over 7 m (23 ft.) long. Electric vehicles, motorcycles and scooters, public utilities' vehicles, police and emergency vehicles, buses and taxis are exempt from the charge.
Target users The group of stakeholders	Motorists entering in city centre.

identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	_
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	_
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	No business model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	_
Results Quantitative data results such as number of users, CO$_2$ saved, etc.	Later results confirm the decreasing trend in traffic congestion in the city. In the first 6 months of 2015 the average number of cars entering the restricted area was 28.6% less than in the same period in 2011, during Ecopass. There were 21.6 million entrances to the restricted area in 2014 during the time of operation of Area C. Most of users enter the restricted area only few times a year, with about two thirds of cars entering for 4 times or less during 2014. Moreover, most of residents (71%) living inside the area did not use up all the 40 free permits a year. Taking into account an estimate for the willingness to pay for PM10 reduction, a study estimated that the welfare gain produced by Area C from air pollution reductions alone is $3 billion.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	_
Website address	http://www.comune.milano.it/wps/portal/ist/it/servizi/mobilita/area_c
Contact reference Used in case further investigations might be required	_

04	Greater Manchester congestion charge
Promoters Bodies carrying out and/or funding the initiative/project	Government's Transport Innovation Fund.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	In 2008, two cordons were proposed—the outer encircling the main urban core of the Greater Manchester Urban Area and the inner covered Manchester city centre. The Greater Manchester Transport Innovation Fund was rejected by a referendum on 12 December 2008.
Project area Territory affected by the initiative: administrative level and short description	Greater Manchester, a metropolitan county in North West England.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	City's worst air pollution.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The proposed charge was to help pay for improvements in public transport, with £3 billion in the form of a grant and loan, in particular for the Manchester Metrolink expansion, and to reduce congestion in Greater Manchester.
Short description Concept of the initiative/project	It was proposed that vehicles entering the area bounded by the M60 motorway would be charged £2.00 in the morning peak, with a further £1.00 for those entering the inner cordon, roughly corresponding to the Manchester Inner Ring Road. In the evening, a further £1.00 would have been charged on exit of each cordon. The area covered by the charge would have covered about 80 square miles (210 km^2). Inbound charges would have applied between 7:00 am and 9:30 am, outbound ones between 4:00 pm and 6:30 pm. There was to be no charge during the middle of the day, later in the evening, at the weekend or for journeys against the peak flow: leaving the city in the morning or entering it in the evening. Motorcycles, black taxis and private hire cars would not have had to pay the charge. The revenue from the charging scheme would have been used to repay the loan over a 30-year period.
Target users The group of stakeholders identified as the target of the	Drivers.

initiative / project (e.g. citizens, tourists, elderly, etc...)	
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	_
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	Payment of the charge would be via a pre-pay "tag and beacon" system. Credit was to be automatically deducted from a driver's account as they passed each of the cordons. Occasional visitors to Manchester without a pre-pay tag would be have been able to pay via call centre or internet, but there would have been a surcharge.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	No business model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	_
Results Quantitative data results such as number of users, CO$_2$ saved, etc.	Interrupted.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	As a result of public response, the Congestion Charge proposal for Manchester was dropped. In May 2017, Transport for Greater Manchester said that it was considering bringing in a revenue neutral £7.50 daily charge for drivers of polluting vehicles as part of plans for "clean air zones". However Andy Burnham, Mayor of Greater Manchester, said that he would not introduce such a charge, although legal responsibility lies with councils rather than the Mayor.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	_
Website address	_
Contact reference Used in case further investigations might be required	_

05	Gothenburg congestion tax
Promoters Bodies carrying out and/or funding the initiative/project	Swedish Transport Agency.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	The congestion tax was introduced on 1 January 2013.
Project area Territory affected by the initiative: administrative level and short description	The entire Gothenburg City Centre and the E6 main road passing the city.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion and air pollution in city centre.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	The primary purpose of the congestion tax is to reduce traffic congestion and improve the environmental situation in central Gothenburg, and to get financing for large road and rail construction projects in and around Gothenburg.
Short description Concept of the initiative/project	The Gothenburg congestion tax is a tax levied on most vehicles entering and exiting central Gothenburg including some main roads passing by the city. The amount of tax payable depends on what time of the day a motorist enters or exits the congestion tax area. There is no charge on Saturdays, Sundays, public holidays or the day before public holidays, nor during nights (18:30 – 05:59), nor during the month of July. The maximum amount of tax per vehicle per day is 60 SEK (6.40€). If a vehicle passes two stations within one hour, only the higher tax is paid. Some vehicles are exempt from tax, although notably environmentally friendly vehicles must still pay. Foreign registered vehicles were exempt until 2014 mainly for practical reasons, but they are included now.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Drivers.
Stakeholders involved Entities involved in the	_

implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	There are unmanned electronic control at all entrances to this area. The congestion tax is applied when passing stations in both directions. There is also a control point on the west of the city on Älvsborgsbron, far from the main congestion charge zone, which is perhaps odd since neither side of the bridge is within a charging zone. The effect of placing a control point here effectively means that any vehicle wishing to drive along the west coast of Sweden past Gothenburg must pay the congestion charge, with the shortest detour to avoid the charge adding 45 km to a journey.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	No business model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	_
Results Quantitative data results such as number of users, CO$_2$ saved, etc.	The reduction in traffic volume across the cordon during charged hours stabilized at 12% after approximately 8 months. The reduction in traffic volume over the cordon remains reasonably constant throughout the charged time period, although the charge varies. The reduction is just slightly larger in the morning peak. Outside the charged hours the traffic volume remains largely unchanged. There is just a small reduction in the evening, presumably because these trips would have been charged in the morning going in the other direction. Spikes in the traffic volume in the morning and evening, just before and after the charge increases or decreases, indicate small shifts in departure time.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	_
Website address	_
Contact reference Used in case further investigations might be required	_

06	San Francisco congestion pricing
Promoters Bodies carrying out and/or funding the initiative/project	Mobility and pricing study carried out by the San Francisco County Transportation Authority (SFCTA). Initiative supported by the U.S. Department of Transportation.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	The 2010 proposal recommends implementing a trial program with any of the two pilot options, with a duration between six-month to one-year trial in 2015. The objective of this trial is to evaluate public reaction and the effectiveness of the scheme.
Project area Territory affected by the initiative: administrative level and short description	City of San Francisco.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Not applicable.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion and mobility problems.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Reduce congestion at and near central locations and to reduce its associated environmental impacts, including cutting greenhouse gas emissions.
Short description Concept of the initiative/project	San Francisco congestion pricing is a proposed traffic congestion user fee for vehicles traveling into the most congested areas of the city of San Francisco at certain periods of peak demand. The charge would be combined with other traffic reduction projects. The funds raised through the charge will be used for public transit improvement projects, and for pedestrian and bike infrastructure and enhancements. The study proposes three alternatives: • Northeast Cordon: with a US$3.00 fee during the morning and evening peak commute times from 6:30 to 9:30 a.m. and 3:30 to 6:30 p.m. and charged when coming into or out of the northeast section of San Francisco; bordered by Laguna Street on the west, 18th Street on the south, and the Bay. SFCTA considers that this alternative "provides the greatest congestion reduction in the city's most congested areas, while also delivering substantial additional benefits for transit performance, environmental quality, and sustainable growth".

	• Modified Northeast Cordon (Pilot): with a US$6.00 fee charged only when leaving that area during the evening commute, between 3:30 and 6:30 p.m. • Southern Gateway (Pilot): with a US$3.00 fee in both directions during the morning and evening peaks on the major arteries at the San Francisco/San Mateo County border, at Interstate 280, Highway 101, Skyline Boulevard, Lake Merced Boulevard, San Jose Avenue, Mission Street, Geneva Avenue, Junipero Serra Boulevard and Bayshore Boulevard. A resident discount could be considered for households living with a certain distance of the San Mateo County line. According to the SFCTA report this option weights in geographic equity, as automobile travel from San Francisco's northern and eastern approaches is already subject to bridge tolls, and in the case of the San Francisco–Oakland Bay Bridge, elevated peak-period tolls on weekdays were recently introduced. On the other hand, the land-based border with San Mateo County currently does not have any form of pricing in effect, and the Peninsula and South Bay travel markets are more dominated by automobile travel than the other regional travel corridors to and from the city.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Drivers.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	_
Technologies used Such as ICT tools, smart phone apps, tracking devices, etc.	_
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	No business model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	_
Results Quantitative data results such as number of users, CO$_2$ saved, etc.	The study estimated that the congestion charge could raise between US$60 million and US$80 million a year even when accounting for the 50% discount for low-income people and other users. The feasibility study concluded that the Northeast Cordon option would

	reduce vehicle trips to and from the core downtown area (Focus Area) during peak periods by more than 15%, and an approximately 10% increase in peak-period transit mode share to the Focus Area. The analysis also found that the Northeast Cordon program would result in an annual social benefit of more than US$350 million while the Southern Gateway's benefits would be approximately US$250 million.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	(to be investigated, no information is currently available).
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	_
Website address	_
Contact reference Used in case further investigations might be required	_

07	Electronic Road Pricing - Singapore
Promoters Bodies carrying out and/or funding the initiative/project	Land Transport Authority.
Duration MM-DD-YYYY – MM-DD-YYYY; MM-DD-YYYY - ongoing	The ERP was implemented by the Land Transport Authority in September 1998 to replace the Singapore Area Licensing Schem after successfully stress-testing the system with vehicles running at high speed.
Project area Territory affected by the initiative: administrative level and short description	Singapore's central area.
Alpine Space Territorial type (if applicable) Select from: A. Alpine metropolises; B. Alpine cities; C. Stable or growing rural areas; D. Declining and shrinking rural areas; E. Tourism areas	Not applicable.
Problems to solve Specific problems encountered in the project area that required a solution (e.g. parking and/or road congestion, high levels of pollutants, seasonal mass tourism trips, etc.)	Congestion in city centre.
Project objectives Specific objective/s of the initiative/project (e.g. change students mobility behaviour, reduce private cars in the rush hours, etc.)	Manage traffic demand.
Short description Concept of the initiative/project	The Electronic Road Pricing (ERP) system is an electronic toll collection scheme adopted to manage traffic by way of road pricing, and as a usage-based taxation mechanism to complement the purchase-based Certificate of Entitlement system. The charge for passing through a gantry depends on the location and time, the peak hour being the most expensive.
Target users The group of stakeholders identified as the target of the initiative / project (e.g. citizens, tourists, elderly, etc...)	Drivers.
Stakeholders involved Entities involved in the implementation of the initiative/project such as local authorities, trade associations, sponsors, city associations, transport operators, schools, etc.	Mitsubishi Heavy Industries Ltd sold the In-vehicle Unit (IU) technology to Singapore, and the project was spearheaded by a Consortium comprising Philips Singapore Pte Ltd., Mitsubishi Heavy Industries Ltd., Miyoshi Electronic Corporation and CEI Systems and Engineering (now known as CSE Global Ltd.) in 1995 through an open tender.
Technologies used	The system uses open road tolling: vehicles do not stop or slow down to

Such as ICT tools, smart phone apps, tracking devices, etc.	pay tolls. The scheme consists of ERP gantries located at all roads linking into Singapore's Central Area. The gantry system is actually a system of sensors on 2 gantries, one in front of the other. Cameras are also attached to the gantries to capture the rear license plate numbers of vehicles. As of 2018, there are 93 ERP gantries in Singapore. A device known as an In-vehicle Unit (IU) is affixed on the lower right corner of the front windscreen within sight of the driver, in which a stored-value card, the CashCard, is inserted for payment of the road usage charges. The cost of an IU is S$150. It is mandatory for all Singapore-registered vehicles to be fitted with an IU if they wish to use the priced roads. When a vehicle equipped with an IU passes under an ERP gantry, a road usage charge is deducted from the CashCard in the IU. Sensors installed on the gantries communicate with the IU via a dedicated short-range communication system, and the deducted amount is displayed to the driver on an LCD screen of the IU.
Business model Description, sponsors involved, methods of financial reward and motivation used, economic sustainability measures used	No business model.
Communication activities Communication channels used in relation to the target users (social networks, media campaigns, etc.)	_
Results Quantitative data results such as number of users, CO$_2$ saved, etc.	The LTA reported that road traffic decreased by nearly 25,000 vehicles during peak hours, with average road speeds increasing by about 20%. Within the restricted zone itself, traffic has gone down by about 13% during ERP operational hours, with vehicle numbers dropping from 270,000 to 235,000. It has been observed that car-pooling and public transport has increased, while the hours of peak vehicular traffic has also gradually eased and spread into off-peak hours, suggesting a more productive use of road space.
Still ongoing or interrupted State if the initiative/project is still ongoing or not and explain the reasons, if applicable, of the interruption	Still ongoing.
Lessons Learned Lessons that the case study offers for a replication that is effective and sustainable	Land Transport Authority has been testing a system based on the GPS that may eventually replace the current Electronic Road Pricing system. The proposed system overcomes the inflexibility of having physical gantries, which "are not so flexible when it comes to re-locating them".
Website address	_
Contact reference Used in case further investigations might be required	_