### DELIVERABLE 2.1

**Development of BtB concept and EU basis**

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### BIKE THE TRACK / TRACK THE BIKE

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*Family cycling for energy efficiency in urban leisure travel*
EXECUTIVE SUMMARY

Leisure travel is the major contributor of the energy consumption and related greenhouse gasses, air pollutants and noise emissions in personal transport in the EU. There is a growing number of projects in support of cycling as a sustainable transport mode in the EU at local, national and EU level, however very few of them are focused on leisure cycling. In addition more and more advanced ICT based and supported technologies are in use to track the cyclists, yet again there is a few experience in their use in support of leisure cycling except for GPS based travel route planners. The large majority of the projects aiming to improve cycling conditions in general and in urban areas in particular and promote cycling as a transport mode are based on rational arguments of utilitarian character, arguing benefits of cycling either from an individual and/or environmental/climate protection perspective. Yet the evaluation and research shows that strategies based on emotional approach to cycling – which applies principles and elements of best practices of car industry in marketing of personal car mobility – are far more successful. Taking into account this lesson BtB project puts in a foreground an emotional approach to leisure cycling at very first because in the realm of leisure people first base their decisions on emotions and then seek for their rational argumentation. (Also) in leisure cycling a bicycle should therefore as a symbol represent individual freedom, joy of free movement in urban environment - where freedom of moving by car is getting for good reasons more restricted - and possibility to transform from traveller into visitor that by eye contact and by words creates communication and therefore an urban social environment. Further on the BtB project is trying to utilise the ability of children to move (also in heart) the adults and – when properly guided and motivated – also change the (leisure travel) habits of their parents. Children like both to cycle and to compete, especially when a positive emotional background and awards are provided to reward their endeavours. In order to properly motivate, train and support the children to act as agents for change of leisure mobility patterns in their families the BtB project develop partnerships with intermediate institutions that have privileged access, knowledge and skills in raising of children: schools, sports and culture clubs. Taking into account experience, results and recommendation gained in other cycling promotion projects and campaigns. The BtB project relies upon and develops four interlinked and interrelated elements: leisure cycling promotion campaigns, different technologies of bike tracking, children as promoters of behaviour change in families and competition based on registered individual leisure trips on bicycle.
Introduction

The aim of the project Bike the Track – Track the Bike is to change mobility behaviour in leisure travel in the cities toward more cycling instead of using private cars. Leisure cycling is here understood in broad terms that next to cycling as an activity that has an aim in itself and in having fun on the bike also includes cycling as a transport activity to leisure activities and as an activity to go shopping and transporting groceries and other personal consumables from shops and supermarkets. In this broad definition of leisure cycling also recreational cycling is included unless it is predominantly oriented to sport activities i.e. when bicycle is mainly used to improve physical performances.

The innovative aspect of Bike the Track – Track the Bike project is in use of bicycle tracking technology as a tool for providing both awards that stimulate registered individuals to cycle for leisure purposes as well as information tool to provide municipalities with information which roads, cycling paths and lanes cyclist in the city use most for different leisure trips and when they are most in use by cyclists. Both functions however can be only provided if advanced ICT technologies are used, namely RFID readers and chips or smart phones and GPS.

The detailed description of each technology and advantages and disadvantages of each of the three approaches from perspective of the purpose of the project and main target groups are however provided in section 3.3 of this document. At this point we would like once again to point out that the innovative aspect of the project is not in use of any of bike tracking technologies as such but in its conceptual application as a tool for innovative approach in motivating people to replace motorised transportation based leisure trips by cycling trips that can be individually counted while accuracy of assessment of time and spatial dimension of each cycling trip depends on the type of tracking technology in use.
The core activities of the Bike the Track – Track the Bike project are however leisure cycling campaigns that will be designed, carried out and evaluated in each of 6 partner cities. The document in question has been prepared with the aim to provide support to the partner cities in designing individual campaigns.

This will be done by provision of information on:

a) Rationale, definition and purpose of urban travel action campaigns in general and leisure cycling campaigns in particular.

b) Types of mobility management campaigns.

c) Determinants and factors of behavioural change in urban transport.

d) Experiences and results of recent and on-going urban cycling promotion campaigns at the EU level.

e) Relevant recent and on-going cycling campaigns at national and municipal level in partner’s countries.

f) Conclusion and recommendations based on overview of relevant campaigns on EU, national and municipal level.

g) Theoretical background relevant for leisure cycling campaigns.

h) Detailed information on bike tracking technologies and advantages and disadvantages of each relevant technology from perspectives of purpose of the project and main target group.
1. CYCLING PROMOTING CAMPAIGNS AND THEIR RELEVANCE FOR THE PROJECT

1.1. Why a campaign is needed to change leisure travel behaviour?

As in other activities aiming to change behaviour in personal transport also in our case – increase of leisure cycling among the target group of kids aged 9 to 15 and their families – a provision of “hard measures” (better infrastructure, in our case more and/or better cycling infrastructure to main leisure generators in a city) alone is not enough to provoke desired/planned changes in behaviour.

Also in persuading people to change their leisure travel behaviour campaigns and communications are the key to make people aware of the benefits of using a bicycle in leisure activities in a city and to attract pupils and their parents to sign in and register for joining a campaign aiming to demonstrate benefits of leisure cycling in a city for its inhabitants, shop owners, leisure facilities operators and for a municipality as such.

1.1.1. Why are information campaigns important?

Even those residents who are regularly using a bicycle to commute to work/school and/or are often using a bicycle as a sports/recreational vehicle often have little knowledge and/or inaccurate perception about cycling for leisure purposes within and around a city. For example they might think that it is not possible to bring on the bicycle back home what they usually buy at shopping, they might not be informed how to get safely to a shopping mall, sport centre or music festival by bicycle or they are unaware of large potential of exploring cultural heritage and nature beauty when cycling on local roads and paths in hinterlands. Therefore it is very important to provide useful and accurate information on:

- benefits of cycling in general;
- cycling infrastructure in a city;
- how to safely get by bicycle to leisure traffic generators in a city and to leisure interesting areas/spots around the city, including information on dangerous spots at cycling infrastructure and how to avoid them or how to behave as a cyclist at those spots;
- how to transport different types of goods/loads and where adequate equipment for transporting goods or children can be bought or rented.
Therefore it is sometimes crucial to provide the right information. Yet it is equally important how, where, when and by whom this information is provided. More successful are information that are provided by different media (newspaper adds, leaflets, video-spots, posters etc.), but carry a common message and share a common visual identity. Information should be provided where they best fits to target group(s) respectively on places and in a media that are commonly used by target group(s). Generally in most of the Europe cycling campaigns usually starts at the beginning of the cycling season (March to May) and culminates during the summer months and during European Mobility Week and Car Free Day (mid September). Unless campaign is not aiming to increase (leisure) cycling out of the main cycling season it should be therefore started prior or in the beginning of the main cycling season in each country. Campaigns that are (also) targeting pupils should of course take into account vacations and exam periods in schools. As for personalities that are “giving voice and/or face” to a campaign it is not only important that they are well known (pop culture celebrities, sportsmen/women, politicians), but they are cyclists themselves.

It is generally known that people remember new information better and longer if they are not only passive receivers of information but if they perform tasks where they actually use new information. New information are best memorised when people are requested to share the new information with others i.e. to tell others what for and how it should be used and to demonstrate this in practice.

Provision of information on how daily goods and loads can be transported by bicycle baskets, bags and trailers on leaflet for example are inferior to a good video that is demonstrating this use in practices. The one or the other can however make people think about shopping by bicycle as an alternative. Yet in most cases only after they will see a live demonstration of safe and comfortable transport of goods by bicycle by somebody skilled (and have a status of a “role model”) and have an opportunity to test it, they might actually start with new behaviour for a trail period and after a while adopt it as a new practice of regular shopping.

The best way of providing information how to safely get from the city centre to the shopping mall is to organise a guided cycling tour from the centre to the mall by engaging as a guide a political representative of the city or a high ranked city official who is recognised as cyclists and knowledgeable on the issue. The tour can be videotaped and later on published on the project and/or city web side. Of course also cycling maps on paper and e-cycling maps with warnings on dangerous spots and advice how to avoid them or how to behave to minimise risks can provide useful information, however one will best remember the safe route and behaviour if joining a guided tour.
1.1.2. Why emotions and rituals are important for behaviour change

Providing information is crucial but for changing transport behaviour is in most cases not enough. An emotional support is needed to, yet the best way is to combine the two in a special event that has a form of a ritual. A successful campaign is aiming to change habits. Habits are known to be iron shirts and for that it is very hard to change them. Special well promoted events need to be carefully planned and thoroughly implemented in order to change habits. New transport behaviour – in our case leisure traffic – should not only be presented, but also tested in practice at for example a promotional event that brings people together, makes them (positive) emotional about (leisure) cycling, creates social ties among them and provides an opportunity to take over new collective identity thus addressing individuals’ need to belong to a distinguished social group. Like in all initiation rituals people should get emotional from the start on and feel at the end of the event that they are somehow different as they were before taking part on an event. This kind of events need to be periodically repeated in order to reinforce desire for behavioural change.

This by new identity supported change of behaviour should be afterwards maintained and reinforced by:

- broader visible social recognition of new behaviour by media, individual opinion makers and/or by (credible and respected) political authorities;
- new opportunities to come together and collectively exercise new social practices in a relaxed atmosphere with both the emotional and the technical support;
- provision of opportunities to start and maintain discourses on those new social practices, in our case by exchanging stories, information, pictures, videos etc. on leisure cycling either in a form of life events (discussion on cycling books in a library, for example) or through internet and new social media;
- organising competitions and providing awards/prizes to those who are adopting new behaviour patterns faster and more efficient. Especially children are enthusiastic to compete and win prizes for adapting to a required type of behaviour that needs some efforts, but are on the other side also most vulnerable when new habits are marginalised or even ridiculed by the majority or more powerful social groups.
It is equally important to recall that leisure cycling is at very first an activity that has its goal in itself and is undertaken to have fun and to be remembered as a pleasant. People are not only cycling for leisure to have fun on their bicycles and/or enjoy city or countryside on their own, but also to get together, to talk and exchange information on their bicycles, cycling trips, adventures etc. and also to have fun not only when they are cycling together, but also when they are together as a group of cyclists that share some distinctive collective identity.

In order to exchange information, stories, pictures/videos etc. it’s nowadays however not necessary to be together in terms of physical space. New social media provides an opportunity to create and maintain virtual communities also of those people who are not dedicating most of their free time to improve their cycling performances and/or image and also for those that are not necessarily enthusiastic to cycle to work/school. Exchanging information, photos, video clips, music etc. on (leisure) cycling should also became a ritual for those target by a campaign. Yet also in case of utility cycling “virtual communities” cannot replace or substitute “live events” where joy of cycling is practicing together by pushing the pedals on the streets.
2. OVERVIEW OF THE EXISTING EXPERIENCE IN THE FIELDS OF FAMILY AND LEISURE CYCLING¹ AND TRACKING OF CYCLISTS

2.1. Overview of the projects and activities in the field of family and leisure cycling

2.1.2. Overview of the EU projects in the field

Cycling as a transport mode in general

Well documented good practices in various fields of cycling policy can be found in the standardised overviews of the PRESTO and ELTIS projects.

PRESTO ([http://www.presto-cycling.eu/en/home](http://www.presto-cycling.eu/en/home)) aimed to offer a set of tools for technicians to create cycle friendly urban environments, to implement sound cycling plans and to start up targeted promotion campaigns. Within the project also an e-learning tool on cycling policies has been developed together with training materials, policy guides (on cycling infrastructure, promotion of cycling, electric bicycles and general framework conditions for cycling) and 25 implementation Fact Sheets giving more detailed and practical (technical) information on how to implement a selection of cycling policy measures.

ELTIS platform ([http://www.eltis.org](http://www.eltis.org)) is the main EU web portal in the field of urban mobility in Europe aiming to support development of urban transport systems, which use less energy and produce less emissions, while improving the competitiveness of urban areas and the mobility and quality of life of its citizens. It facilitates the exchange of information, knowledge and experiences at very first for individuals working in the field of transport as well as in related disciplines, including urban and regional development, health, energy and environmental sciences. It provides different types of information (announcements, news, events reports, case studies) in textual and/or video format and additional services, including European policy reviews, funding sources, transport statistics, a photo library, training and education and job offers. At present more than 400 projects on various aspects of cycling system, cycling infrastructure, co-modality of cycling and other transportation modes, marketing and promotion of diverse types of cycling are presented on the platform. Those few however that are directly related to leisure cycling (including shopping by bicycle) are individually presented in brief within the list of selected projects below.
The European Platform on Mobility Management - EPOMM (http://www.epomm.eu/index.php) is a network of governments in European countries that are engaged in Mobility Management (MM) and organised as an international non-profit organisation based in Brussels. Its main purpose is to provide tailor-made support to enable direct transfer of the best policies from other countries or from EU projects to each member country. It is also an efficient way to disseminate and maintain results from European projects. EPPOM has National Focal Points to develop and foster communication and interchange with the EU level, a website containing the most updated and most in-depth information on MM available, and on-line tools, of which the most popular are The EPOMM Modal Split Tool (TEMS) and the standard evaluation tool for MM projects MaxEva. EPPOM holds an annual European Conference on Mobility Management ECOMM. For the purpose of BtB project however MaxSumo tool (http://www.epomm.eu/docs/1057/MaxSumo_english.pdf) is of largest interests since it helps effectively plan, monitor and evaluate Mobility Management projects, including leisure cycling projects. It provides standardised guidance during setting targets, defining target groups, selecting services and mobility options. By going in small, successive steps, possible deviations can be corrected at an early stage.

The information and training materials on the basics of mobility management, fundamentals on transport and energy, sustainable urban transport campaigns, active travel audits and a number of case studies on cycling as an urban transport mode, including cases of shopping by bicycle and cycling to school, can be found among outputs of the ACTIVE TRAVEL NETWORK project – Tackling transport problems by promoting walking and cycling in small and medium sized towns (http://urbact.eu/en/projects/low-carbon-urban-environments/active-travel-network/homepage/).
Promotion and marketing of cycling that actually works: the approach

Information about the positive consequences of the sustainable modes use helps – but is often not convincing and thus not sufficient. The project EMOTIONS (http://www.trendy-travel.eu/emotions/start.phtml?link=project) has explored and exploited the huge potential of the emotional approach to cycling, proved that emotional approach works and showed the way on how to use the promising and successful emotional approach to stimulate clean urban transport. Well-proved strategies of the car industry has been transferred to promotion of utility and leisure cycling in cities and grouped in six topics:

- Let the picture speak
- Moving Mobility Stories
- Exciting Public Transport
- Cycling is rewarding
- Creating a positive image
- Fun for children

The results and findings of the project have been further explored by TRENDY TRAVEL project (www.trendy-travel.eu) that developed different approaches to promotion of leisure and utility cycling:

- Story telling by using different media (video clips, audio book, comic strips, illustrated stories)
- Cycling rituals (regular events, festivals, car free days etc.)
- Raising the image of cycling (brochures, fact sheets, bicycle climate test)
- Pleasing the eye (design and branding of cycling infrastructure, emotional artwork and photography, comic strips)
- Parents are touched (kindergarten program and books, children targeting activities)

Many BtB and other EU cities are in promotion and marketing of leisure cycling handicapped by the lack of an adequate cycling infrastructure and cycling friendly traffic regimes. Where cycling infrastructure is insufficient it is important to link communication activities to the implementation of cycling infrastructure to promote cycling. This is the core of the undergoing project CARMA (http://www.cyclingcarma.com/english/index.php) that seeks to develop new methods for the marketing of cycling that lead to increased levels of cycling by focusing on selected target groups, i.e. on different types of cyclists and their needs, their identification and appropriate communication concepts.
Individual cycling campaigns in project’s partner cities are focusing on:

- Showing (displaying) all service network, pump stations, cycling lanes, bicycle travel planner, bike sharing system, bicycle map and the Android and iPhone applications in a city (“Cycling is easy!” – Gothenburg, Sweden).
- Travel at an appropriate speed, respect other road users and the regulations which apply to us all, take extra care to look before changing lanes, turning or pulling out (“Like Riding a Bike” – Kensington & Chelsea, UK).
- Celebrating the diversity of cyclists living in a city as well as the impressive range of journeys that are made by bicycle by recording and web publishing of the photos, statements and stories of randomly picked cyclists in a city (“Roadhug” - Kensington and Chelsea, UK).
- Cycling to cinema and watching cycling related movies for free (Infomobility – Parma, Italy).
- A recreational tour visiting the most beautiful spots in and around a city (“Rondje Eindhoven” – Eindhoven, The Netherlands)
- Park the bicycle in safeguarded bike parking facilities in a city and win the prize (“Fiets and Win”, Eindhoven, The Netherlands)
- Reaching the parents by kids to tell them that the car is not the only way to get the children to school (“Bike to School”, Hungarian Cyclists Club Budapest)

The exchange of good practice and lessons learned in leading cycling cities is in the focus of CHAMP project (http://www.champ-cycling.eu) aiming to improve the cycling strategies in the CHAMP cities and to share the good practice and lessons learned with other European cities to create safer and more attractive conditions for cycling in Europe.
Cycling to shops campaigns

Although CYCLE LOGISTICS (http://cyclelogistics.eu) is primarily focused on replacing unnecessary motorised vehicles with cargo bikes for intra-urban delivery and goods transport in Europe it is also aiming to encourage individuals to use cargo bikes, trailers and baskets to transport shopping and leisure time equipment, while at the same time ensuring that retailers provide customers with incentives and necessary infrastructure. Information resulting from questionnaires of supermarket customers on their shopping mobility modes/habits as well as invitation, motivation (rewards in a form of bicycle baskets, free checking and servicing of bicycles, discounts) and (self) reporting activities (cycling diaries with dates of shopping and reflections of shopping by bike experience to be fulfilled by participants) can be in addition also very interesting for leisure travel oriented cycling projects in general.

Walking and cycling to local shops campaigns have been one of the main activities of the ACTIVE ACCESS (http://www.active-access.eu) project aiming to reduce energy consumption for shopping purposes, improve health & tackle obesity and strengthen local economies by making residents aware of the local facilities. The main goal has been to transfer longer car trips to shorter walking and cycling trips by a common strategy for changing people’s mental maps of their local neighbourhoods so that they realise what is available on their doorstep, rather than in the edge of town. Transport and health related activities have been brought together on the idea of active travel. Based on a presumption that people who walk or cycle to their local shops, come more often, spend more time and money locally, sustaining the economic health and social vitality of their communities, the key findings of the project are that it is essential to build partnerships with local shopkeepers, listen to their needs and expectations in order to identify how your campaign will address them, conduct promotional activities and provide incentives to those who walk or cycle to shopping, provide information in a fun way, highlight how close and convenient shopping by bike is, address perception of infrastructure and space – and when possible also improve the first. Know how regarding promotion of walking and cycling have been transferred to key stakeholders, especially in new member states.
2.2. Use of advanced ICT technologies for navigation, tracking and planning of cycling

We have not been able to identify many projects at the EU level that are focused on the use of ICT technologies for tracking and rewarding the cyclists. This is however not surprising since providing an EU added value in the field by collecting diverse experience in the field from more general ICT based of mobility management on the one side and from large variety of is exactly one of the main task of this project.

Establishment of a Europe-wide Internet platform for navigation, communication and planning in the field of cycling is the main objective of the on-going NAVIKI project (http://www.naviki.org/iee). Naviki addresses a range of national, topical and demographic target groups, from individual users (cyclists, motorists, tourists) to municipalities, corporations and organisations. In Naviki any cyclist will be able to discover the best cycle paths all over Europe and to publish them online. Official partners can specifically indicate paths with a certified quality standard. With the help of Naviki partners like municipalities, regions, touristic associations and many others are able to offer their users and citizen a special service, to inform and communicate in a modern way and to make their location more attractive to cyclists.

2.3. Overview of the national projects in the field by a project country

Since 2007 in many cities in Belgium and in the Netherlands environmental and cyclists organisation in partnership with small business associations and insurance companies organise campaigns to convince the broad public to do their daily shopping by bicycle (instead of the car) and to choose a local merchant in their neighbourhood. Every time one goes for shopping by bike, one can get a stamp on his/hers card from a participating merchant and when the card is full one gets a significant discount. Both in Belgium and in the Netherlands the campaigns proved to be successful. In Belgium the campaign gets new momentum in 2009 when it was re-conceptualized according to cycling chick philosophy: it started with a fashion show in Antwerp and a unique bike-bag, designed by Belgian fashion designer was offered as a main prize. Bike-bag has a status of a ‘must have’ product and is attracting new and young clients – cyclists.
Shopping by bicycle is a daily or at least weekly activity and should be therefore in the frontline of leisure cycling promotion events. The Dutch city of Apeldoorn wanted to encourage the use of the bicycle for trips to the commercial centre of the city by rewarding those that use the free guarded bicycle sheds with entry into a prize draw based on a simple reward system for cyclists. Participants have a pass that grants them access to the bicycle sheds in the city which they scan on storing and picking up their bike. On scanning this pass they receive one or more digital lottery tickets, under the condition that prior they have registered on the campaign website where they can see how many lottery tickets they have and what prizes they can win. A well-publicised start up and final event for the campaign were organised, with the winning ceremony on the latter. The campaign currently runs also in the city of Eindhoven (http://www.fiets-en-win.nl/).

In the cities of Helsinki and Espoo, Finland, guided cycling tours are organised to libraries where people have an opportunity to speak about their cycling adventures, get assistance in fixing their bikes and see new bicycles models. Similarly one can join in guided cycling to cinema to see and later on discuss one or the other movie in which bicycle plays an important role. Municipalities in the Pori region, Prizztech Ltd and ESRI Finland decided to work together to figure out how the latest technical innovations could be used in the development of cycling culture. The joint planning process produced in spring of 2012 a web service called SataSykkeli and a mobile app MobiiliSykkeli. Some of these new routes have been planned especially for families, others for lovers of culture, nature and attractive landscapes. The remaining routes are aimed at sports and exercise cycling. Users of the service can freely choose a route by indicating preferred route type, length and municipality. These services offer cyclists easily accessible information about bike routes in the region. Both services are free of charge. The services were developed as a part of the project aiming to develop mobile bicycle route maps within the Centre of Expertise Programme in Satakunta, partly funded by European Union Structural funds. The MinäPoljen campaign in the city of Tampere aimed not only to promote cycling in general but to raise awareness about concrete actions the city implemented during 2012 in order to improve biking facilities in Tampere. The campaign started in May 2012 and the last activities took place in autumn. With a colourful and playful outlook, the campaign wanted to clearly convey the message that cycling is fun and supported by the city. The message was delivered at several events organised during the campaign. Altogether the campaign organised or was present at 10 larger events, some of which included smaller sub-events. Over 2,000 people participated in the events and an even larger group was reached through the campaign website and social media. The campaign was highly visible on the streets and people were very impressed with the visual outlook of the campaign. In addition to this, the number of cyclists has increased by 8 per cent in this cycling season (April – September) compared to figures for the previous year. This was naturally the main target. Tampere monitors changes in the bicycle modal share with 30 bicycle counters that have been placed around the city.
In Ljubljana, the capital of Slovenia, local cycling network is occasionally organising guided cycling tours to get familiar with heritage of Jože Plečnik, a word renowned architect that has shaped the typical look of the actual city centre. Since a couple of years Ljubljana Cycling Network is in spring also organising a guided cycling tour across the marshes of Ljubljana to the exposition premises of the Technical Museum Slovenia at Bistra Castle. During the cycling tour that follows tracks and paths through woods and meadows full of endemic, rare and endangered plant and animal species the experts are showing and explaining the wonders of nature whereas in the technical museum one can also experience the guided tour on historical exposition of more than 100 bicycles, dating from 1860ies on. In 2012 the city of Ljubljana hosted national Bicycle festival that seems to develop into a regular annual event. Since 1982 Ljubljana is the starting point of Marathon Franja that in recent year developed into one of the largest sports and recreational cycling events in Alpe-Adria region. Next to two main routes (156 km and 97 km) for sport cyclists the two day festival also contains family and school route (25 km) and route for kids (1,5 km). Since 2010 a campaign Threesome is running that is aiming to promote cycling to work by rewarding teams of 3 cyclists that cycle. The winning team is awarded based on the self-reporting of the kilometres cycled to work in the month of May.

Similar guided tours are regularly organised in the famous Italian city of Venice that wants to make the area around the city, at very first its lagoon, better known and understood as a very special ecosystem and important habitat among inhabitants and visitors. In addition many special events to promote cycling as convenient, ecological transport mode for individuals and families are taking place in and around Venice, including 2 day festival dedicated to the bicycle (exhibitions, music and dance), historic bicycle parade, various exhibitions of bikes and sport, bikes and free time held at a historical fort. Among other experiences with marketing and promotion of cycling in urban areas one should at very first highlight one of the best projects of carefully designed and strictly implemented bicycle corporate identity projects – Bici Bolzano that has played a major role in record fast increase of cycling in the modal split of the capital of Italian autonomous region of Alto-Adige-Sudtirol and can play a model role in use of corporative strategies, tools and artefacts in promotion of cycling as transport mode in urban areas.

Cycling Club in Münster, Germany, is regularly organising a set of various guided tours within and around the city to explore its rich historical and natural heritage. Since recently it also offers guided tours on electric power supported bicycles (pedalecs) for those less fit and/or curious about electric bicycles. In addition to tourist and leisure cycling in Münster also other type of bicycle events are taking place, like seminars and training for older people who would like to get or refresh cycling skills and a campaign – organised in partnership with an insurance company - aiming to increase safety of cycling by publishing authentic photos and statements of injured cyclists.
From 2006 till 2008 in Germany also a nationwide campaign to promote shopping by bicycle *Einkaufen mit dem Rad* was carried out by BUND-Friend of the Earth Germany, that primarily focused to engage municipalities and shop owners to improve cycling infrastructure, at very first parking facilities in shopping areas and promote shopping by bicycle.

The city of *Fredericia, Denmark*, however goes a step forward from traditional events by merging cycling relay with GPS tracking. The participants needed to register and report their cycled journeys via their personal computer where they can also see where and how much both their team mates as well as competitors from other teams have cycled. Although the participants have not been forced to cycle as a team in a conventional way because each single individual trip has also counted they have however not competed as individuals, but as a team which motivates each single participant to – next to contribute his/hers cycled kilometres – encourage his/hers team mates to cycle more. Thus GPS tracking has enabled to register each single trip regardless in which part of Denmark it had been made and accurate computing of cycled kilometres by each team even in case that each member has taken its own separate ride. Despite of long tradition and support to cycling as a daily transport mode the trend of driving children to schools by car is also increasing in Denmark. In order to counteract this trend many Danish municipalities are running projects in support of cycling to school that are in an innovative way engaging pupils as promoters of cycling. *Establishing a Culture of Cycling in the Childhood* in the city of Aarlborg and *Safer Ways to Schools in the Municipality of Skenderborg* that are presented in the Appendix II to this document are only two of many inspiring cycling to school projects in the country.

To create the conditions to promote and develop leisure cycling mobility in the region, value local & scientific knowledge, skills and resources and to stimulate new thinking about place-based development strategies are the main objectives of the *CICLORIA* ([http://www.cicloria.org.pt](http://www.cicloria.org.pt)), project developed and implemented by Portuguese municipalities of Murtosa, Ovar and Estarreja and the University of Aveiro. The project that is based on non-linear & collaborative methodology, articulating different scientific disciplines and on social constructivist approach should as results provide attractive tourist cycling trail in the Aveiro lagoon, design of community bicycle system, public contest for CICLORIA bicycles, specific software for GPS incorporating environmental, cultural and patrimonial knowledge of Murtosa, Pedagogic programme « Cycling Factory at School» and national youth contest “Pedalar XXI” (Cycling XXI) to promote regular use of bicycles.

More details on the above mentioned projects and activities can be found in Appendix I to this document.
2.4. Conclusions from relevant EU and national projects

Based on the overviews of the projects and activities above the following conclusions can be drawn:

- When it comes to leisure travel individual and family decisions are primarily based on emotions and non-rational choices, rather than on facts and rational arguments. This is true for deciding on the destinations and means of transport.

- Information about the positive consequences of the use of bicycle for leisure (improved health, better fitness, and reduced mobility expenses, positive contribution toward climate change mitigation and outdoor air and noise pollutions) helps – but is often not convincing and thus not sufficient.

- Cycling should be associated with positive emotions like excitement, fun, being moved (in the heart), passion for life, pride, protection/safety, comfort and so on.

- Cycling campaigns should provide as many as possible and as diverse as applicable opportunities to have fun on the bike by improving conditions for safety and comfort of cycling while providing positive motional feedback through social marketing activities.

- Cycling - i.e. leisure cycling - should not be associated with sacrifice and deprivation but with gain, specifically a gain in the quality of life.

- A uniform appearance – a Corporate Identity – should assist at identifying with the image of the bike as a source of pleasure, life quality and engaged citizenship.

- The foundation of an effective public relation campaign is based on marketing strategies that are primarily funded on the identification and the image, followed by rational argumentation and the data.

- Positive image of a bicycle is a necessary, yet not a sufficient condition to persuade citizens to cycle or to cycle more often.
**Increased cycling level can be only sustained** where and when positive image of the bicycle correlates with the improvement of the cycling system (in a city) as a whole; i.e. when besides the image also urban and transport planning, infrastructure and services for cycling are improved and when there are a permanent, goal oriented and mediated/moderated communication between the stakeholders, on-going promotion campaigns and overall development of cycling culture. Although this refers to cycling in general as well as to utility cycling it is of special importance for leisure cycling. Leisure cycling can be promoted when cycling itself is a leisure, i.e. when it is convenient and safe to cycle, when it is appreciated by society, when cyclists are respected by other traffic participants (especially car, lorry, buses and motorbike drivers) and when is linked with positive emotions.

**Even when conditions for cycling are not perfect and stress due to the traffic cannot be avoided the positive emotions of cycling might prevail when cyclist are trained and experienced to deal with traffic risks,** when they are supported and/or safeguarded by other cyclists and encouraged by positive social acceptance of cycling as a virtue.

**Only the campaigns that are also providing emotional support, information and other services to the cyclists through the cycling events (cycling parades, festivals, guided or assisted journeys and tours) can indeed convince people to get on the bicycle (more often).**

**Even in cities that are fit for cycling in terms of providing both emotional support and quality cycling infrastructure there might be obstacles for leisure cycling** like non-existing or too few or not safe enough facilities for bike parking in shopping areas, at big shopping malls, cinemas, theatres etc. When this is the case campaigns in support of cycling should not only reflect on this, but should also focus part of its activities to bring the facts regarding the obstacles and/or poor facilities to the public, municipal planners and decision makers.

**Kids like to cycle,** especially when they are awarded with positive emotions as well as likable prizes.

**When properly motivated, guided and assisted kids can trough their persuasive power change the mobility patterns in their families,** especially regarding leisure travel.

**There is few experience with leisure cycling projects,** especially with projects where rewarding of cyclists is based on their actual cycling contributions (in terms of trips and/ or km made by bicycle).
Booming development of smart phones market is setting a trend of smart phone plus GPS technology as fast developing approach in tracking of cyclists also in the field of leisure cycling. In spite of its technological supremacy this technology should not be set by default since at very first when kids are involved issues of social equality must be taken into consideration. A positive image of a bicycle is also based on its normative status as a vehicle/transport means that is accessible to any social, gender or age group. Therefore any tracking technology should not annihilate this status of a bicycle. In addition smart phone tracking applications demand an intentional use (to be switched on) that one cannot expect for granted when minor aged kids (below 12 years of age) are in question.

Rewarding schemes for leisure cycling should award any participants and should be not based on “the winner takes it all” principle, yet at the same time they should provide incentives to stimulate more cycling of every single participating individual. Therefore the recommended awarding scheme should provide an opportunity for each single registered bicycle trip to be awarded while the probability of award should be linear to the number of registered trips accomplished.

Leisure cycling might not only be cycling to any kind of sports or culture activities, but it could be accompanied by activities that are related to cycling itself. It is however not only important to organise as many various cycling events as possible to promote (leisure) cycling in and around a city, but also that those events are recognised and, when possible, sponsored by political authorities and visited by high ranked political officials and show business and sports celebrities. Of course it is of an outstanding importance that events are announced, covered and reported by traditional mass media and by new social media.
2.5. General Recommendations for “Bike The Track-Track The Bike” Campaigns

Based on the “Emotions for Clean Urban Transport” Final Brochure relevant recommendations can be summed up as follows:

- Beauty is a winning factor! Beautiful pictures and images start a positive spiral!
- The emotional approach sticks longer in the memory and in people’s hearts. Beauty and fun are more convincing than moralising or pure rational arguments.
- Be innovative in using emotions as fun, freedom, sex appeal. It’s allowed to use your imagination, but stay realistic so that you can overcome the negative image on cycling that might exist now.
- Create a moment of surprise!
- The emotional approach is one of the customers.
- Organise awareness raising actions for persons and not for anonymous ‘customers’; make them a valuable part of your system.
- An emotional approach is not only motivating for potential customers or cyclists but also for the staff of the company or municipality.
- An emotional event such as an award giving day, a bicycle day or a competition gives the press and media something to report about. The emotional approach acts appealing!
- Emotional actions provide a big political capital when producing concrete results, realistic offers and when actions appeal to the individuals’ hearts.

2.5.1. Do’s and don’ts for organising Bike the Track – Track the Bike events

- It’s important to start with a clear concept; the messages you want to convey must be clear to a broad public! It is not about cycling as such or cycling to work/school or recreational cycling - it is about leisure cycling!
- Give a convincing, inspiring yet realistic narrative structure to the event - make it "a story to be told"!
- “Prizes and wins” need to be a clear part of the message and need to be visible in media promotion and reporting of the campaign!
- The emotional approach represents a cultural innovation which could be in conflict with a more traditional view on marketing. It is therefore advisable to engage stakeholders in an early stage to give enough time for argumentation of the innovation and learning process!
- Organise the event at the beginning of spring, so people continue cycling for leisure even when the campaign has ended - slowly establishing a long-term behaviour change!

- Engage intermediaries such as retailers, shop-owners, schools, libraries, (youth) culture clubs etc.

- Combine fun, happiness and family events with information to promote cycling with rational arguments (improved health, time and financial savings etc.) and cautious safety instructions (traffic rules and behaviour, safe routes, theft prevention, etc.).

- Get the media involved. They are fundamental for the success of the event, and the presence in the media is important for decision makers involved in your project.

- Launch a campaign with an attractive event and involve local politicians to create a greater interest in public to start a change in leisure behaviour travel, but note that the involved politicians should be credible and passionate bikers!

- Conclude the campaigns with an event with as much fun as the launch. This can be with winning rewards, but also with introducing improved and renovated dangerous points in the city.

- Every participant should be rewarded by a small reward (discount, symbolical gift, certificate etc.). Do not rely on “the winner takes it all” principle!

- Provide (small) prizes already during the campaign (not only big prizes at the end of the campaign)!

- Don’t start an action without a clear concept, involvement of local decision makers or without the highest attention for beauty of images, proposals and the overall actions.

- Don’t overwhelm people with information. Collect the information in a map they can easily take with them on their bikes.

- Don’t stop linking positive emotions with cycling after the campaign day. The positive attitude needs to be repeated to keep sticking.
2.5.2. Do's and don'ts for organising Bike the Track – Track the Bike events on public roads

- Consider national and local rules and regulations on public events on public roads in advance in order to provide requested documentation in time and get requested allowances and permissions in time – start organising the event at least 6 weeks before;
- Do not hesitate to contact and learn from individuals and organisations that have experience in organising public events on public roads.
- A good co-operation with the police is necessary.
- Extend the promotion of your activity widely, co-operate with the local media to attract an audience and create publicity afterwards.
- Give clear instructions for potential participants in the announcements in media and at the spot.
- If children are involved, take care that there are facilities for playing available and that the event doesn’t take longer than 3 hours.
- Don’t make the competition into a race, but focus on skills and steadiness.
3. DEVELOPMENT OF BIKE THE TRACK – TRACK THE BIKE CONCEPT

3.1. Rationale of the Bike the track – Track the bike approach

3.1.1 Transport, cycling, CO₂ and leisure travel

On the level of the EU-27 people travelled over 6,527 billion kilometres with engine powered modes in 2008, which corresponds to around a 1,257,936 kilotonnes of CO₂. According to our best estimation, approximately 90 billion zero-emission km are cycled annually in the EU. That is as much as people travel by tram and metro.

The following figure shows the German case where 30% of the 135,000 kilotonnes CO₂ produced by every day transport is caused by travel to leisure activities, such as shopping, travel to sport clubs, park and cinema visits. More than half of all CO₂ transport related production can be attributed to leisure mobility in general (69,000 kilotonnes of CO₂). With Germany considered as being in the middle group of countries with a cycle culture this percentage is expected to be worse in most EU member states.
Fig 1.2 Breakdown of annual CO2 emission in everyday transport in Germany (2008)

Almost half of all car journeys are shorter than five kilometres and as it takes time before the motor warms up, the fuel consumption and emissions are higher during these trips. In 2005 such car trips alone generated over 14,000 kilotonnes of CO2 in Germany and it is expected that such travel will still produce 11,000 of kilotonnes by 2020.

3.1.2 Cycling on short urban distances

Cycling is considered the most suitable for short distance travel (from 2 to 5 km). Therewith especially in the urban areas the promotion in general of cycling replacing car travel is an excellent means to reduce the use of fossil fuels and makes a large contribution to climate protection. Of all travellers regular cyclists are responsible for a lower share in use of fossil fuels and CO2 emissions (see figure 3.2).

Fig; 1.3 CO2 emissions broken down into type of traveller1
For Germany on the short distance travel this would result in an additional saving of 4200 CO₂ kilotonnes (as an indication the annual production CO₂ of all private households in the city of Berlin is 5800 kilotonnes of CO₂).

Despite the potential, it is currently estimated that in average 5% of all urban trips in the EU done by cycling. It is estimated that in the Netherlands and Denmark targeted cycle policies could make an increase possible from 10% (approx. from 33 to 43%), which is on one hand more difficult in countries without a cycling culture, on the other hand easier due to the larger potential. If we would be able to increase the modal share of cycling with only half of that figure (5%), just imagine what enormous impact this would have: 32 billion of extra cycle kilometres, a similar decrease in car kilometre and billions of liters of fuel saved. Within the urban area on short distance trips behaviour is the main barrier.

Current situation in the target countries/regions:

Until the 1950 the cycle was a popular travel mode in all EU Member States; afterwards the car became the most used mode of transport.

Fig. 3.4 Trend lines of bicycle modal share of a number of European cities (1920 -1995)

Around 80% of European citizens live in an urban environment. They share in their daily life the same space, and for their mobility the same infrastructure. Their mobility accounts for 40% of all CO₂ emissions and fossil fuel use of road transport.
For many European countries and cities low bicycle percentages certainly do not automatically imply a high degree of car use. South European cities are often characterised by high ‘walking’ percentages, for instance San Sebastian in Spain: 3% bicycle against 34% car, because 44% of all trips are done by walking. Nevertheless in general, most urban areas show a modal split between 30 to 40% for car travel, with lower numbers for cycling and walking.

Whereas cycling in urban areas in Germany, Denmark, Netherlands and Belgium remains rather high, in other European countries cycling is a minor mode for travelling. However in almost all countries there are examples of cities showing that a true cycle promotion policies can also work in those countries:

- In **Great Britain** bicycle use is on average only 2%, but there are several incidental cases with a much higher degree of bicycle use (York and Hull 11%, Oxford and particularly Cambridge close to 20%);
- **Ireland** scores 3-4%, with virtually no upward extremes (Dublin 5%);
- In **Sweden** bicycle use is on average 7% of all trips; for cities this is 10%. Peaks: Lund and Malmö 20%;
- In the **Czech Republic**, as in other **Eastern European countries**, there are a few cities with some degree of bicycle use (Ostrava, Olomouc and České Budejovice, between 5% and 10%) and some with an even higher bicycle use (Prostejov 20%). However, average use is low: far below 5%.
- **Austria** has an average bicycle percentage of 9%, with Graz (14%) and Salzburg (19%);
- **Switzerland** scores approximately 11% for bicycle use, with several cities at a slightly higher level, like Bern (15%), Basel (17%) and Winterthur (approx. 20%);
- **France** has a low average bicycle use (5%), with Strasbourg 12%, Avignon 10%;
- Although in **Italy** average bicycle use is as low as 5%, with Rome even far below 1%, there are a number of exceptions. Especially the Po valley, with cities like Parma (over 15%) and with Ferrara as the best-known example of around 30% bicycle use. Another remarkable town is Florence (over 20%) and mainland Venice where the bicycle has a modal share of nearly 20%.
- In **Finland** bicycle use is on average 12% (share of travelled kilometres is lower than that of trips, the latter is used here) The Greater Helsinki Area scores 8-9%, whereas the outskirts of the Helsinki region score 18-19%. The Finnish leader city in bicycle culture is Oulu (20%). Oulu is located in northern Finland, and even though winter is long and temperatures are low, it is usual that people in Oulu cycle throughout the whole year.
- A large survey carried out in 2009 at the supermarkets and shopping malls in Graz (AT) showed that **80% of all purchases could have been carried home by bike**, with a big enough basket. Though a car was only needed for 6% of all shopping trips, 77% of customers travelled by car.
The cycle potential has not been sufficiently explored in too many cities. There are many recent EU examples of cities where targeted cycle policies based on voluntary participation can lead to fast and extraordinary results. For example the city of Seville in southern Spain, with a population of around 700,000, is a good example of a sudden change in modal share urban trips. In three years, from 2006 to 2009, the percentage of cyclists in the city more than tripled. According to the last data published by the bicycle association ‘A Contramano’, there were 6,000 cyclists in 2006. This number grew to 13,800 in 2007 and reached 50,000 in 2009. The municipality achieved this exceptional result by implementing a strong bicycle policy of strong cycling promotion.

Based on PRESTO approach in general a distinction can be made between three types of situations:

- **Champion Cities** with a high modal share for cycling, between 20 to 40% (i.e. Denmark, Netherlands and certain parts of Belgium and Germany);
- **Climber Cities** with an average modal share for cycling between 5 to 20% (Austria, Switzerland, Germany, Belgium, Scandinavian states, larger cities in the Eastern Member States, UK, Spain and Portugal);
- **Starter Cities** with a very low modal share for cycling, or virtually no cycling at all.
3.2. Theoretical background of the concept

The core of the Bike the Track – Track the Bike project are campaigns aiming to change leisure travel behaviour from predominant use of motorised vehicles (mainly private cars) to an increasing use of bicycle by the target group of 100 pupils aged 9 to 15 and their families in 6 European cities. In the text below some theoretical aspects of urban transport campaigning and mobility habits change are provided.

Campaigning always has as its objective a certain change, however not always necessarily a (direct) change of behaviour. It can be also focused on changing perception, attitudes or level of information and/or knowledge. Change of behaviour can be approached from a perspective of different scientific fields and theories. It can be explained from economy perspective as a result of market competition and innovation that enables more efficient satisfaction of needs and/or create new needs.

Change of individual needs whether provoked by external factors or by self-fulfilment of an individual is in the general explanation of behaviour change from psychology perspective. From the perspective of sociology change of behaviour is a result of a shift of social norms, social power and/or requests of powerful groups and their interactions.

In system theory change of behaviour is a result of behaviour crisis where only certain changes lead toward new dynamic equilibrium of the system. In theories of culture change of behaviour is related to complex relation of changes in values, beliefs and myths that might be provoked either by internal or external factors. Political theories in general explain change of individual or collective behaviour either as result of coercion exercised by political authorities or as result of resistance to political or social coercion.

According to the definition of the Tapestry project a campaign is a series of planned activities with a particular social, commercial or political aim to promote a particular product, idea or an event and is characterised by:

“Purposive attempts to inform, persuade, and motivate a population (or sub-group of a population) using organised communication activities through specific channels, with or without other supportive community activities.”

It is however rather difficult to distinguish between campaign, action and programme, but generally one can say that campaign like a project has a start and an end and it consist of many actions, yet it is not regular even if it is repeated whereas regularity is a characteristics of a programme. Each campaign should be – based on the indicators developed prior to its actual start that can be however modified during the campaign itself – evaluated in order to assess its success (or failure).
There are many different ideal types of campaigns that are aiming to reach different objectives:

- to provide new or additional information or to make people interested to get (new) information and/or new knowledge on an issue;
- to change or create (new) perception of an issues;
- to make (public) statements on an issue;
- to influence the target group’s attitudes and behaviour in order to find the most suitable solution(s) and
- to change behaviour of one or more target groups in a desirable direction and to provide cognitive and emotional support to the change in question.

In practice campaigns can combine two or more aims or are divided into different parts where each is focused on one objective. What should be the aims and objectives of a campaign can usually not be decided without having knowledge on the state-of-the-art of the situation the campaign is addressing and without defining target groups.

### 3.2.1. Explanatory role of the Theory of Planned Behaviour

There are several theories and approaches to explain behavioural change. We believe that the Theory of Planned Behaviour can provide much assistance in understanding of beliefs that are important to be understood from the perspective of Bike the Track – Track the Bike campaigns, since it has been recognized as adequate also by other projects focused on behavioural change in urban transport as this is the case of Active Travel Network project.

The Theory of Planned Behaviour operates with three sets of beliefs:

1. **Behavioural Beliefs** are related to factors such as freedom, health, comfort or relaxation. In our case all these characteristics can also be ascribed to a bicycle as a transport means in (urban) transport, yet in many (urban) transport cultures beliefs of cycling as a transport mode of social or age groups who cannot afford to choose other transportation mode still predominates.
Contrary to the facts even in countries where cycling is considered as a free choice of an individual and in principle as healthy and generally approved activity there are beliefs that cycling in a city is not healthy due to polluted air in spite of scientifically proven facts that concentrations of air pollutants are far larger in cars and therefore driving a car in a city should be considered more unhealthy as cycling.

2. **Normative Beliefs** are based on how people that can exercise authority in different way (teachers, parents, friends, political representatives, officials etc.) can approve or disapprove behaviours of an individual or a group. If normative support to (leisure) cycling is not actively provided by any of authorities it is quite unlikely that - except of members of specific subcultures that are focused to challenge predominant normative beliefs - anyone will actually cycle (for leisure).

3. Contrary to the first two set of believes that are not determined by individual’s experience (or second hand experience get from someone one personally knows) **Control Beliefs** are based on experience and control whether people do something or not. For example one might not use his or hers bicycle if the weather is bad, if it is dark, if he or she has to carry a lot of luggage or is in hurry etc.
3.2.2. Seven stages of transport behaviour change

The Theory of Planned Behaviour served as a basis for the developed of the model of seven stages of change of transport behaviour, developed within the EU-funded project TAPESTRY. For the model in question the corner stone for changes of transport behaviour is awareness of the problems caused by car traffic. Marketing of cycling as pleasure and fun alone will not lead to accept the annoyances and risks of cycling in urban traffic that are inevitable in most of cycling to leisure activities. If cycling is just fun and a pleasure than people will do it outside the city on some nice and empty local roads or in nice parts of the city (like parks) only.

When people are aware of the problem and the fact that if they are using a car they are a part of it, they might be willing to accept responsibility and consider contributing to the solutions. In our case it is important that people are not only aware of air pollutions, noise, congestions and emissions of greenhouse gases from the transport in general but that they are also aware of the environmental problems that are in their city generated by transport as well as the fact that leisure transport is one of the major causes of the problem.
Yet if people are not aware of the alternatives or the later are negatively perceived this will not lead toward desired changes of travel behaviour even when people are aware of the problem and are willing to accept responsibility. Not only awareness on options as such, but also perception of options is therefore important. The most important factors at this stage are related to the “system” (e.g. whether public transport is seen to be on time, safe, easy to use), and those related to “society” (e.g. an individual’s reliance on the views of other people in shaping their own attitudes and behaviour). The latter include the valued opinions of family members, friends, work colleagues and what is seen to be “normal” in their community.

People will only consider voluntarily changing their mode of transport if they have a positive perception of the alternatives with regard to factors, which are most important to them. They will perceive different modes in different ways and this may vary according to individual preferences, priorities and particular circumstances. Their travel choices will be at this stage influenced by their abilities for evaluation of options. They might be for example not willing to use a bicycle for shopping trips if they cannot park them safely close to shop entrances or if they cannot get adequate bags or baskets to carry on bicycle. Alternatively they might not be willing to use a bicycle to go to a cultural event if they believe that this will be negatively perceived by their friends even when they evaluate that they will get there faster and will spend less money for transportation.
All this factors will be considered before making a choice. This stage is characterized with development of an intention whether to change transport behaviour and start using and alternative mode for certain trips, in our case use of a bicycle for leisure trips in a city.

One can however start using alternative transport mode but faced with obstacles and/or disapproval of relevant opinion makers one can withdraw from practicing new mobility pattern. After reconsidering options one more time one might either start to experiment with other alternatives or turn to initial transport mode, to old behaviour patterns. This might also lead toward reassessment of acceptance of personal responsibility. If however the experimental behaviour with the new transport mode provides positive feedback, i.e. one feels relatively safe and comfortable in practical use of new transport mode, when positive expectations about time and financial gains are meet in general and when new behaviour is not put under question by relevant others this change may become more permanent.

At the end of this long term adoption of new transport behaviour for certain trips new behaviour pattern might become regular, i.e. results in new habitual behaviour. To reach this final goal of a transport behavioural change campaign it takes time and requires this or another form of institutional support.

Translated into an example and simplified for our project this means the following steps in changing leisure travel behaviour:

- Leisure cycling is not relevant for me
- Leisure cycling might be an option
- I would like to try to cycle for leisure
- I tried, and I cycle for leisure now and then
- I regularly cycle for leisure
3.3. Share of cycling in the modal split and (leisure) cycling campaigning

According to criteria developed within the PRESTO project in terms of share of cycling in the modal split the cities one should distinguish between

a) **Starters** (below 5% of cycling in modal split)
b) **Climbers** (around of cycling in modal split 10%)
c) **Champions** (above of cycling in modal split 20%)

"Starters" should also within and during leisure cycling promotion campaigns focus to provide general information on cycling (why to cycle, where to cycle) and cycling safety (how to cycle and where not to cycle). Indeed "a leisure cycling campaign" is just a part of a general promotion of cycling as normal and favourable way of commuting in a "starter" city. Nothing is wrong when emphasis in promotion of cycling is rather to its health and environmental virtues given to "pleasure and leisure on bicycle". Indeed in many European cultures, especially in Mediterranean countries, this emphasis is exactly needed for carrying out successful promotion campaigns for cycling in general, and for utility and leisure cycling.
As "climber" cities should put a focus not only on infrastructure investment but also in marketing and promotion of cycling they can find leisure cycling as an attractive field for promotion of cycling in the city in general. Especially when private-public partnerships can be arranged since it is more likely that the business would be interested in investing in campaigns that are promoting cycling as a part of consumerism as in campaigns that are at very first promoting "non-commercial" virtues of cycling. However when designing those kind of partnerships the municipalities should keep in mind that balancing of "consumerism" and "public benefits" is absolutely necessary since they still need to promote cycling as a virtue. "Over commercialisation" of cycling campaigns can on the other side frustrate public servicing NGOs that might withdraw their support in developing cycling culture in the city if the latter would be too much influenced by pure commercial interests.

In "champion" cities cycling is already considered as a virtue and cycling culture is well established also among the city urban and transport planners. Bicycle is (no more) understood in opposition to car but praised because of its own advantages and virtues in urban transport. When general awareness raising and promotion of bicycle is (still) in place one does not need to provide those kinds of messages and information within the leisure cycling campaigns. The campaigns can clearly focus on indirect and direct benefits of "shopping by bicycle" and "leisure by bicycle" without being at risk to be suspected or even counter-campaigned as "promotion of consumerist's lifestyles". In our research those kinds of campaigns have been only identified in the Netherlands. Although also many Danish and German towns can qualify as "champion cities" in terms of cycling; the cycling there still seems to be more promoted as environmental and health responsible transport choice and in best case as health benefits and financial savings providing "pleasure" rather as a pure "leisure" and/or "shopping pleasure".

Leisure cycling campaigns can be combined with promotion of city bike sharing systems, e-bikes and/or specialised bicycles (traveling and shopping bicycles) and bicycle equipment (baskets, bags, trailers etc.) and can include also various aspects and different types of cycling safety campaigns, yet the latter should not spread the message that (leisure) cycling is a dangerous activity. Leisure cycling campaigns can be also combined with recreational sports, cycling activities like different family cycling marathons unless the latter are not predominately oriented on performance competition, but remain social events aiming to bring together cyclists and promoting joy of cycling rather than sports achievements.
3.4. How a success of behavioural campaigns can be assessed?

The overall impact of a campaign on the behaviour of the target population can be assessed by measuring changes in modal split (i.e. percentage of trips by mode), using travel diary or related data. Each stage of the process can be influenced not just by the campaign, but also by other external or exogenous factors. Measuring the impacts of the campaign therefore has to be combined with measuring specifically declared campaign effects and more general campaign recall, as well as recording the possible impacts of other non-campaign measures implemented or external factors.

In our case however the success of campaign can be measured by the following indicators:

- number of participants engaged in the project (by each city)
- number of registered leisure journeys made by bicycle
- opinions of the participants on the impact of the campaigns on their leisure travel mode and on their satisfaction with the campaign (gathered by standardised questionnaires)
- model based calculated data on CO₂ saving resulting from campaigns

3.5. EU aspects of the concepts and EU added values

In spite the fact that leisure travel represents a large share of total personal transport in the EU and considerable efforts are taken at EU, member states and municipal level to promote cycling transport and to increase its share in urban modal split few activities have been undertaken for comprehensive and systematic approach in support of leisure cycling.

There are gaps in theoretical knowledge as well as in practical experience in support of leisure cycling within EU member states and at EU level. Where for example RFID bike tracking technologies are regularly used in sport cycling and mass recreational cycling events and GPS based tracking is more and more used for urban and tourism cycling information services there is in Europe very few experience with its application for tracking leisure cycling activities.
Similarly there is vast experience all around in Europe with cycling to work or to school campaigning yet the concepts and tools of effective and efficient cycling campaigning have been very rarely applied to leisure cycling. One of the important EU aspects of the project is to bridge those gaps.

The other important EU aspect of the project is to enable 6 cities involved to learn and explore from their distinctive national and local cycling cultures. In advanced urban cycling cultures of northern European countries cycling promotion is predominately based on “rational argumentation” of health, environmental, financial and transport benefits of cycling and people are recognised and praised for their cycling transport activities. In CEE states cycling cultures are predominately shaped by cycling as a free time activity or a part of toward sport and/ or health oriented lifestyles of individuals and families. Cycling as generally acceptable urban transport activity is first making roots – yet this is true also for the majority of the cities in Mediterranean countries in spite that some are well known on their massive sports and sport-recreational events and important role that sport cycling champions are playing in public life. BtB project enables trans-cultural learning between different cycling cultures and supports transposition of approaches and tools for promotion of leisure cycling between the partner cities and beyond.

BtB also serves as a mode for exchange of information on different type of cycling activities and comparison of similar type of activities between 6 partner cities. In this sense information and knowledge can be transferred and transposed also outside the field of leisure cycling to the other fields of cycling like cycling to work/school, cycling tourism, and sports recreation events and to cycling policies of the municipalities involved and their institutionalisation in general.

The EU added value is in innovative application of experiences gained within diverse types of different cycling campaigns into a new concept. BtB project is combining the following:

- relevant findings from contemporary urban transport behaviour change theories (priority of emotions over rational argumentation and visual messages over texts, relevance of behavioural, normative and control believes, stages of behavioural change etc;

- experiences and tools gained from diverse EU, national and local projects aiming to promote urban cycling culture, cycling to work/ school, shopping by bicycle and family cycling;

- experience gained with contemporary advanced ICT supported bike tracking technologies applied in different EU municipalities and regions at very first for sport and sport-recreational cycling events.
The EU added values of BtB project therefore are:
  a) for the first time comprehensive and systematic approach has been used to collect relevant theoretical findings, experience and tools in support of leisure cycling that can be used in EU cities and beyond;
  b) for the first time 6 cities from various parts of Europe apply and test the same concept and similar approaches of promotion of leisure cycling among pupils aged 9 to 15 and their families;
  c) for the first time advanced ICT based tracking technologies are used as a tool in support of leisure cycling activities that will be carried out in parallel in more cities in Europe;
  d) through the dissemination activities results and lessons learned from comprehensive approach and use of ICT based bike tracking technologies at EU level will be made available to other EU cities and regions.

3.6. Detailed description of applicable technologies for tracking of family and leisure cycling including strengths, weakness and challenges for use of each technology

RFID readers are in recent years more and more in use at different cycling sport and recreational events in different cycling categories and disciplines. Their use is providing control and precise individual time measurement necessary for any kind of competition at relatively low price for mass events.

Smart phones and GPS applications are on the contrary not used for control and time measurement at professional or recreational sport events but for tracking and recording individual cycling routes and GPS based travel navigation. Applications can be used for conventional and e-cycling maps and GPS navigation can nowadays be applied also for smart phones that are becoming more and more popular. It is expected that in a few years conventional mobile phones will be replaced by smart phones therefore most of cyclist in developed countries will be able both to track their routes as well as to navigate by smart phone.
Indeed ICT technology is also needed when recording of cycled distances is based on kilometre counters fixed on each bicycle individually and stamp books. When a web platform that enables each participant to register and by registration also provide his/hers address of residence is given it is possible to assess distance of specific journey when at the final destination the password is provided that is later on inscribed into web application under presumption that the location of the destination of the password is known. Based on an e-map a web application can be designed to assess the distance cycled between the place of residence and “password point”. In the same manner also the number of trips to various “password points” can be automatically calculated. The advantage of this approach is that it does not demand any kind of tracking technology yet of course no precise tracking and recording of cycled paths can be provided nor any kind of navigation services.

The cycled leisure trips should be recorded by any kind of following technologies or their combinations:

- km counters and stamp cards;
- RFID counters and chips
- smart phones and GPS tracking systems

**Km counters and stamp cards**

**Pros:**
- Simple for users, cheap and robust

**Cons:**
- Time consuming both in instalment of counting network (agreement with all "counting points" to stamp each trip) as well as in recording and collecting of the data of trips.
- It is neither possible to distinguish between totally recorded cycled km and those cycled for "leisure" nor to track down the actually cycled paths.
- It’s a great barrier for the users that they have to type in their results manually.
- Results aren’t on-line and the on-going results can’t motivate the users to do a better performance.
RFID counters and chips

Pros:
- Simple for users and for data managers, almost zero costs for placing a chip on a bicycle (1 €).
- Users can’t forget to register their trips.
- Very suitable for children.
- When passing the check point a flashing smiley reminds the users about the positive side of being a cyclist.

Cons:
- RFID counters are quite expensive and not that easy to install at any place (access to power grid, safety concerns, administrative procedures)
- It cannot provide exact information on the end purpose of the trip (for example in case of large shopping mall: where was the actual stop of the cyclist – was he or she actually going to this or another shop or to the cinema or was he or she simply just passing through the shopping mall without stopping), however in case of the BtB project this is not a problem since the project is not targeting those information.
- Since the data collected cannot provide exact information on actual trip it can be hardly (miss)used for any other purpose.

Smart phone and GPS based apps

Pros:
- Excellent for easy recording and reports exact timing and travel pattern of the users.
- Gives the users an online feedback about their performance and the ranking list.
- Can be used also as an information tool in planning cycling infrastructure and for improving cycling safety in the city.
- Trendy techno that is rapidly wide spreading and is massively promoted by industry.
**Cons:**

- Their use might rather provoke envy with by non-participating pupils then a wish to participate too.
- Users might forget to check in.
- Pupils with highly desirable valuable "toys" are more likely to be exposed to violence and/or criminal acts (theft, robbery).
- They need to be activated for purpose of tracking when the target destination is reached (two clicks are needed) bicycle ride. This requires attention of users that can be by pupils achieved only through training an adequate motivation.
4. BtB EVALUATION AND PERFORMANCE INDICATORS

4.1. Presumptions

The BtB project assumes – based on the simple facts that bicycle is low noise, zero GHG and air pollutant emission that is in most cases the fastest door to door vehicle on the distances up to 5 km in urban areas – that there exists a positive correlations between increased leisure cycling in urban areas, improved energy efficiency of urban transport and reductions of CO₂, air pollutants and noise emission. Another assumption is that increase of leisure cycling in the city will lead toward increased share of cycling in the modal split of a city and in total traveled km within the city. Next to direct impact of replacing personal car driven kilometers in a city for leisure purposes by cycled kilometers additional gain is in indirect impact of replacement of car driven trips to work/school by cycling trips. The assumption here is that if presented and accepted as activity that has a positive image and makes fun while contributing to better individual health and local and global environment at least some leisure cyclists that are not (or not very often) cycling to work/school at least occasionally (or more often) also cycle for this purpose, too. The aim of BtB evaluation is however not to focus on total environmental benefits of leisure cycling but only to reduced CO₂ emissions resulting from improved efficiency of transport by replacement of personal car driven urban leisure travel by cycled leisure travel kilometres.

4.2 Assumptions and expectations

The B-Track-B project aims at a fuel saving target of 4,177,873 litres of fuels per year by the end of the project and 14,324,136 litres of fuel, annually by 2020, even though this depends on a large number of external factors. The specification is given in table below “Impact estimations B-Track-B objectives, changes in modal split and fuel savings” in which we made a calculation of the foreseen impact of B-Track-B at each site.

First of all we expect an increase in modal share for cycling of 1.66% annually. Secondly we expect that 75% of the new cycle kilometres are former private car km. The total increase in cycle kilometres and the decrease in litres of fuel saved can then be calculated given the fact that a decrease in car kilometres directly gives a decrease in fuel consumption.
In general we can say that the calculations made are on the safe side, so a somewhat higher impact can possibly be achieved. During the B-Track-B project we run twice a 6 month campaign yet the project includes also a number of direct effects due to not only a shift in behaviour of the direct participants, yet also of other families within the cities due to the targeted dissemination, and triggering of other infrastructure and non-infrastructure cycle improvements.

The total fuel saving is estimated with an end of the project lifetime, end 2014.

Table "Impact estimations following B-Track-B objectives, changes in modal split and fuel savings"

<table>
<thead>
<tr>
<th>Site</th>
<th>Cycle kilometres per annum</th>
<th>Goal by end project, an increase of</th>
<th>Average cycle kilometres increase per annum (3 yrs project)</th>
<th>Percentage of former Car Km</th>
<th>Average decrease in car kilometres per year</th>
<th>Average fuel consumption (litres/km) short trip/urban area</th>
<th>Litres of fuel saved per year by end of the project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotterdam</td>
<td>5300000</td>
<td>5%</td>
<td>17800000</td>
<td>75%</td>
<td>13350000</td>
<td>0.1</td>
<td>2002500</td>
</tr>
<tr>
<td>Frederica</td>
<td>23591468</td>
<td>5%</td>
<td>786382</td>
<td>75%</td>
<td>589787</td>
<td>0.1</td>
<td>88468</td>
</tr>
<tr>
<td>Munster</td>
<td>424320000</td>
<td>5%</td>
<td>14144000</td>
<td>75%</td>
<td>10680000</td>
<td>0.1</td>
<td>1591200</td>
</tr>
<tr>
<td>Ljubljana</td>
<td>60000000</td>
<td>5%</td>
<td>2000000</td>
<td>75%</td>
<td>1500000</td>
<td>0.1</td>
<td>2250000</td>
</tr>
<tr>
<td>Venice</td>
<td>5500000</td>
<td>5%</td>
<td>1833333</td>
<td>75%</td>
<td>1375000</td>
<td>0.1</td>
<td>2062500</td>
</tr>
<tr>
<td>Vilamoura</td>
<td>887972</td>
<td>5%</td>
<td>29599</td>
<td>75%</td>
<td>22199</td>
<td>0.1</td>
<td>3330</td>
</tr>
<tr>
<td>Espoo</td>
<td>16300000</td>
<td>5%</td>
<td>54333</td>
<td>75%</td>
<td>407500</td>
<td>0.1</td>
<td>61125</td>
</tr>
<tr>
<td>All</td>
<td>1114099440</td>
<td>5%</td>
<td>37136648</td>
<td>75%</td>
<td>27852486</td>
<td>0.1</td>
<td>4177873</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site</th>
<th>Total litres of fuel saved by the project efforts at the end of the project (3yrs)</th>
<th>Total litres of fuel saved by 2020 (excluding followers)</th>
<th>total litres of fuel saved by the project efforts in 2020 including followers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotterdam</td>
<td>40050000</td>
<td>18022500</td>
<td>58490221</td>
</tr>
<tr>
<td>Frederica</td>
<td>176051</td>
<td>796212</td>
<td></td>
</tr>
<tr>
<td>Munster</td>
<td>3166488</td>
<td>14320800</td>
<td></td>
</tr>
<tr>
<td>Ljubljana</td>
<td>4477650</td>
<td>2025000</td>
<td></td>
</tr>
<tr>
<td>Venice</td>
<td>410438</td>
<td>1866250</td>
<td></td>
</tr>
<tr>
<td>Vilamoura</td>
<td>6626</td>
<td>29969</td>
<td></td>
</tr>
<tr>
<td>Espoo</td>
<td>121639</td>
<td>550125</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>8333992</td>
<td>37600856</td>
<td>58490221</td>
</tr>
</tbody>
</table>
The assumptions are based on the idea that the B-Track-B project is not just a simple campaign but a catalyst for the promotion of cycling in general, and cycling to leisure travel more specific. A large part of the efforts are put in the specific organisation of the promotion of the cycling of the direct involved families, yet a non-negligible part of the work is related to the use of those families as good practice examples for other families. Also is the B-Track-B embedded in wider cycle policies for which it will act as a catalyst (e.g. just as the public bicycle systems do in many European cities) for an improved modal split for cycling.

Following this reason an increase of 5% was set for all sites for cycling in general. This 5% was chosen following the reported local policy objectives of the cities. For example Rotterdam reported on their new plans for the city centre (City Centre Rotterdam, 2009) where the bicycle has a prominent place. Goal is to improve the modal split from 19% to 24%. Presently, Fredericia has an 18% share of cycle traffic and the aim is to increase this number to 25%. The strategy in Ljubljana aiming to increase the share of cycling in the modal split of the city with 20% till 2020 (further elaborated into bi-annual Cycling Action Plans). Especially if cities as Rotterdam and Fredericia are confident enough to set this levels of modal split change, it was judged possible for other cities as well.

Taking into account the objective of the project to find 10 followers and the assumption that their annually cycled kilometres in the city is an average of the 7 B-Track-B sites, the direct project fuel saving of the B-Track-B project will be a total of 58 490 221 litres of fuel saved by 2020 in comparison with the baseline scenario. The followers are expected to have a 5% increase in cycle km.

Please note that it is too early in the project to say if besides the 10 followers the project will have more followers by the year 2020, which could be up to 50.

In order to calculate the TOE and CO₂e, the project made the following assumptions:

- Considering the target population of B-Track-B (passenger urban travel), it seems reasonable to assume a 50% use of gasoline vs. 50% use of diesel in the demand shifted from private transport to cycling;
- Conversion of litres to toe: 1 litre gasoline = 0,00083136 toe; 1 litre diesel = 0,00092449 toe;
- Conversion of litres to Equivalent Carbon Dioxide (CO₂e): 1 litre gasoline = 2,679 kg CO₂e; 1 litre diesel = 2,338 kg CO₂e.
4.3 Performance indicators in relation to the direct participating families

The precise figures in relation to the potential of fuel savings by the direct participating families will only be possible after the determination of their present cycle behaviour. On the basis of the available figures a first estimation has been calculated on the basis of number of kilometres cycled annually, number of inhabitants, average size of the families, and number of participating families.

<table>
<thead>
<tr>
<th>Site</th>
<th>Cycle kilometres per annum</th>
<th>Nr of Inhabitants</th>
<th>Average family size</th>
<th>Nr of families</th>
<th>Cycle kilometre per annum per family</th>
<th>Number of families directly participating in B-track-B</th>
<th>Estimated nr of kilometres cycled by participating families per annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotterdam</td>
<td>534000000</td>
<td>610389</td>
<td>2.2</td>
<td>277450</td>
<td>1925</td>
<td>100</td>
<td>192467</td>
</tr>
<tr>
<td>Frederica</td>
<td>23591468</td>
<td>50000</td>
<td>2.0</td>
<td>25000</td>
<td>944</td>
<td>100</td>
<td>94366</td>
</tr>
<tr>
<td>Munster</td>
<td>424320000</td>
<td>280000</td>
<td>2.0</td>
<td>140000</td>
<td>3031</td>
<td>100</td>
<td>303086</td>
</tr>
<tr>
<td>Ljubljana</td>
<td>600000000</td>
<td>240000</td>
<td>2.6</td>
<td>92308</td>
<td>650</td>
<td>100</td>
<td>65000</td>
</tr>
<tr>
<td>Venice (Mestre)</td>
<td>550000000</td>
<td>170000</td>
<td>2.4</td>
<td>70833</td>
<td>776</td>
<td>100</td>
<td>77647</td>
</tr>
<tr>
<td>Algarve</td>
<td>887972</td>
<td>417000</td>
<td>2.7</td>
<td>154444</td>
<td>6</td>
<td>100</td>
<td>575</td>
</tr>
<tr>
<td>Espoo</td>
<td>163000000</td>
<td>249000</td>
<td>2.1</td>
<td>118571</td>
<td>137</td>
<td>100</td>
<td>13747</td>
</tr>
<tr>
<td>All</td>
<td>1114099440</td>
<td>2016389</td>
<td></td>
<td>878606</td>
<td></td>
<td>700</td>
<td>746888</td>
</tr>
</tbody>
</table>

Based on our assumptions the 700 participating families are expected to cycle at present 747 thousand kilometres per year.

<table>
<thead>
<tr>
<th>Site</th>
<th>Estimated Nr of kilometres cycled by participating families per annum</th>
<th>Goal by end project, an increase of</th>
<th>Increase in Cycle kilometres per annum (3 yrs project)</th>
<th>Decrease in car kilometres per annum</th>
<th>Litres of fuel saved per year by the end of the project</th>
<th>Total litres of fuel saved by the project efforts at the end of the project (Yrs)</th>
<th>Total litres of fuel saved annually by 2020 (exclusive followers)</th>
<th>Total litres of fuel saved annually by 2020 including followers*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotterdam</td>
<td>112467</td>
<td>10%</td>
<td>6416</td>
<td>4612</td>
<td>1444</td>
<td>4331</td>
<td>11549</td>
<td>13604</td>
</tr>
<tr>
<td>Frederica</td>
<td>94356</td>
<td>10%</td>
<td>3146</td>
<td>2339</td>
<td>705</td>
<td>2123</td>
<td>5662</td>
<td>92828</td>
</tr>
<tr>
<td>Munster</td>
<td>303086</td>
<td>10%</td>
<td>10103</td>
<td>7577</td>
<td>2273</td>
<td>6819</td>
<td>18185</td>
<td></td>
</tr>
<tr>
<td>Ljubljana</td>
<td>650000</td>
<td>10%</td>
<td>2167</td>
<td>1625</td>
<td>488</td>
<td>1463</td>
<td>3900</td>
<td></td>
</tr>
<tr>
<td>Venice</td>
<td>78474</td>
<td>10%</td>
<td>2588</td>
<td>1941</td>
<td>582</td>
<td>1741</td>
<td>4685</td>
<td></td>
</tr>
<tr>
<td>Vilamoura</td>
<td>575</td>
<td>10%</td>
<td>15</td>
<td>13</td>
<td>4</td>
<td>13</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Espoo</td>
<td>13747</td>
<td>10%</td>
<td>458</td>
<td>344</td>
<td>103</td>
<td>309</td>
<td>825</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>746885</td>
<td>10%</td>
<td>74689</td>
<td>18677</td>
<td>5602</td>
<td>16805</td>
<td>44813</td>
<td>13604</td>
</tr>
</tbody>
</table>

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Taking into account this figures it is estimated that the participating families (including the families participating in the 10 follower cities) can save 13,604 litres of fuels by 2020, leading to the 12 Toe primary energy savings and 34 T CO$_2$ reductions of greenhouse emissions annually.

### 4.4 B-track-B and the IEEE Common performance indicators

Like all IEE projects B-track-B will contribute to the IEE performance. For this it is supposed to align its performance to at least 2 of the 4 IEE common indicators, which are:

1. Cumulative investment made by European stakeholders in sustainable energy, which has been triggered by IEE projects (measurement unit EUR);
2. Renewable energy production triggered by IEE projects (measurement unit toe/ year, both at the end of the project and by 2020), and/ or
3. Primary energy savings triggered by IEE projects (measurement unit toe/year, both at the end of the project and by 2020),
4. Reductions of greenhouse gas emissions triggered by IEE projects (measurement unit t CO$_2$e/ year, both at the end of the project and by 2020).

As the B-Track-B project performance is best measured in terms of fuel saving, it makes sense to present the projects' performance in terms of “Primary energy savings compared to projection” and “Reductions of greenhouse emissions”.
For the direct 700 participating families

<table>
<thead>
<tr>
<th>Specific and strategic objective</th>
<th>Target within the action duration</th>
<th>Target by 2020:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to the EU 2020 targets on energy efficiency and renewable energy sources</td>
<td>▪ 5 toe/ year Primary energy savings compared to projections</td>
<td>▪ 12 Toe/year Primary energy savings compared to projections</td>
</tr>
<tr>
<td></td>
<td>▪ 14 t CO₂e/year Reduction of greenhouse gas emissions</td>
<td>▪ 34 t CO₂e/year Reduction of greenhouse gas emissions</td>
</tr>
</tbody>
</table>

For all the families (direct and indirect) in the 7 sites and at least 10 follower sites, but depending on a large number of external factors we aim at:

<table>
<thead>
<tr>
<th>Specific and strategic objective</th>
<th>Target within the action duration</th>
<th>Target by 2020:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to the EU 2020 targets on energy efficiency and renewable energy sources</td>
<td>▪ 3 668 toe/year Primary energy savings compared to projections (toe/year)</td>
<td>▪ 12 567 toe/year Primary energy savings compared to projections</td>
</tr>
<tr>
<td></td>
<td>▪ 10 480 t CO₂e/year Reduction of greenhouse gas emissions</td>
<td>▪ 35 932 t CO₂e/year Reduction of greenhouse gas emissions</td>
</tr>
</tbody>
</table>
Literature and references:

Books and articles


Web studies and policy making documents:


PRESTO CYCLING POLICY GUIDE – CYCLING POLICY GUIDE – Infrastructure
http://www.eltis.org/docs/tools/presto_cycling_policy_guide_infrastructure_english.pdf

PRESTO CYCLING POLICY GUIDE – CYCLING POLICY GUIDE: Promotion of Cycling

MAX SUMO – Guidance how to plan, monitor and evaluate mobility projects
http://www.epomm.eu/docs/1057/MaxSumo_english.pdf

Project brochures


“ACTIVE ACCESS – Encouraging Active Travel for Short Trips to Improve Heath and Local Economy”, http://www.active-access.eu/docs/broschuere_active_access_web_final.pdf

http://trendy-travel.eu/docs/Brochure_trendy_cycling_EN.pdf

http://www.trendy-travel.eu/emotions/

http://www.ctc.org.uk/case-study/shopping-bike-results

http://urbact.eu/fileadmin/Projects/Active_Travel_Network/outputs_media/Sustainable_Urban_Mobility_Campaigns_web.pdf


http://www.active-access.eu/docs/broschuere_active_access_web_final.pdf

http://www.active-access.eu/docs/D_3_1_Best_practice_summary_EN.pdf

Other web sources:

www.trendy-travel.eu
http://www.champ-cycling.eu
http://cyclelogistics.eu
http://www.naviki.org/iee
http://www.einkaufen-mit-dem-rad.de/shopping_by_bike.shtml
http://helios.bz/bici-bolzano-p28-42.html
http://www.eltis.org/index.php?id=13&study_id=2970
http://www.cicloria.org.pt
http://www.gremonapot.si/cycling/cycling-routes.aspx
http://en.franja.org/homepage.html
http://www.inframoura.pt/ing