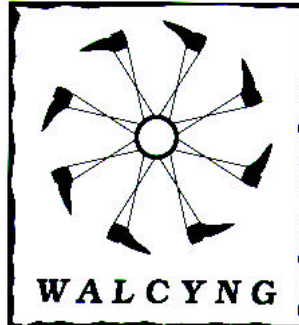


Deliverable D6

How to enhance WALking and CYcliNG instead of shorter car trips and to make these modes safer

Public



WALCYNG

Contract No: UR-96-SC.099

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instead of shorter car trips
and to make these modes safer**

Public

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PREFACE

WALCYNG - How to enhance WALKing and CYcliNG instead of shorter car trips and to make these modes safer - is a project in the Programme Package Urban transport, DG VII Transport RTD Programme in EU's Fourth Framework Programme.

The use and the dependence of cars in everyday life is increasing. Even on short trips, the use of a car is the most usual way to travel. A number of short trips by car can be replaced by modes like walking and cycling. The purpose of WALCYNG is to sort out conditions and measures which may contribute in replacing short car trips with walking and cycling. WALCYNG applies a Marketing Model. The goal is to show how short car trips should be replaced by walking and cycling with the help of marketing instruments.

The project outcome is aiming at three groups:

1. Road users who could replace their short car trips
2. Employers who could both support and benefit from the desired modal change among their employees.
3. Authorities and decision makers who can influence on modal split by changing frame conditions.

WALCYNG is divided into 13 different work packages (WP). Each of the work packages will give important knowledge of the different parts of WALCYNG, like description of the conditions for walking and cycling in different countries, the main problems for pedestrians and cyclists, identification of measures and incentives to improve the conditions for walking and cycling, communication strategies and campaigns for implementing measures, information about the main advantages and the obstacles connected to walking and cycling. WALCYNG also includes an assessment of safety problems of pedestrians and cyclists and an identification of relevant solutions.

WALCYNG has a sister project, ADONIS. The results of the two projects are complementing each other.

Partners from eight different countries took part in WALCYNG:

1. Co-ordinator: Department of Traffic Planning and Engineering, Lund Institute of Technology, University of Lund, Christer Hydén, Annika Nilsson, Sweden
2. FACTUM, Ralf Risser, Karin Ausserer, Austria
3. Franco Gnavi and Carlo Bonanni, Italy
4. City Planning Office, City of Helsinki, Eero Pasanen, Finland
5. Institute of Transport Economics, Ingunn Stangeby, Norway

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NOTATIONS

In this report we will introduce some definitions:

- "walcyng" stands for walking and cycling, whereas "WALCYNG" stands for the project
- "walcers" stands for people who walk and/or cycle
- "walce" stands for walk and/or cycle
- "walcyng management" stands for enhancing and promoting walcyng instead of short car trips and to make these modes safer and more attractive
- "The WALCYNG Quality Scheme" (WQS) is going to be an instrument, which should make it possible to evaluate the quality of walcyng-conditions
- customers: in the marketing model customers are those people who buy a certain product, in the WALCYNG case those who already walk and cycle on short distances instead of using the car. The word is used synonymously with "users" and, to a certain degree "road users"; the latter are both "users" and "potential users" when addressed in the sense as we did in WALCYNG (see below).
- potential users: those people or groups who could walk and cycle instead of using the car for short trips, but who do not, yet. They have to be identified, addressed and, in some way, to be convinced. We sometimes say "car drivers" and mean "potential users".
- road users: consist of users (those who already walk and cycle), potential users (those who could walk and cycle as far as the length of their trips is concerned) and others (who may become target groups when it comes to facilitating walking and cycling, e.g., by reducing car speeds).
- target persons and target groups: those groups that we want to address when enhancing walking and cycling and that consist of both "users" (see below), "potential users" (see above) and other road users (see above), but also of experts, administration officials, people from industry and decision makers/politicians. Target groups may be subgroups of the potential users as well.
- users: sometimes used synonymously with "customers" (see above); in the WALCYNG case those who already walk and cycle on short distances instead of using the car. Sometimes walcers and potential walcers are used in the same sense as users and potential users.

EXECUTIVE SUMMARY

Introduction

The purpose of WALCYNG is to sort out conditions and measures which may contribute in replacing short car trips with walcyng (walking and cycling). WALCYNG applies a Marketing Model, in our project formalised in four main parts:

1. **Information policy:** One has to collect information about potential and practising customers so that the preconditions for the behaviour they should choose could be made attractive.
2. **Product and distribution policy:** Adequate and attractive technical solutions are worked out, and considered thoroughly so that they will meet customers' and potential customers' needs.
3. **Incentive and pricing policy:** One also has to provide incentives given by the society, institutions, companies, etc., on all levels, both to encourage walking and cycling and to discourage the use of car for short trips.
4. **Communication policy:** Users and potential users have to be informed that their needs and interests are taken into consideration, on the product and distribution side, as well as on the incentive side. The product has to be displayed and has to be given a positive image.

The project outcome aims both at road users who could replace their short car trips, employers who could support and benefit from a modal change among their employees, and authorities and decision makers who can influence on modal split by changing frame conditions.

Methods

A wide range of methods have been used in the different work packages; e.g. literature studies, analysis of travel surveys, round table discussions with experts and laymen, interviews with experts and road users and a Stated Preference Survey.

Basic results from the eleven work packages

What is known about the target groups and their situation?

Work Package 1: "Portions of short car trips and trips by walking and cycling "

As an average the population in the European countries makes about three trips per person per day. In most countries the average number of walking trips is between 0.5 and 1 trip per per-

son per day, and between 2 and 2.5 cycle trips. A majority of the trips are 1 km or shorter for walkers and 3-5 km for cyclists, although differing between countries. The share of cycling trips in Europe is around 5-10 per cent of all trips, but much higher rates are found in the Netherlands (29 per cent), and Denmark (17 per cent).

Many car trips are quite short; a change from car to walking or cycling for trips shorter than 3-5 km, could replace half of all car trips in many European cities. Trip chains could only explain some of the car use on short trips. Important differences are found between men and women, young and old, car-owners and people without a car, workers and non-workers.

Work Package 2: "Products and efforts for pedestrians and cyclists"

The products and efforts were divided into four different types:

1. Personal products, i.e. products that are appropriate to wear or to be used for help or comfort, for weather protection, for carrying, for security or items to facilitate walking.
2. Vehicle products belong primarily to the bicycle or could be attached to it. They are aids for weather protection, for carrying, for safety or items to facilitate walking.
3. The road and infrastructure category deals with design and maintenance on net level, of links, crossings, parking facilities and intermodality points. Restrictions for the motorised traffic also belongs to this category.
4. The aim of societal efforts (e.g. media, politicians, officials, companies, etc) is to reach certain attitudes and behaviour among the public that are supporting walking interests and/or discouraging the use of the car. The means can either be persuasive or forcing.

Work Package 3: "General problems of pedestrians and cyclists"

The experienced problems of walkers were analysed along the dimensions social climate, health, comfort, safety, mobility, aesthetics and financial advantage. A problem related to **Social Values** is the low status of walking, especially compared with driving a car. **Health:** Cycling is good for health but cannot be done without a baseline health condition. **Aestetical problems** evolve as pedestrians and cyclists have time to look around and really get to know the environment. **Comfort:** As walking also is a way of socialising, it is important with special provision of benches, waste-baskets, shelters, public toilets, etc. The main **Mobility problem** of cyclists is the lack of a continuous and good quality network. **Security:** Cyclists should be separated from cars, and pedestrians from both cars and cyclists. People's security is threatened if walkers are too isolated, especially if the illumination is poor.

Work Package 4: "Safety problems of pedestrians and cyclists".

Even though it seems to be a fact that the more cyclists there are in a country the lower the accident rate is, increased walking and cycling would result in a considerable increase in accidents if not strong action is taken. The work package resulted in eight recommendations valid in most European countries. In most cases they can be implemented with reasonable costs in a short term. One of the most important measures that WALCYNG wants to highlight is a strategy to achieve a maximum speed on streets where walkers are present of 30 km/h - e.g. by using physical measures, automatic speed camera control and speed limiters in cars. Another measure to mention is the separation of pedestrians and cyclists horizontally where they share

the same space. Finally; two-way cycle paths should not be used without specific facilities at crossings.

How could results of WP 1 through 4 be used in WALCYNG?

Work Package 5: A synthesis with regard to products and efforts

One of the most important results that was carried further from the synthesis in WP 5, was that a segmentation of the target group was necessary. The reason is the significant differences in experienced problems among different sub-groups, both among experienced walcers' and among those whom WALCYNG wants to turn into experienced walcers.

How could preconditions for walcyng be assessed?

Work Package 6: Interviews, attitude analyses, stated preferences

There are a lot of benefits associated with walcyng: Health aspects are important benefits of walcyng. For walking environmental aspects and getting fresh air are additional important benefits. Surprisingly, environmental aspects are not mentioned as positive aspects of cycling very often. Cycling is fun, gives you good exercise and is very convenient. Even though there are many benefits involved in walking and cycling, walcers meet a lot of barriers or obstacles.

Lack of ability to transport heavy things are among the important barriers of walking. Environmental and geographical barriers, like the hillyness, bad weather, polluted the air are important negative aspects of cycling. Also infrastructure barriers such as insufficient road cycle network, unsafe crossings, parked cars on the pavements and high curb stones are important negative aspects of cycling.

A Norwegian Stated Preference-study indicates that the trips to work and to sports and exercise are easiest replaceable by bicycle. Grocery shopping trips could easiest be replaced by walking. Short trips by car where you deliver or fetch someone are very difficult to replace by walcyng.

What incentives and disincentives should be provided for car drivers to make them walk and cycle instead of using the car for short distances?

Work Package 8: Incentive Strategies

Incentives are important instruments to influence travel behaviour towards more walcyng. At the moment incentive strategies are most often focusing on cycling and the use of public transport. Walking is still considered only marginally.

Incentive strategies should play a more important role in the future, both providing a walcyng-friendly infrastructure and atmosphere and economical incentives in order to make walcyng more competitive compared with using the car. Examples on successful strategies from private companies and public authorities are displayed in the report.

How good is communication with the target groups and how can it be improved?

Work Package 9: Communication strategies

The Work Package concluded that communicative measures (e.g., information campaigns, advertising) should consider a segmentation of the market and different characteristics of different target groups. The sender of the message may vary, as long as he or she is credible. Some important characteristics of "good communication" that can be summarised on basis of literature and experiences are the following:

- communication may be directed both to the general public, and adapted to the target group, and to institutions the co-operation of which is needed, or wanted
- messages should refer to an existing frame of reference. They may directly or indirectly refer to the expected behaviour, however without moralising.
- different strategies can be followed. Communication may be part of a power strategy, a reinforcing strategy, or a persuasive strategy.
- the effects of campaigning will only show over a longer time.
- characteristics of the social and physical environment are conditional. Before expecting any change, the social and physical environment need to be improved.

How should researchers and practitioners prepare themselves for the structural difficulties they will meet with a topic that so far considered of inferior importance?

Work Package 10: Inoculation

This work package reflects the idea that mentally dealing with the expected problems helps one to react in a more relevant and objective way when they arise. The involved person will thereby be better prepared and resistant. ("Forewarned is forearmed").

The arguments against walcyng used by different "opponents" (governmental institutions, private institutions, or certain individuals working in such institutions) are quite many. They can be subdivided into three categories:

1. arguments of general character against walcyng (e.g. the safety argument, the weather/topography argument, the mobility argument)
2. economical/political arguments (e.g. the economic argument, the bad customer argument)
3. "democratic and communication" arguments (e.g. minority and competition arguments)

For all types of arguments the report presents relevant counterarguments.

How to raise and sustain the importance of walcyng as transport modes

Work Package 11: Lobbying

The most important aspects in connection with lobbying are:

- Propagating walcers's interests includes to become part of the political sphere.
- The effectiveness of lobbying is linked to power, like economical, representative, psychological, power through access to resources, etc..
- Lobbies steer existing research. Research is connected with development.
- The media influence people's attitudes and behaviour.
- Walcers have to fight for a similar position as car manufacturers who penetrate into all sectors of life.
- Successful lobbying needs a network of co-operating partners.

The Walcyng Quality Scheme

One main goal of WALCYNG was to produce an evaluation scheme; the Walcyng Quality Scheme (WQS). It should allow an assessment of different policy activities in the area. The scope of the WQS is presented in the frame of Work Package 7.

The WQS is designed as an interactive software that can be used for obtaining and evaluating information about the preconditions for walcyng in a certain area of interest (a target group, a type of product, a route, a neighbourhood, a city, a country, etc.). The WQS should on the one hand remind the compilers of all relevant aspects to be considered both when assessing given preconditions for walcyng, and when developing measures. In this respect, the WQS resembles a checklist. On the other hand, the WQS has a comparative and an analytic character because the quality of the aspects that should be considered has to be assessed, as well.

The person or group that use the WQS can either choose:

1. a full version that provides an exhaustive evaluation and additional information, referring to help functions associated with criteria items, for a number of special problems. The help functions are clarifications of the items which are presented, or
2. a module, i.e. the choice of specific parts of the WQS which best suit the sort of task one wishes to accomplish.

The WQS is still in a research phase, i.e. it is not complete with regard to all possible aspects, and it does still not provide compilers with answers on all relevant questions.

Exploitation and dissemination

Regarding the premature status of the WQS, one important part in the exploitation of WALCYNG findings will be to communicate with potential users of the WQS in order to have

them to use it and to systematise efforts so that the WQS can be completed and validated with regard to its usefulness in increasing the interest for walcyng and the actual use of walcyng as a means of transport for short trips. In addition the main dissemination activities are:

- Final report: Includes the WQS as an enclosure.
- A short version containing the most important findings and recommendations.
- Work package reports: Will be available for everybody who is interested in them.
- Report on questionnaire to cities about their walcyng activities: Distributed to cities, etc.
- WQS on paper, on diskette. (Will not be ready in the present project).
- The WALCYNG film: Presenting the scope and walcyng practice in different cities.
- The WALCYNG slide show: Presents lots of good and bad examples for walcers.
- Presentations: WALCYNG is presented regularly at conferences, meetings, in papers, etc.

1 INTRODUCTION

The increasing car traffic has become a threat to quality of life in urban areas. Accidents and other safety related problems are examples, local emission problems another. More generally, it is evident that car traffic in most urban areas has grown so much that many important aspects of urban life are inhibited to such an extent that the question of sustainability has become an important topic.

"Urban areas must be revitalised" and "car traffic has to be restricted"; these are statements made more and more often by decision makers and planners. The fact that a large proportion of all car trips are quite short, makes them an obvious target. The official task description for task 5.2/18 of the EU Fourth Framework Programme DG VII Transport RTD Programme, Urban Sector, **"Concepts and Strategies for the substitution of short-distance car trips by cycling and walking. Development of measures to encourage such substitution and to make these modes safer"**, says:

"Since a significant proportion of the overall motorised individual traffic in urban areas is only short-distance traffic, concepts and strategies for the substitution of those trips need to be determined and implemented. Alternatives are cycling and walking...."

Promoting walking and cycling as an alternative to short car trips is seen as one important way of decelerating the increase in car use in more densely inhabited areas. Pedestrians and cyclists produce no major threat to other road users, nor do they pollute the environment with fumes and noise. Besides pedestrians and cyclists provide the best opportunities of enhancing qualities of life in general in urban areas.

One obvious strategy in the future transport and environmental policies should be to replace short car trips with walking and cycling. To do this, one must make walking and cycling attractive and convince the car drivers that walking and cycling is worthwhile. This means that:

The facilities for walking and cycling have to be systematically shaped in a way that make them attractive. The car drivers have to be informed in a convincing way about existing facilities, and all efforts must be made to further improve these facilities. Improved attractiveness, however, must be supported by improved safety so that increased walking does not lead to a dramatic increase of injuries.

Efforts to promote walking have been made before, mostly by planning experts. They have, however, to some extent been less successful, because they have had:

- Limited knowledge on the needs and opinions of the people concerning walking facilities
- Limited knowledge on how to convince people to walk instead of going by car

2 THE SCOPE

2.1 The marketing model that we have selected

Enhancing walking and cycling instead of short car trips means to convince and/or to motivate people driving a car on short trips to change their behaviour, namely to walk and to cycle instead of using the car on certain trips. There are several ways to achieve this. One model that is quite complete in this respect is the marketing model that we have selected (summarised in the way we use it by Bruhns & Tilmes 1989). It is a communication model that says: If you want people to change their behaviour than you have to:

- learn as much as you can about the people you will try to convince or to motivate to adopt a new behaviour (call them users, or customers, or target groups)
- make the preconditions for the behaviour they should choose attractive (behaving in the wished-for way should have positive consequences); shape the preconditions and distribute the reinforcing stimuli in an efficient way
- associate the behaviour you want to achieve or to preserve to positive stimuli
- give extrinsic stimuli to the people you want to convince or to motivate, so that they try out the wished-for behaviour

This is formalised in four main parts of the marketing model, that usually are referred to in literature as:

Information policy: One has to collect information about potential and practising customers (analysis of the market situation: what are the target groups, what kinds of products are on the market, analyses of the needs and interests of different groups of people, etc.) make the preconditions for the behaviour they should choose attractive (behaving in the wished for way should have positive consequences); as a part of the shaping of preconditions, distribute the reinforcing stimuli in an efficient way.

Product and distribution policy: Based on the results of information policy, adequate and attractive technical solutions are worked out. Styling and layout aspects have to be considered thoroughly and under the perspective that they meet customers' and potential customers' needs.

Incentive and pricing policy: Based on the results of information policy, one has to provide incentives given by the society, institutions, companies, etc., on all levels. In commercial marketing the wished-for behaviour is mostly that the addressed people should buy a thing. In social, or non-profit marketing, the wished-for behaviour is most often some change in habits, or routines, or attitudes. Give extrinsic stimuli to those whom you want to convince or to motivate, so that they try out the wished-for behaviour.

Communication policy: Users and potential users have to be informed that their needs and interests are taken into consideration, on the product and distribution side, as well as on the incentive side. The product has to be displayed and has to be given a positive image.

2.2 Which groups are we addressing with our work?

There is an obvious risk that the marketing approach may fail without soft policy measures. Such considerations are most relevant both with respect to road users and to people/groups that have the power to influence road users' behaviour. It is, therefore, important to understand that the range of groups that we need to approach must be extended in connection with soft-policy measures (pricing and incentive policy, communication policy). From this perspective, we have chosen to address the following three groups:

- a) **Road users** who could replace their short car trips, including those trips that form a part of a transport chain, by walking and cycling, but also people who already walk and cycle today. The latter are customers that we do not want to lose. They should get information e.g. about the possibilities to improve their own health, to feel good (wellness, expected life-time, etc.), to reduce personal travel costs, to be independent. For this, however, they also need to get better equipment and a more attractive environment for their trips, and also better possibilities to combine walking and cycling with public transport. Moreover, the addressed road users have to develop the feeling that they can demand certain things: Learned helplessness (e.g., with respect to walking and cycling facilities in connection with children's transport to school) is certainly one factor that has reduced personal initiative and enhanced stream-lined modal-choice habits.

This report deals extensively with the needs and interests of walkers and potential walkers. The results should be used by the two other groups described below (b/ and c/) to facilitate the needs and interests of road users and to communicate with them in the best possible way.

- b) **Employers** who could both support, and benefit from the desired modal change among their employees. We cannot expect that many private companies would worry about environmental aspects on a global or regional level. But most companies are interested in the health of their employees, in a reduction of days of absence and of accidents, in a reduction of car costs after accidents and of costs of parking facilities, etc.. From this perspective they might want to cooperate in connection with attempts to convince their employees to choose other modes for commuting.

This report will give employers a general support in order to motivate them to take steps towards more walking among their employees. It will also give them guidance on measures that should be taken. The theoretical approach is complemented with some practical examples of companies that have run successful programs in this area.

- c) **Authorities and politicians** who are responsible for general living conditions and sustainable development in society. They are usually well motivated to take steps towards a sustainable development in transport. On the other hand, as measures for pedestrians and cyclists are often perceived as measures against car drivers, resistance emerges rather quickly and sharply (measures like pedestrianisation of shopping areas). Authorities tend

to be afraid of this resistance that is often "blown up" by the media.

In the present report this group will be supported both by general know-how about walcers' needs and interests and by general strategies regarding why and how to approach the concept of enhancing walcyng. Last, but not least, this group will be supported by information about how to tackle all the counterarguments that must be expected.

3 THE CONCEPT

The presentation below is supported by a graph (figure 1) that shows the work structure of WALCYNG. For each of the work packages presented there is a separate report. These are summarised in this report.

In the frame of WALCYNG we had two main goals:

I) The state of the art and needs of target groups

We wanted to collect available information about the status of preconditions for walking and cycling, from a marketing perspective (i.e., with respect to the model elements displayed in chapter 2):

- a) What is known about the target groups and their situation. This is analysed on basis of existing literature, expert interviews etc. in the frame of four work packages (WP 1 to 4):

WP 1: "Portions of short car trips and trips by walking and cycling "

WP 2: "Products and efforts for pedestrians and cyclists". (Existing preconditions for walking and cycling)

WP 3: "General problems of pedestrians and cyclists". (Problems of pedestrians and cyclists with respect to other criteria than safety)

WP 4: "Safety Problems of pedestrians and cyclists".

Safety plays a special role in the project. It can have an influence on peoples' choice of mode. E.g., experienced unsafety can prevent people from using the bicycle. Experienced (or subjective) unsafety is later on referred to in our report as a **security** problem (WP 3). **Objective safety** is dealt with in WP 4. The main reason behind having a special work package for safety aspects is the important role it plays. Increased walking and cycling would today result in a considerable increase in accidents. It is therefore of utmost importance that efforts to enhance walking and cycling are supported by efforts to enhance the safety situation for these types of road users.

- b) How could results of WP 1 through 4 be used in the further progress of WALCYNG? In the frame of **WP 5**, results of the WPs 1 to 4 were summarised and synthesised. As a conclusion, it was intended to produce both a summary of activities carried out in previous work packages and a direction for WP 6 and subsequent WPs. Gaps were identified which were filled in by the further process within WALCYNG. The results of WP 5 were based both on the reports from WP 1 to 4 and on a three-day consortium workshop.
- c) How could preconditions for walking and cycling be assessed including consideration of user needs? A spot light on pedestrians' and cyclists' view on their present situation was given with the help of semi-standardised attitude surveys with strong qualitative elements

in four European countries, in addition to a - fully standardised and quantified - stated preference study in Norway (**WP 6**).

WP 1 to 6 represent the "Information Policy" part of the marketing model applied by WALCYNG, as presented in the former section.

- d) After working steps A, B and C another consortium workshop was organised. There, the criteria that should be respected when planning infrastructure for walking and cycling under the perspective of taking into consideration the target groups' needs were discussed (**WP 7**). The results formed the basis for the Walcyng Quality Scheme, the WQS (see below). WP 7 is the "Product and distribution policy" part of the marketing strategy.
- e) What incentives and disincentives should and could be provided for car drivers in order to make them walk and cycle instead of using the car for short distances? This question, reflecting the "Incentives/Pricing" part of the marketing strategy, was dealt with in the frame of **WP 8**, with the help of literature studies, round table discussions with experts, and expert interviews.
- f) How good is communication with the target groups and how can it be improved (**WP 9**)? All persons and institutions that want to enhance walking and cycling are of course interested in means to improve communication with their target groups. Methods to gather knowledge about this topic are literature studies, expert interviews and case studies.
- g) How should researchers, planners and other practitioners prepare themselves for the structural difficulties they will meet with a topic that so far is considered of inferior importance? The concept of inoculation (**WP 10**) reflects the idea that mental dealing with the expected problems helps one to react more coolly and objectively when they arise. The involved person will thereby be better prepared and resistant. Some guidelines with respect to this inoculation concept are developed with help of literature studies, round table discussions with experts, case studies, and expert interviews.
- h) If the importance of walking and cycling as transport modes should be raised and sustained, then some structural support and promotion of the walking and cycling issues has to be provided. This type of support is more or less covered by the concept of lobbying. **WP 11** deals with the question of what efficient lobbying in the area dealt with should look like. Methods used are literature studies, case studies and expert interviews.

WP 9 to 11 deal with the "Communication policy" part of the marketing strategy.

II) The Walcyng Quality Scheme

The second main goal of WALCYNG was to produce an evaluation scheme that we call the Walcyng Quality Scheme (WQS). It should allow an assessment of different policy activities in the area. That means that some criteria have to be developed or figured out that set the scene for a good marketing policy in connection with walking and cycling.

The scope of the Walcyng Quality Scheme is presented in the frame of WP 7. The Scheme itself is presented as an appendix to this report (see Appendix 2).

WP 1 Portions of short car trips, and trips by walking and cycling	WP 2 Existing products and efforts	WP 3 General problems of pedestrians and cyclists	WP 4 Safety problems
WP 5 Summary and synthesis of WP 1 - 4			
WP 6 Interaction with road users; Attitude surveys, stated preferences			
WP 7 Identification of positive products and recommendations			
WP 8 Incentive strategies	WP 9 Communication strategies/ Campaigns	WP 10 Inoculation	WP 11 Outlining future lobbying
WP 12 Final report a) Synthesis of all WP's b) Scheme for assessing measures on all levels and model recommendations for influencing mode choice permanently and systematically - "The WALCYNG quality scheme"			

Figure 1 *The work structure of WALCYNG*

In the following all work done in the frame of WALCYNG will be presented by reporting about work packages 1 to 11 (chapter 4 to chapter 14). These presentations are primarily based on the executive summaries from the work package reports.

4 PORTIONS OF SHORT CAR TRIPS AND TRIPS BY WALKING AND CYCLING

(Work Package 1)

Five partners took part in WP 1:

1. Department of Traffic Planning and Engineering, Sweden
2. TransportTechnologie-Consult Karlsruhe, Germany
3. Franco Gnani & Carlo Bonanni, Italy
4. De Voetgangersvereniging, the Netherlands
5. Institute of Transport Economics, Norway (Work Package leader)

Report: Solheim & Stangeby, 1997

4.1 Aim

The objectives of WP 1 were to identify groups of walkers and potential walkers and to evaluate their numbers, in order to adjust strategies and investments.

The main questions we tried to answer in WP 1 were the following:

- How many trips do people conduct on an average day, by different modes?
- How long are the trips by different modes; on foot, by bicycle, by car?
- What kind of transportation do people use on different trips, by purpose of the trip?
- What groups of the population do what kinds of trips and to what extent?

In order to provide WALCYNG with necessary information about potentials we also tried to answer the following questions:

- What is the main role of walking and cycling in the daily life of the European population?
- In what situations can we see that people tend towards walking and cycling instead of motorised transport?
- What is the proportion of short trips that are done by car, and what are the specific characteristics for this behaviour?

4.2 Problems comparing data from different countries

WP1 is based on data from ten European countries, eight EU-countries plus Norway and Switzerland.

The comparisons between the countries were not simple. In addition to not obtaining any data at all in some cases, there were other problems:

- The definition of a trip varies. In WP 1 a trip is defined according to its purpose. Each trip made has a definite purpose.
- In the registration of trips some countries operate with a lower limit. Only trips longer than a certain distance are included.
- The categorisation varies: Trip-lengths, trip-purposes, as well as individual characteristics such as age, occupation, car-ownership etc. are treated in many different ways.

The material was finally divided into three groups:

- Countries where travel surveys have been conducted on a national level and raw data were available: Norway, Sweden, Denmark, the Netherlands and Great Britain. From these countries we have, in general, been able to get all data we wanted.
- Countries where travel surveys have been conducted on a national level or for specific cities or regions, but where data had to be picked from written reports; Germany, France, Finland, Switzerland and Austria.
- In the remaining EU-countries (Belgium, Ireland, Italy, Spain, Greece and Portugal) travel surveys have not been conducted or we have not been able to obtain them for various reasons. For Italy we have received data from the Italian census of 1991, showing trips to work and to school. The Italian data are not directly comparable to data from travel behaviour surveys. The lack of data has forced us to exclude most of the countries in this group.

4.3 There is a limit to how far people will walk or cycle

Most trips on foot are very short trips. In the selected countries about 50 to 80 per cent of the walking trips are 1 km or shorter. A very small share is longer than 5 km. There seems to be a distinct limit on how far people are willing to walk, between 1 and 2 km.

The average length of a bicycle trip is 2 km. In Denmark and in the Netherlands the bicycle trips are longer than in the other European countries. The willingness to cycle over longer distances differs between countries with good amenities and a flat topography (Denmark and the Netherlands) and other countries. However, in general we should not expect people to use a bike for transport on distances longer than 3-5 km.

4.4 People make three trips per day

As an average the population in the European countries in the study makes about three trips per person per day. If we only consider those who actually travel on an average day (80-85 per cent of the whole population) the number of trips is closer to four trips per person per day. The exact numbers differ from 2.8 in Germany and 2.9 in Great Britain to 3.7 in the Netherlands (from Austria we have got a figure of 2.6, but this was only from one federal county).

Table 1 Number of trips per person per day. 10 European countries.

Country	On foot	Bicycle	Car as driver	Car as Passenger	Public transport	All trips
Norway	0.66	0.20	1.70	0.39	0.26	3.25
Sweden	0.48	0.37	1.25	0.50	0.33	2.93
Finland*	0.39	0.22	1.66	0.42	0.25	2.97
Denmark*	0.30	0.50	1.40	0.30	0.30	2.90
Great Britain*	0.84	0.05	1.07	0.63	0.25	2.88
The Netherlands	0.67	1.01	1.28	0.51	0.19	3.74
Germany 1989	0.79	0.34	1.06	0.34	0.28	2.82
Austria (Ober)	0.55	0.18	1.41		0.37	2.59
Switzerland	0.75	0.33	1.72		0.46	3.50
Fr.-Grenoble	0.98	0.16	1.48	0.45	0.48	3.58
Fr.-Lyon	1.15	0.06	1.23	0.38	0.47	3.31

*Trips longer than 200-500 m

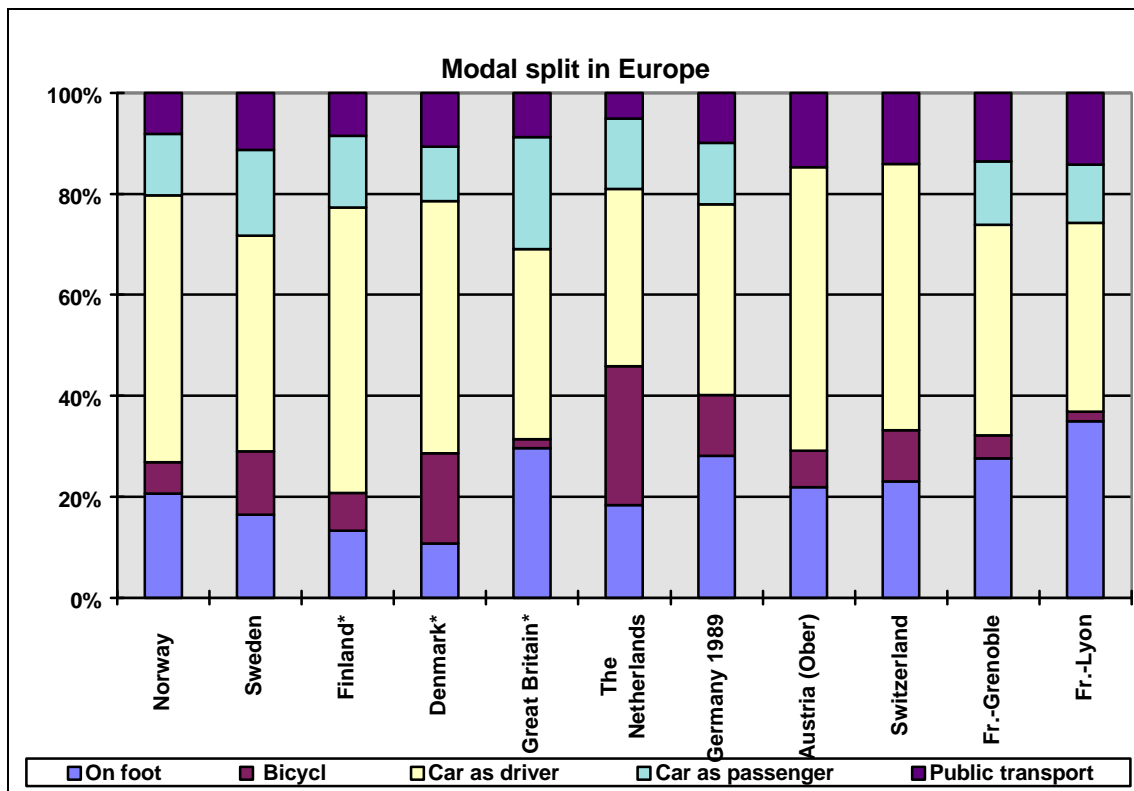


Figure 2 Modal split in 10 European countries.

*Trips longer than 200-500 m

The definition of a walking trip is that the whole trip is done on foot from an origin to a destination. There are differences in the number of walking trips per person per day in the European countries, but in most countries the average number of walking trips is between 0.5 and 1 trip per person per day. This means that a bit more than one third of the population make one walking tour per day (a tour is a trip back and forth). Trips on foot are, however, probably grossly underrepresented in travel behaviour surveys.

The share of cycling trips in Europe is around 5-10 per cent of all trips. Two countries point themselves out with a higher share of trips by bike, the Netherlands (29 per cent) and Denmark (17 per cent), while the share of trips by bike is especially low in Great Britain (2 per cent) and Italy (4 per cent of trips to work).

European Transport in Figures (Nov. 1997) shows that the cycling milage varies between 0.1 km/day and 2.5 km/day. The corresponding proportions of the total milage range between 0.2% and 6%. Data from the individual countries are presented in table 2 below:

Table 2 Cycling per person and day in kilometres and correspnding modal share in % in 15 European countries.

Country	Cycling per person and day in kilometres	Modal share in %
Denmark	2.5	5
The Netherlands	2.3	6
Belgium	0.9	2.5
Germany	0.8	2.5
Sweden	0.7	2
Finland	0.7	2
Ireland	0.5	1.3
Italy	0.4	1
Austria	0.4	1
UK	0.2	0.5
France	0.2	0.5
Greece	0.2	0.7
Luxembourg	0.1	0.2
Portugal	0.1	0.2
Spain	0.1	0.2

Source: European Transport in Figures (november 1997)

4.5 Walking and cycling is often done as a purpose in itself

Walking, cycling and car driving on short trips have specific roles as transport modes:

- Walking is a way of travelling used mainly for two purposes; short trips to shops with probably not too much to carry, and leisure trips where the walking in itself is one main purpose.

- Cycling is a way of travelling very much alike walking. We use the bike on short trips to shops and for leisure purposes where the bicycle-tour probably is an aim in itself. Walking and cycling therefore have limits as transport modes. However, in some countries cycling is common for journeys to work. In Denmark almost 60 per cent of short trips (< 5 km) to work are bicycle trips.

Driving a car for shorter distances has one main purpose, shopping. Many of the short car trips are for shopping, maybe with a heavy load to carry. In addition, some short car trips are to work and for transporting others, like children to school, kindergarten, etc.

The findings presented above indicate that in most countries there is some resistance in considering walking and cycling as realistic alternatives to car use. However, data from the Netherlands and Denmark indicate that it is theoretically possible for many car drivers to replace short car trips by walking.

4.6 Women walk more than men

Different groups in the population have different travel behaviour. Important differences are found between men and women, young and old, car-owners and people without a car, workers and non-workers, city-dwellers and others.

Women walk more than men, and men are more often car drivers than women. This is the case both for short trips and for trips in general. Women are, however, more often passengers as their husbands hold the wheel.

For cycling it is interesting to notice that in most countries men cycle as much as women or more. In countries where the amount of cycling is high, like in the Netherlands and in Denmark, the share of trips by bike, however, is especially high among women.

Young people walk or use a bike more than older people. This is the general picture even though there are differences between the various European countries. Young people under the age of 18 have the largest number of walking trips per day. The number of trips as pedestrians is also rather high among the oldest age group (over 65).

Driving a car, even on short distances, is especially common among rather young and middle-aged adults (25-50 years).

4.7 People working part-time make most trips

The differences in travel behaviour among men and women, young and old may reflect their access to a car. Access to a car is usually reflected by age, by income, by gender and by employment.

People without a car both cycle and walk more than those with one or more cars in the household. In some countries the differences between those with and without a car are especially

high for cycling. Those who walk less are those who both have a license and a car in the household. Simply said; those who have access to a car, hardly walk or cycle.

People working part-time make most trips. Part-time employees travel almost as much by car as full-time employed. At the same time part-time employed walk and cycle more. Behind these figures we find, e.g., women working part-time, doing shopping, taking children to school and kindergarten, etc.

Non-workers (under education, wives and husbands staying at home, unemployed, retired people) do as many trips on foot, but only half as many short trips by car as the part-time employed.

People under education use a bicycle more than others and they almost never use a car, as most of them are under the age of 18.

4.8 The larger the city, the more people walk

The larger the city, the more people walk. The same is true for the use of public transport, but these trips are over longer distances.

Driving a car on short distances decreases as the cities grow bigger. The bigger the city, the less frequently people use a car. Car driving on short distances is most frequent outside the largest cities and in small cities.

Using a bike is most common in central parts of the larger cities. Bicycling in the Netherlands has a somewhat different pattern than in the other countries: People who live in the less urbanised areas use a bike more than those in the strongest urbanised regions.

In Italy the percentage of walking trips to work is clearly highest in the smaller cities and lowest in Rome. While people in Rome to a large degree travel to work by public transport, people in smaller cities walk.

4.9 Trip chains cannot explain the use of cars for short trips

Trip chains are trips with a multiplicity of purposes. Trip chains may only explain some of the car use on short trips. Data from Norway indicate that only 25 per cent of the short car trips are part of trip chains. Other reasons seem to be more important for the use of car on short trips.

4.10 The potential for walking and cycling is considerable

In general, the potential for more walking and cycling and less car use is considerable, because many trips by car are short:

- The frequency of the use of car for shorter distances is amazing. If we consider walking as an alternative, a change from car to walking for trips shorter than 1 km would reduce the number of car trips by 15 per cent in most countries. And with a limit of 2 km the reduction would be close to 30 per cent. **Including cycling and taking into consideration 3-5 km we could get rid of half of all car trips in many European cities.**
- In some countries, the main competitor for cycling, however, seems to be public transport. In the Netherlands and Denmark, where the proportion of cycling on short trips is high, there are less short trips by public transport, but there are the same proportion of short car trips. However, in certain cities, according to the results of the DGVII project SESAME, cycling and public transport do not compete, because they are dominant modes in **different** urban areas.

Looking at the Netherlands and Denmark, we notice that the effects of a long-term culture and proper amenities also produce high walking rates. It must be observed, however, that even in those countries it seems difficult to replace car trips by walking. The trend that more and more people have access to a car, therefore, makes it an even more challenging task to change short car trips to walking.

To get more people to walk we need to consider which groups are the most important ones. Such target group thinking can take two directions:

1. To consider those people who already walk and cycle and see what is necessary to keep them as walkers and prevent them from using a car. Under this heading we first of all find young people (i.e. students) and women working part time and/or people living in inner parts of large cities.
2. To consider those people who use a car for all purposes, mostly middle-aged men who work full time and/or live in suburbs.

To define the measures needed to keep one group from changing to car use, and to make the other group to leave the car in their garage, is the main challenge of WALKYNG.

4.11 Synthesis

The objectives of WP 1 were to identify groups of potential users for walking and cycling and to evaluate their number. The results are based on individual travel data from 10 European countries, after requesting data from the EU-countries and Norway and Switzerland. We soon found that there is both a lack of such data in many countries, and a low degree of standardisation of the travel surveys behind the data in general. The latter made the comparisons between the countries difficult.

As an average the population in the European countries considered in the study makes about three trips per person per day. In most countries the average number of walking trips is between 0.5 and 1 trip per person per day, but these trips are probably underreported. A majority of these walking trips are 1 km or shorter, and the limit on how far people are willing to walk seems to be between 1 and 2 km.

The share of cycling trips in Europe is around 5-10 per cent of all trips, but much higher rates are found in the Netherlands (29 per cent), and Denmark (17 per cent), and a slightly lower rate in Great Britain (2 per cent). The willingness to cycle over longer distances differs between countries, but in general we should not expect people to use a bike for transport on distances longer than 3-5 km.

The frequency of the use of car for shorter distances is considerable. If we consider walking as an alternative, a change from car to walking for trips shorter than 1 km would reduce car trips by 15 per cent in most countries, and with a limit of 2 km the reduction would be close to 30 per cent. Including cycling and taking into consideration 3-5 km we could replace half of all car trips in many European cities. Trip chains could only explain some of the car use on short trips, we concluded, since Norwegian data indicates that only 25 per cent of the short car trips are part of trip chains.

Different groups in the population have different travel behaviour. Important differences are found between men and women, young and old, car-owners and people without a car, workers and non-workers, city-dwellers and others. To get more people to walce we need to consider which groups are the most important ones. Such target group thinking can take two directions:

1. To consider those people who already walk and cycle and see what is necessary to prevent them from using a car. Under this heading we first of all find young people (i.e. students) and women working part time and/or people living in inner parts of large cities.
2. To consider those people who use a car for all purposes, we first of all find middle-aged men who work full time and/or live in suburbs. To define the measures needed to keep one group from changing to car use, and to make the other group to leave the car in their garage, is the main challenge of WALCYNG.

We should also keep the purposes of the trips in mind: Walking and cycling is nowadays a way of travelling used mainly for short trips to shops, and leisure trips. However, in some countries cycling is common for journeys to work. Driving a car for shorter distances has one main purpose; shopping. In addition, some short car trips are to work and for transporting others.

4.12 Input for the Walcyng Quality Scheme (WQS)

With regard to the WQS (the final product of WALCYNG) the following aspects are considered:

- the WQS must define the measures needed to keep people who already walk and cycle from using a car (these are first of all young people and women working part time and/or people living in inner parts of large cities) and to make those people who use a car for all purposes to leave the car in their garage, at least for short trips (these are first of all middle-aged men who work full time and/or live in suburbs).
- the WQS could contain the option to inform about travel patterns on short trips in different countries, for different purposes and among different groups of people.

5 PRODUCTS AND EFFORTS FOR PEDESTRIANS AND CYCLISTS

(Work Package 2)

Four partners took part in WP 2:

1. Department of Traffic Planning and Engineering, Sweden (Work Package leader)
2. TransportTechnologie-Consult, Germany
3. Franco Gnani & Carlo Bonanni, Italy
4. De Voetgangersvereniging, the Netherlands

Report: Nilsson, 1997

5.1 Aim

The main aim of Work Package 2 was to make an inventory of existing products and efforts for pedestrians and cyclists, and to develop a classification scheme according to the type of product or effort, and the intentions linked to them. A secondary aim was to describe important properties of the products and efforts, in order to make them user-friendly, when such research results were found.

The meaning of products and efforts is extended. It does not only include what might traditionally be thought of in this connection, but every product - small or big - that might have an influence on peoples' attitude towards walking. Therefore the terms here include things like planning and engineering solutions as well as campaigns. They also contain efforts to make car use less attractive.

5.2 Methods

The methods used were **Focus Group Interviews** (FGI) and **literature studies**. The FGI was held by each WP - partner in their country, respectively, with approx. 8 participants of different background, and experience of walking as well as responsibility for walking issues. The aim of the FGI was to gather all important dimensions and aspects within WP 2, to check if the draft scheme of categories was relevant and to find products and efforts and how important they are. Each partner in the work package searched for relevant literature from all the world from the 1980's onwards, but especially for literature from their own country or countries with similar languages.

5.3 Overview of results

The result of this work were two lists - one of products and efforts for pedestrians and one for cyclists. The products and efforts were divided into four different types; Personal products, Vehicle products, Road and infrastructure and Society. The latter group was not as elaborated as the others. The reason for this was that work packages 8 through 11 were going to deal with that issue in detail. The types of products and efforts as well as the intentions linked to the products and efforts in each group are described below.

Personal products

Personal products are products that are appropriate to wear or to be used for help or comfort while walking or cycling. The intentions linked to this type of products are that they are aids for weather protection, for carrying, for security or items to facilitate walking. The individuals are responsible for buying and taking care of these products themselves. The society or different retailers (bicycle shops, sports shops etc.) could help marketing these products, though.

Vehicle products

Vehicle products are not relevant for pedestrians (unless one considers shoes as such). These products belong to the bicycle or could be attached to it. The intentions linked to this type of products are that they are aids for weather protection, for carrying, for safety or other items to facilitate walking. The individuals are responsible for buying and taking care of these products themselves. The society or, e.g., bicycle retailers could help marketing these products.

Road and infrastructure

The Road and infrastructure category deals with design and maintenance on net level, of links, crossings, parking facilities and intermodality points. The intentions linked to this type of products are that they should improve mobility, security, comfort etc. Restrictions for the motorised traffic also belong to this category. The society is responsible for planning, building and taking care of road and infrastructure.

Society

Society products and efforts are not as concrete as the other categories. Their aim is to reach certain attitudes and behaviour among the public that are supporting walking interests and/or discouraging the use of the car. The means can either be persuasive or compulsory. The products and efforts of this type are categorised according to the source of the measure, i.e. media, politicians, officials, companies, etc. The politicians can use legislation to make walking more attractive than driving the car. Officials such as traffic planners can give more priority to walkers. Companies can encourage their employees to walk through different measures, and media can be used to disseminate information.

It was rather often found that products/efforts are linked to more than one aspect. The structure is visualised in figure 3 below.

Personal products Weather protection Carrying and transporting Route information Safety Comfort Security Aids for functionally disabled	Vehicle products Weather protection Carrying and transporting Safety Vehicle products and accessories Aids for functionally disabled Miscellaneous
Road and infrastructure Net level Links Crossings Parking Intermodality Restrictions for the motorised traffic	Society Common Media Politicians Officials Companies Miscellaneous

Figure 3 Products and efforts for pedestrians and cyclists

5.4 Detailed results and comments

The results of work package 2 are primarily going to be used as an input to the following work packages 5 and 7. In the latter they were used as important input to the Walcyng Quality Scheme (WQS).

Although the aim of WP 2 was to summarise existing products and efforts, focus was on good products and efforts and on describing important properties of them.

In the following examples from the lists of products and efforts will be displayed and discussed. The examples are chosen either because they are obvious, or because they show the width of the concept of products and efforts.

Personal products

Personal products are about the same for pedestrians as for cyclists. Important products are appropriate clothes, shoes and assets that should provide weather protection, for comfort and in some cases for safety. Regarding safety there are for example products to make walcers more visible like reflectors or retro-reflecting clothes, and else there are shoes with spikes, bicycle helmets, etc. The problem with safety features is that it is difficult to reach a high using rate. This is primarily because those features do not increase the attractiveness of walcyng, but rather make it more complicated and time-consuming. There are e.g. indications from Australia (Robinson 1996) that a law on mandatory use of bicycle helmets did reduce biking. At the same time there is no doubt that both pedestrian reflectors and bicycle helmets are reducing the injury risk of their users quite considerably. (See also section 7).

Other important things are products for transporting goods such as bags, backpacks and trolley-bags. A valuable personal product, especially for cyclists, is a map with indication of routes, etc. The distribution of maps should in fact be enhanced as one most relevant societal

effort to give cycling more weight. Aids for functionally disabled like walkers, sticks and wheelchairs are mentioned in the pedestrian list.

Vehicle products

Vehicle products are for example products for weather protection for the bicycle like saddle protection and bicycle cover. A lot of products, bags, carts, etc., are available for transporting baggage and children. The use of most of them seems to be rare though. Products for visibility take a large part in the list (reflectors, lights). One main finding is that the lights should be more reliable and user friendly than today.

For safety there are a lot of products and efforts mentioned. For safety and comfort it is important to have a good bicycle (gears, brakes, lockers, etc.). For functionally disabled there are three wheelers available. For people who have become used to high-tech in the cars there are products on the market to fill their high tech need, such as bicycle computers, etc.

Road and infrastructure

Road and infrastructure measures form by far the largest part of the lists. Maybe this gives a hint of what really is important for walcers, even though it may also be a reflection of research priorities. The good products and efforts are all based on some important principles:

1. Walcers should be given more priority compared to car drivers

Under this heading we want to mention the following products and efforts:

- Straight links without detours, shorter distances for cyclists than for cars for the same trip.
- Automatic sensor-steered green at signals and right of way at crossings.
- Restricting road and parking space for cars in favour of walcers.

2. Walcyng planning should be done professionally, supported by thorough basic knowledge about walcers

Here the following products and efforts are available:

- Walcyng network that covers all important destinations without abrupt beginning and end of lanes, for example by using programs supporting planning.
- Maintenance is a key issue; This consists of regular cleaning and removal of unevenness, etc., winter service, removal of verdure and green that hide signs and disturb the sight, control or removal of unappropriately parked cars and bicycles, street furniture or advertisement on walcyng lanes.
- Walcyng lanes and rules should be uniform.
- Avoid cables under walcyng lanes, take special provision at road works.

C.R.O.W.,1993¹ (Sign up for the bike) have analysed cyclists' properties, which will be referred below and in some cases widened by us to cover even pedestrians:

- Walcyng are slow moving transport modes compared to the car.
- Walcyng transport modes take little space.
- The group of walcers is heterogeneous.
- Bicycles are powered by muscle, which means that excessive energy losses should be avoided.
- Bicycles are unstable, which means that the maintenance is important and that enough room must be available.
- Walcers are vulnerable, which means that they should not be mixed with fast moving cars.
- Walcers move in open air, therefore, it is necessary to pay attention to the attractiveness of the surroundings to compensate for this.
- Walcyng planning must consider the whole chain: riding-parking-activity-riding-parking.

Products and efforts considering that walcers are slow moving and driven by manpower:

- Sign posting should be regularly repeated.
- Road design oriented after the needs of pedestrians: trees giving shade, kiosks, benches, toilets, shelters on regular distance.
- Interesting and attractive walcyng areas free from pollution.
- Pre-start at signals.
- Cyclists turning to the right can ride on, even when light is red.
- Respecting intermodality, links well connected to public transport terminals are important.
- Systematic opening of one way roads for cyclists.

Regarding that the group of walcers is heterogeneous, feasible products and efforts are:

- Sign posting should be obvious, readable also for elderly, functionally disabled and children. People with vision problems can be supported by acoustic guidance and high contrast colouring.
- Preferably pedestrians should be separated from cyclists, appropriate width of lanes and use of material should be provided, lines, symbols, chains or steps should be sufficient.
- Lowered kerbstones and refuges for functionally disabled people or people with prams.
- Sufficient crossing time at traffic signals.

Regarding planning for walcyng one must consider the whole chain. Feasible efforts are:

- Possibilities to lock bags away.
- Customer carriages for loan in the pedestrian zones.

¹ Sign up for the bike. Design Manual for a cycle-friendly infrastructure. Centre for Research and Contract Standardisation in Civil and Traffic Engineering (C.R.O.W.), 1993, the Netherlands

- Bicycle parking in sufficient number with appropriate location, safe against weather, theft and vandalism, comfortable to use.
- Reserved space in park houses, guarded depots, store rooms at dwellings and company buildings.

Society

Society works normally more with efforts than with products. The aim of all efforts is to make people in general more aware of the needs and interests of walkers, and also to make them walk.

One activity is:

- Traffic policy discussions in the media.

The politicians can work with policy actions like:

- Put demands on planning and implementation to be walker-friendly.
- Support planning for short distances; i.e. variety in housing and city activities, proximity to work and service.
- Encourage walking for official journeys.

and with legislation such as:

- Speed limits.
- Traffic rules that give priority to pedestrians.
- Changed rules for official cars.

and incentives:

- Support campaigns and other PR-activities for pedestrian issues.
- Increase petrol costs.
- Increase taxes on petrol.

Officials should:

- Develop guidelines for planning that respect the needs and interests of walkers.
- Re-educate traffic planners and other officials dealing with walking issues.
- Start a forum for the public to approach officials.
- Use media for informing about walking issues.
- Provide politicians with relevant information about walking issues.
- Organise information campaigns.
- Allocate more police for traffic control and use contingent control and high fines.
- Use flexible automatic camera speed control.

Companies could:

- Increase the price of parking or reduce the parking space for employees.
- Provide employees with shower and changing room facilities.
- Use flexible working time.
- Carry through campaigns for employees encouraging walking or car-pooling.

Efforts presented under the society heading, that are concentrating on incentive and communicative issues, are presented and discussed in WP 8 through 11.

5.5 Synthesis

The main aim of Work Package 2 was to make an inventory of existing products and efforts for pedestrians and cyclists, and to develop a classification scheme. A secondary aim was to describe important properties of the products and efforts in the users' view, when such research results were found.

The meaning of products and efforts is extended. It does not only include what might traditionally be thought of in this connection, but planning and engineering solutions as well as campaigns. It also contains efforts to make car use less attractive.

The methods used were Focus Group Interviews (FGI) and literature studies. The results were two schemes - one of products and efforts for pedestrians and one for cyclists. The products and efforts were divided into four different types: Personal products, Vehicle products, Road and infrastructure and Society. The last group was not as elaborated as the others, as the work packages 8 through 11 deal with that issue in detail. The types of products and efforts as well as the intentions linked to the products and efforts in each group are described below.

Personal products are products that are appropriate to wear or to be used for help or comfort while walking or cycling. The intentions linked to this type of products are that they are aids for weather protection, for carrying, for security or items to facilitate walking. The individuals are responsible for buying and taking care of these products themselves. The society or different retailers (bicycle shops, sports shops etc.) could help marketing these products.

Vehicle products are not relevant for pedestrians (unless one consider shoes as such). These products belong to the bicycle or could be attached to it. The intentions linked to this type of products are that they are aids for weather protection, for carrying, for safety or items to facilitate walking. The individuals are responsible for buying and taking care of these products themselves. The society or, e.g., bicycle retailers could help marketing these products.

The Road and infrastructure category deals with design and maintenance on net level, of links, crossings, parking facilities and intermodality points. The intentions linked to this type of products are that they should improve mobility, security, comfort etc. Restrictions for the motorised traffic also belongs to this category. The society is responsible for planning, building and taking care of road and infrastructure.

Society products and efforts are not as concrete as the other categories. Their aim is to reach certain attitudes and behaviour among the public that are supporting walking interests and/or discouraging the use of the car. The means can either be persuasive or forcing. The products and efforts of this type are categorised according to the source of the measure, i.e. media, politicians, officials, companies, etc. The politicians can use legislation to make walking more attractive than driving the car. Officials such as traffic planners can give more priority to walkers. Companies can encourage their employees to walk through different measures, and media can be used to disseminate information.

It was rather often found that products/efforts are linked to more than one aspect.

5.6 Input for the Walking Quality Scheme (WQS)

The following results from WP 2 are considered in the WQS:

- The structure of the schemes of products and efforts can be used as part of the structure of the WQS. This means that in WQS evaluation work we can keep the division between products and efforts for pedestrians and cyclists, the categories Personal products, Vehicle products, Road and infrastructure and Society, and the structure within the different categories, more or less.
- The content of the schemes could be used in the WQS. The full content can be found in the WP 2 report.

6 GENERAL PROBLEMS OF PEDESTRIANS AND CYCLISTS

(Work Package 3)

Five partners took part in WP 1:

1. University of Helsinki (UH), Finland (Work Package leader)
2. FACTUM (FAC), Austria
3. Chalmers Technical University (CTH), Sweden
4. De Voetgangersvereniging (VV), the Netherlands
5. University of Valencia (UVEG), Spain

Report: Hakamies-Blomqvist & Jutila, 1997

6.1 Aim

The aim of Work Package 3 is to describe the problems experienced by walkers in traffic. In harmony with the marketing approach, emphasis is on the experience of these road user groups rather than on an attempt to objectively describe the problems.

6.2 Method

Data collection: All WP 3 partners collected relevant literature from the 1980's onwards from their own countries and from other European countries according to the following list of national responsibilities:

CTH:	Norway, Sweden, Denmark
UH:	Finland, France
FAC:	Austria, Switzerland, Germany
UVEG:	Italy, Spain, Portugal
VV:	Belgium, the Netherlands, Ireland, UK.

All written sources relevant to the subject matter were accepted in order to get a broad picture. UH compiled all the inputs and summarised the findings in a report.

6.3 Data analysis.

For each recognised problem, answers were sought to three central questions:

1. Is the problem experienced mainly by some subgroups of users or is it rather general?
2. For which positive value does the problem pose a threat?
3. Which structural aspects of the traffic system generate the problem or can influence it?

In the work package report, the findings are summarised according to the dimensions of product evaluation (i.e., question 2). The connections between different quality dimensions and problem "locations" (question 3) are illustrated in graphs. Some subgroups are discussed separately.

6.4 Quality Dimensions

The experienced problems of walkers can be conceptualised as deficiencies or weaknesses in the preconditions, facilities and circumstances for walking and cycling, which are traffic modes that compete with driving a car. In the following, these product quality problems are analysed along the following dimensions: social climate, health, comfort, safety, mobility, aesthetics and financial advantage.

Social Values

One problem, consciously or unconsciously experienced by walkers, is the low status of those traffic modes, especially compared with driving a car. In contrast, the car symbolises such concepts as power, prestige, independence, freedom and status. Walking and cycling could and should be promoted with the help of campaigns.

Furthermore, the nature of the interaction between different road users is highly influenced by social attitudes. The feeling of safety or unsafety is largely affected by the nature of this interaction.

Health

Cycling is good for health but cannot be done without a baseline health condition. Calculations made by the Finnish Ministry of Transport and Communications demonstrate that if the amount of cycling in Finland would double, the savings in health costs and road upkeep would outweigh the costs resulting from the increase of cyclist's injuries. The experienced health problems are minor as compared to the experienced gains and relate mostly to adverse health effects of polluted air or noise.

Comfort

Since walking is not only a means of transport, but also a way of socialising, spending time and relaxing, special facilities are seen as important for the comfort of pedestrians: Lack of benches, waste-baskets, finger-posts, shelters and public toilets can affect the willingness to

spend time walking. The motor activity of walking in a stricter sense is greatly affected by pavement conditions. Negative experiences are mostly caused by dirt or obstacles on the pavements. Feelings of insecurity are related to bad surface conditions (holes, broken surfaces, litter and glass) and very narrow pavements. Sharing of pavements with cyclists also causes feelings of unsafety.

Weather

Weather conditions affect the comfort of walkers. Even though there may be many reasons it seems as if hot weather rather than cold is an obstacle for cycling, since there are hardly any cyclists in the Mediterranean countries but many of them in Denmark and in the Netherlands. Moreover clothing can be used as a weather protection against cold weather.

Safety

Experienced safety does not always correlate with objective safety. To increase the experienced safety of cyclists, they should be separated from cars. The experience of safety of the pedestrians is threatened by both cars and by cyclists, especially that of the elderly pedestrians. Personal security can be threatened if walkers are too much isolated from car traffic, especially if the illumination is not sufficient. This is a problem especially to women.

Mobility

The main mobility problem of cyclists is the lack of a continuous and good quality bicycle road network. In addition, smoothness of the road surface and better markings are desired. Experienced mobility problems do not always give a realistic reflection of the competition situation. In an urban environment, cyclists often cover distances from one to six km in the shortest time. Still private cars are considered as the fastest traffic mode. Stopping at traffic lights is experienced as a significant problem for smooth mobility, and traffic lights equipped with detectors are considered a great improvement.

Aesthetics

Car drivers and passengers keep their eyes mainly on the road. They tend to notice movements in terms of other traffic, people and animals. When they look beyond the road they focus on bigger landmarks such as buildings. Pedestrians and cyclists, because of the slower pace, have time to look around and really get to know the environment. Especially a green environment is valued. Noise of surrounding traffic and pollution are experienced as esthetical problems as well as health problems.

Financial Advantage

Unlike car drivers walkers in many countries are not offered any financial support (e.g. tax reductions on company cars). Moreover the relative inexpensiveness of cycling is threatened by bicycle theft.

6.5 Special problems of some subgroups

Habitual car drivers²

When trying to promote walcyng, habitual car drivers is the most important target group. The desire to drive a car is created and reinforced by social climate factors. The car symbolises power, prestige, independence, freedom and status. Typical motives for car use are difficulties to identify oneself with the alternative behaviour, laziness or even egoism, habits and thoughtlessness, personal extra motives for car use and lack of positive feedback for alternative modal choices. The less egoistical motives favouring car use are e.g. long distance to work, poor walking and cycling facilities and lack of public transportation.

Women

The principal caretakers of the family, most frequently mothers, have the highest mobility requirements. Often their routes contain a whole chain of activities. On the way from work they do shopping, pick up the children and then go home. The mobility of women is often concentrated on environmental friendly means of transport, such as walking, cycling and using public transport, and not using a car. At the same time they realise that their experienced problems in transporting children and shopping bags can be solved by the use of car. This dilemma is reflected by an English study about car driving women. It showed that women become rather devoted to their car once they get used to driving, experiencing the car as an indispensable means for a pleasant life.

One conclusion from this is that – in order to keep women as walcers – a very important feature of the traffic environment from the female perspective is spatial proximity.

The Elderly

An important target group for WALCYNG consists of those who are regular walcers. Walcyng for them does not involve a lot of theoretically defined problems - as for many habitual car drivers - but problems experienced when actually walcyng. Their experience must therefore be utilised for general purposes in WALCYNG, but also to see to it that people who already are regular walcers get good conditions so that they never consider to stop walcyng.

Elderly are often regular walcers even though an EU - report indicates that as many as 50 % of the elderly never leave their home because of fear and various handicaps. For those who leave their homes walking is a very common traffic mode. Older pedestrians, however, face difficulties, e.g., with high kerbstones. It makes walking more difficult, and it also distracts elderly people from actual traffic situations. The elderly are more sensitive to the difficulties that every pedestrian faces, like the condition of the pavements, having to take longer routes because of, say, subways or badly situated traffic lights etc. In addition, many traffic lights change too

² Habitual car drivers are those for whom as a routine it is "out of the question" to use any other means of transport than the car. Such a radical position is quite unrealistic for walcers, among others of the reason that one can not cover long distances by walcyng. Possibly, a comparable type of cyclists is developing, but there is not yet a special term for them. This is why we arrived at the labels "habitual car drivers" on the one hand, and "regular walcers" on the other.

quickly from green to red. The elderly feel especially vulnerable and unsafe in heavy traffic. They are thus in favour of speed limits, more traffic lights at pedestrian crossings and they also hope for a more considerate behaviour by other road users. The threat represented by cars is most acutely experienced at crossings.

The Functionally disabled

The functionally disabled are often regular walkers, precisely as the elderly. Many problems experienced by the functionally disabled are also common with those of the elderly, for example stepping over high kerbstones, sudden stairs without slides or elevators, and obstacles on the pavement such as road construction work or parked cars. Combining walking and cycling with public transport is difficult for the functionally disabled. Elevators do not necessarily exist at all underground stations, and most buses and trams can only be reached over stairs. The concept of the functionally disabled can also be broadened to include partially functionally disabled, such as people with heavy bags, pushing pram-chairs or having a plastered leg. In this respect, facilities for the functionally disabled have a wider demand.

6.6 Conclusions

The existing literature does not give an exhaustive picture of the problems experienced by walkers. In addition, an "objective", structural problem like the inequity of different road user groups is not necessarily represented in the same manner in the experience of walkers. They rather tend to describe the situation in terms of discomfort or unsafety. The qualitative, phenomenological approach of WP 6 is therefore necessary in order to complete the findings of the present work package. Different user groups have different needs and problems. Promoting will be more effective if tuned according to the needs of key user segments of the population.

6.7 Synthesis

The aim of Work Package 3 was to describe the problems experienced by walkers in traffic. This was made by studying literature from the 1980's onwards. It was often found that problems were described objectively, and not from the users' point of view.

Each recognised problem was analysed according to the questions: Is the problem experienced mainly by some subgroups of users or is it general? For which positive value does the problem pose a threat? Which structural aspects of the traffic system generate the problem or can influence it?

We could identify some subgroups with specific problems: habitual car drivers, women, elderly and functionally disabled people. When trying to promote walking, habitual car drivers are the most important target group. The women have often the highest mobility requirements, and do already concentrate their mobility on environmental friendly means of transport. Therefore, the most important feature of the traffic environment for them is spatial proximity.

Among elderly walking is a very common traffic mode. Older pedestrians, however, are more sensitive to the difficulties that every pedestrian faces, which make walking more difficult, and

distract elderly people from actual traffic situations. The functionally disabled are also often regular pedestrians, and have many problems in common with the elderly. To use the waste experience of these groups must therefore be utilised for general purposes in WALCYNG, but also to be able to give the regular walcers good conditions so that they never consider to stop walcyng.

The experienced problems of walcers were analysed along the dimensions social values, health, comfort, safety, mobility, aesthetics and financial advantage.

A problem related to *Social Values* is the low status of walcyng, especially compared with driving a car. Also, the nature of the interaction between different road users is highly influenced by social attitudes.

Health: Cycling is good for health but cannot be done without a baseline health condition. *Aestetical problems* evolve as pedestrians and cyclists have time to look around and really get to know the environment. Especially a green environment is valued. Noise of surrounding traffic and pollution are experienced as esthetical *and* health problems.

Comfort: Since walking is not only a means of transport, but also a way of socialising etc., it is important with special provision of benches, waste-baskets, shelters and public toilets, etc. The main *Mobility problem* of cyclists is the lack of a continuous and good quality bicycle road network.

Security: Experienced Safety does not always correlate with objective safety. To increase the experienced safety of walcers, cyclists should be separated from cars, and pedestrians should be separated from both cars and cyclists. The personal security is threatened if walcers are too much isolated, especially if the illumination is not sufficient.

Unlike car drivers walcers are in many countries not offered any financial support. Moreover the relative inexpensiveness of cycling is threatened by bicycle theft.

6.8 Input for the Walcyng Quality Scheme (WQS)

The following aspects from WP 3 are considered in the WQS:

- It is fruitful to structure the WQS according to the dimensions social climate, health, comfort, security, mobility, aesthetics and financial advantage, in order to remind the compiler of the WQS of the importance of the users' point of view and of positive values. Examples of problems/measures from WP 3 have to be included as items to be evaluated in the WQS.
- The WQS must be adapted to different groups of walcers and potential walcers such as habitual car drivers, women, elderly and functionally disabled people. It is important to keep in mind the different needs of the groups. For example, what could be a comfort problem for a regular pedestrian could by an elderly pedestrian be considered a huge mobility problem. This has to be considered in the WQS.

7 SAFETY PROBLEMS

(Work Package 4)

Four partners took part in WP4:

1. The City of Helsinki, Finland (Work Package leader).
2. Transport Technologie-Consult, Germany
3. Department of Traffic Planning and Engineering, Sweden
4. Franco Gnani & Carlo Bonanni, Italy

Report: Pasanen, 1997

7.1 Aim

The aim of Work Package 4 is to collect information about objective safety problems (traffic accidents) for walkers, to explain the nature of the problems and to identify solutions to the problems.

7.2 Method

The analyses are based on research studies, on national road traffic accident statistics, on the results of WP1 and on specific calculations with the accident register and the present traffic conditions in the city of Helsinki.

7.3 Results

Walking and cycling are more dangerous modes than travelling by car in most European cities. This problem can be mitigated but not solved by:

- Introducing new facilities at black spots
- Restricting car traffic in shopping areas
- Building new cycle paths.

In a middle-sized European city there are thousands of potential accident sites. For individual pedestrians and cyclists, crossings with a low walking-flow may be even more dangerous than crossings at "actual" black spots. However, these black spots often get the whole attention of authorities. Black spot treatment, traffic calming in central shopping areas and new cycle paths

are important activities but they do not solve the present safety problems of walking and cycling. More general solutions are required therefore.

WALCYNG highlights three basic safety themes:

1. Rare events are dangerous
2. It must be accepted that pedestrians do make mistakes
3. Car drivers are not afraid of cyclists

Theme 1: Rare events are dangerous.

There is a lot of evidence that conflicting events in traffic are the more dangerous the rarer they are. For example, the number of killed cyclists per bicycle mileage is radically higher in Italy (not many cyclists) than in the Netherlands (see figure 4).

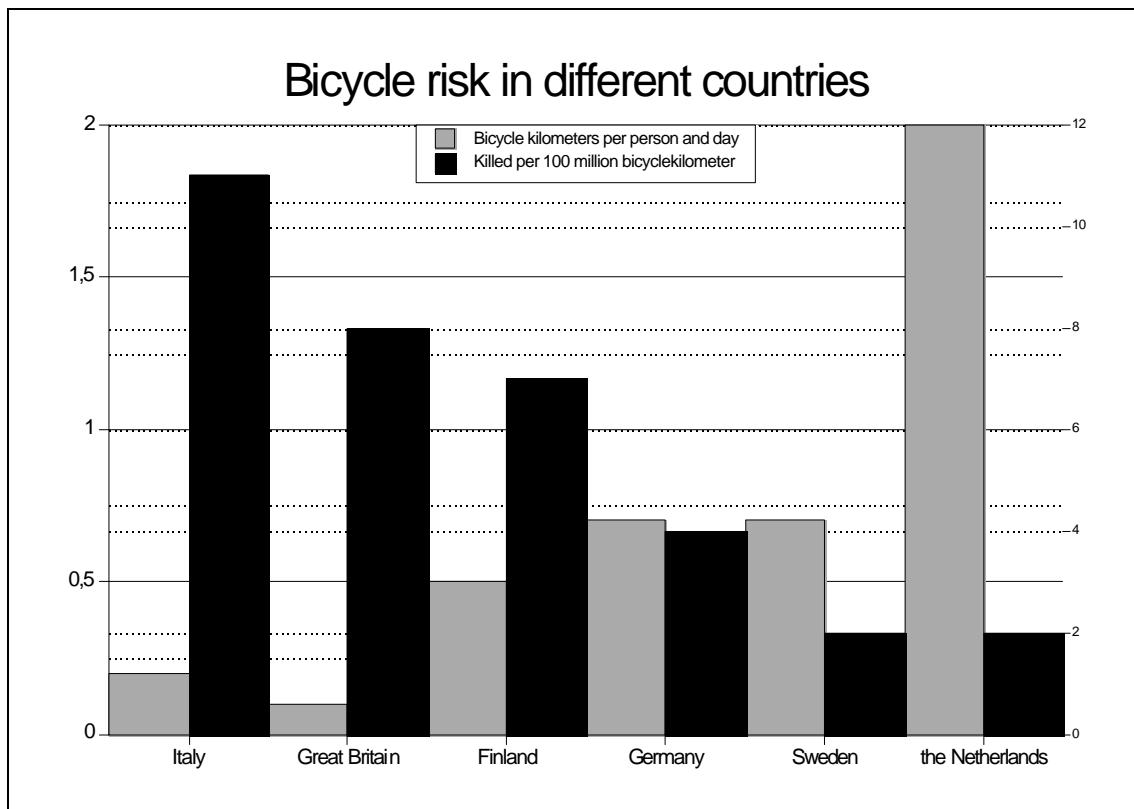


Figure 4 Bicycle kilometres per person and day compared with killed per 100 Million bicyclekilometer

There are primarily two reasons behind these big differences in risk:

1. Infrastructural differences. The more cyclists there are the more investments in bicycle facilities are justified and also made. The difference between e.g. the Netherlands and Italy is quite obvious. In the Netherlands most commuting trips can be made primarily on special bicycle facilities while in Italy it is very unlikely to be able to do the same.

In addition, the more bicycle facilities there are the more feed-back on its safety performance is produced. It is therefore most likely that infrastructure e.g. in the

Netherlands - thanks to systematic black-spot treatment and other similar strategies - gradually have been improved with regard to its safety records for bicyclists.

2. Results on a micro level indicate very clearly that flow has a strong influence on bicycle risk. Results from non-signalised intersections in Sweden show for instance that bicyclist risk (= injured bicyclists per passing bicyclist) has a peak at quite low bicycle volumes and then decrease considerably, see figure 5.

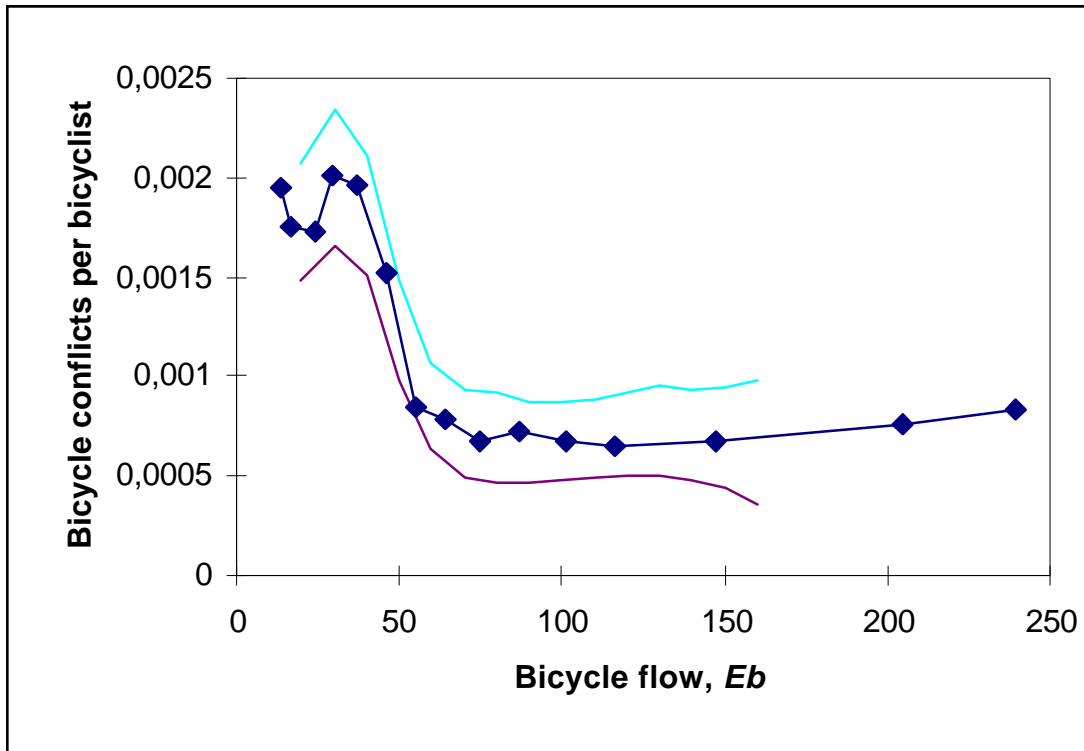


Figure 5 Bicycle conflicts per bicyclist versus bicycle flow. Moving average line (RPF) with an estimated 80% confidence interval
Source: Ekman 1996

The most plausible explanation to the results in figure 5 is that car drivers at very low bicycle volumes do not expect any bicycles at all. As the risk peak in figure 5 is at around 20 bicycles an hour - equal to an average of one bicycle per 3 minutes - it is rather unlikely for a car driver to encounter a bicyclist at a short visit to an intersection. When bicycle volumes are increasing the probability of encountering a bicyclist is increasing and at some stage bicyclists are so common that they become "a part of what always can be expected at that intersection".

An important conclusion from these findings is of course that all efforts should be made both to encourage biking in general but also to see to it that bicyclists are concentrated as much as possible to certain routes.

Theme 2: It must be accepted that pedestrians do make mistakes

Walking does not require a continuous attention to other traffic. One can experience the whole environment or concentrate on one's own thoughts when walking. Unfortunately, this means that sometimes the pedestrians "forget" to watch out for other road users at critical situations. A pedestrian accident is usually not the result of a failure of intentional reckless attempts. A

pedestrian accident can be seen rather as a random output of bad luck. A car or an other vehicle just happens to be at a wrong place with a wrong speed just at the moment the pedestrian happens to lose her/his control for a second.

WALCYNG does not want impulsive children to be changed to mechanical survivors. This does not, however, mean that children in traffic should be encouraged to do whatever they want. Education about the dangers in traffic is important but WALCYNG has not much to add in these efforts. This concerns also the behaviour of grown up, elderly and functionally disabled pedestrians.

It must be accepted that pedestrians sometimes do behave quite unthoughtfully. Everybody does, even car drivers, cyclists and other road users. Due to the difficulties in changing this behaviour, the traffic system has to be more tolerant for these unexpected pedestrian actions.

Pedestrian safety depends to an alarming degree on the driving speed of the so called free vehicles (vehicles not in a queue). A free car with a 50 km/h speed causes a risk of death almost eight times higher when compared with a speed of 30 km/h.

Proper speed limits under various conditions are more or less a political decision. The definition of an acceptable risk (caused to other people) is clearly something that has to be dealt with by the community, and not by the individual driver.

A maximum speed of 30 km/h in central and residential streets would reduce fatal pedestrian accidents by 50-80 percent compared with the present speed distributions. In central streets, the travel time of all cars would increase by less than a fifth (in per cent) of the reduction of fatal accidents (in per cent). For the sake of comparison, to stop drunken driving would reduce walcyng-accidents by 1-2 percent. In addition, a maximum speed of 30 km/h also improves the safety of cyclists and offers rather pleasant cycling conditions without any specific cycle paths.

Humps, small roundabouts and other infrastructural measures are effective in reducing speeds to below the general speed limit at specific crossings or other high risk locations.

The most obvious and concrete short term way, however, to reach low speeds is the automatic speed camera control. In each European country, the legislation should be changed so that the speeding fines are addressed to the owner of the car and not to the driver. Just like with parking fines today. As long as this is not the case there will be severe legal complications as soon as the driver can not be easily identified. It may often lead to unsuccessful court cases with high costs for the society at the same time as it degenerates the strategy as such. These changes in legislation have already been done in the Netherlands, Germany, Great Britain, France and Austria. The recording of vehicle speeds and the registration number must mainly be done with a movable equipment at unexpected spots. Concentrating on only a few black spots with loop detectors and other old techniques waters down the basic target. Speeding on purpose must be made unprofitable on all residential and central urban streets.

A comprehensive speed control would almost halve the number of fatal pedestrian accidents in an average European city. The yearly costs of a comprehensive automatic speed camera control in any city would be clearly less than 1 ECU per inhabitant. This cost estimate does not include the short time losses made by vehicle drivers and passengers. These are simply conside-

red as losses of benefits won by illegal behaviour. The revenues from speeding fines would clearly exceed all the costs.

A long term measure for speed control is linked to the vehicle. Research is on-going in some European countries. In addition there is an EU - project (MASTER) dealing with the subject. A large scale experiment with speed adaptation systems in vehicles is proposed for four cities in Sweden, to be executed in 1998 to 2001. Research so far indicates that speed adaptation systems in cars in urban areas constitutes a fully possible concept with a high safety potential.

On multi-lane signalised streets, the stop-lines for cars should be drawn 5 metres in front of the pedestrian crossings. This offers more reaction time for drivers passing a stopped car. Recessed stop-lines for cars also improve the safety of cyclists at signalised crossings.

In many European cities, a cycling kilometre causes more pedestrian injuries (police registered pedestrian accidents) than a car kilometre. The car/pedestrian accidents are, of course, more serious than the bicycle/pedestrian accidents. On the other hand, especially elderly people often feel that cycling is a more disturbing mode than car driving. Walking must be possible without paying continuous attention to silent vehicles from behind. Pedestrians and cyclists should usually be separated horizontally at least with a different looking road surface but rather also vertically with a curb. Where this is not manageable (some bus stops, narrow paths in parks, busy pedestrianised shopping streets etc.), the legal responsibility for safety should clearly be ruled to the cyclists.

Theme 3: Car drivers are not afraid of cyclists.

There are huge differences in the bicycle networks in different countries and cities. However, the expansion of the present network is in most cases expensive and is primarily not a decisive countermeasure for reducing accidents in any country. Arrangements at crossings are a more effective way to reduce bicycle accidents.

Nobody wants to hit a pedestrian or a cyclist. However, pedestrians and cyclists do not threaten the life of the people inside cars. Thus, car drivers are not really afraid of cyclists or pedestrians. The protective behavioural patterns of car drivers do therefore not take enough account for unexpected and sudden movements of weaker (vulnerable) road users. This concerns especially cyclists who often appear at conflicting situations with a rather high speed. For example, sight obstacles usually do not increase the number of car/car accidents at intersections. Car drivers compensate these dangerous sight conditions with additional carefulness. But a poor visibility at crossings between cycle paths and streets dramatically increases the number of bicycle/car accidents.

Two-way bicycle paths cause a special safety problem at intersections. Bicyclists on a bicycle crossing, going in the opposite direction to cars in the closest lane, are obviously not expected by car drivers entering the intersection from the left in relation to the cyclists. Bicyclists in this direction face much higher risks than those going in the opposite direction. These problems can be eased by raising the bicycle crossing so that entering cars have to negotiate a hump and thereby slow down.

Car drivers should be able to notice cyclists without any specific and demanding efforts. Two-way cycle paths should not be used without specific facilities at crossings. Vegetation, car parking and other sight obstacles near to cycle path crossings must be removed.

However, all accidents can not be eliminated within the near future, an example for a short term measure with a considerable potential shall be given: The bicycle helmet. The percentage of cyclists with a bicycle helmet is in the Netherlands close to zero and in Denmark 3%. In Sweden 15 % and in Finland 20 % of all cyclists do wear a helmet. **A bicycle helmet for all cyclists would reduce fatal bicycle accidents by 50 percent.**

7.4 Recommendations

The three WALCYNG safety themes have led to eight recommendations. These recommendations are valid in most European countries and can in most cases be implemented with reasonable costs in a short term.

1. A comprehensive automatic camera speed control. National legislation must be changed (if not already done) so that speeding fines can be sent to the owner of the car, not to the driver. The surveillance must mainly be done with a movable equipment at unexpected spots.
2. The maximum speed limit in central and residential streets - and in other streets where walcers are present - should be 30 km/h. The width of these areas reflects the cities' care for the welfare of the pedestrians and cyclists. In other parts of cities - where the speed is higher - an efficient system for separating vulnerable road users from motor vehicles must be ensured.
3. Pedestrians and cyclists should usually be separated horizontally at least with a different looking road surface but preferably also vertically with a curb.
4. Where the physical separation of pedestrians and cyclists is not manageable (some bus stops, narrow paths in parks, busy pedestrianised shopping streets etc.), the legal responsibility for safety should clearly be ruled to the cyclists.
5. Two-way cycle paths should not be used without specific facilities at crossings. This recommendation is extremely important in those countries and cities that are just beginning to build their cycling network.
6. Vegetation, car parking and other sight obstacles near to bicycle crossings must be removed.
7. Cyclists should be incited with guiding and with pleasant conditions to use main cycle routes.
8. There is a growing interest in developing different types of speed adaptation systems for cars (e.g. Speed Limiter). The research around these concepts are indicating promising results including large scale reductions of vehicle speeds. Research should therefore continue, and large scale experiments should be encouraged.

7.5 Synthesis

The safety of walcers is a critical issue. The success of the WALCYNG strategy, i.e. a significant increase of the number of walcers would lead to a dramatic increase of casualties for wal-

cers if it was not accompanied by a large-scale implementation of safety measures. That could easily lead to a critical draw-back resulting in withdrawn support.

In this work package, however, it has been clearly demonstrated that there is a great potential for improving safety for walcers. Many important tools already exist. Quite often it is primarily a matter of adaptation to local conditions and fine-tuning of the measures.

The resource demand to make the walcyng systems considerably more safe than today will vary. In quite a few cases it is a matter of implementing low-cost measures in a large scale. In other cases the investments will have to be much larger. There is all reasons, however, to believe that great synergy effects can be obtained by linking the program for improving safety with the program for improving attractivity of the systems. The latter program will include a comprehensive program for new- and re-construction of walcyng infrastructure. In this connection an optimisation from a safety point of view will in most cases only lead to minor increases of costs.

7.6 Input for the Walcyng Quality Scheme (WQS)

With regard to the WQS (the final product of the EU-project) the following traffic safety aspects are of interest from an evaluation point of view:

- What is the general knowledge about accidents and injuries of walcers?
- What is the general knowledge about the movement of walcers? (Numbers, age, length, type of locations, etc.)
- What is the specific knowledge about the movement of walcers? (Routes, roads, etc.)
- What is the specific knowledge on safety of walcers? (Type of accidents, causes, locations)
- How much is spent on traffic safety work in general? (Campaigns, infrastructure, etc.)
- How much is specifically focused on the safety of walcers?
- How will safety strategies change in the coming 10 years? What implications might this have for the safety of walcers?

8 TYPOLOGIES OF PRODUCTS AND STRATEGIES

(Work Package 5)

All partners took part in WP 5:

1. Transport Technologie-Consult, Germany (Work package leader)
2. University of Lund, Sweden
3. Chalmers Technical University, Sweden
4. FACTUM, Austria
5. Franco Gnani & Carlo Bonanni, Italy
6. City of Helsinki, Finland
7. Institute of Transport Economics, Norway
8. University of Helsinki, Finland
9. University of Valencia, Spain
10. De Voetgangersvereniging, the Netherlands

Report: Schneider, 1997

8.1 Objectives

Work package 5 had two objectives:

1. To be a summary of WP 1 through WP 4 and a synthesis of the basic results of those four work packages.
2. To give information and to define a direction for WP 6 and subsequent WPs. Gaps were to be identified that should be covered by the future process within the WALCYNG project.

In this section the essential results of work packages 1 to 4 will be brought together, covering the following questions:

- Looking at the most important problems: Are there products available on the market that are able to solve them?
- Take into consideration important products: What is the feasibility of these products from an economic and realisation view point?
- Which gaps can be identified between existing problems and effective products? Are there decisive problems existing without effective products to solve them?

WP 3 has shown that there is a need to make a segmentation into different groups of walcers and potential walcers in order to get a broad understanding of problems, solutions etc. In order to exemplify the problems in an understandable way the consortium therefore selected three target groups:

1. Habitual car drivers
2. Women
3. Regular walcers.

The latter target group was subdivided into three sub-groups:

- Elderly
- Children and youngsters
- Functionally disabled

Such establishing of possible "target groups" had the aim of finding out to what extent the particular target groups make short distance trips, to evaluate trip purposes and specific problems. From all possible groups, we wanted to select groups that could be used as model groups. They all reflect a special feature of mode choice for short journeys:

- The ones that we have called "habitual drivers" have shown to have very special attitudes which makes it especially interesting to discuss their case. Besides they represent a very important group in the efforts of changing peoples mode of travel.
- Women are a very large group with a lot of different practical problems, e.g., underlining the necessity of car use but also indicating what needs they have in order to become walcers (often temporarily disabled).
- and finally, we wanted to include practising walcers (= regular walcers) who have empirical experience of walcyng. They should remain walcers, and in addition their vast experience of walcyng should be made use of in order to facilitate the system for potential walcers.

Of course, there is some overlap between these groups. This is not something that can be avoided, as most people participate in traffic in several roles.

Needs and problems of the target groups have one thing in common: They are very complex and strongly depending on each other. For this reason, it must not be expected that solving one single problem will lead to changed behaviour. If - then - relationships cannot easily be used to forecast future mode choice.

As far as products and efforts are concerned, the situation is very similar. It is unlikely that one single product will lead to a total change of travel behaviour. It is a fact that usually a complex set of measures is more effective than the sum of effects of single measures would predict.

However, our results showed that there are several needs and problems without an existing appropriate solution. One example is the "social value aspect" that seems to be very important for the group of habitual car drivers and their attitudes towards walcyng.

Increasing traffic safety is not a very important incitement to change travel behaviour from car to walking. For many of the regular walkers, however, safety is an important issue. A more comprehensive experience of walking by "non-walkers" – e.g. with the help of incentive and communication policy - might lead to a more outspoken need for safety improvements even by these new groups of walkers.

In the frame of a consortium workshop typical problems, and possible solutions derived from WP 1-4, were discussed with regard to their importance and feasibility.

8.2 Habitual Car Drivers

Habitual car drivers are those who use their car for almost all trips, and all other modes for hardly any trip. A behavioural change of this group would undoubtedly lead to a signal effect also for other road users. This can be assumed due to the fact that parts of the habitual car drivers belong to social groups that are better off and their behaviour serves as a good example for other social groups.

Main barriers

Low social status of the walking modes, presupposed impairments to mobility, the lack of perceived financial advantages in case of an alternative modal choice, and low comfort are the main barriers for walking that have been identified for habitual car drivers.

Social status

One very big problem for replacing short car trips by walking and cycling for this group is the "low social status of these modes".

There does not, however, seem to be an effective product to tackle the social-status aspect available on the market. However, measures underlining the importance of walkers, e.g., by giving "priority" to walkers, improving "comfort" and "status" as well as providing better "infrastructure conditions" for them could serve as complementary efforts. Other methods to persuade habitual car drivers to change their mode choice are rather to be found in the communication area (WP 9).

Mobility

"Mobility problems" were assessed as important for habitual car drivers. They comprise long distance to work and a lack of walking facilities, e.g. infrastructure. As far as the replacement of long trips is concerned, measures to increase proximity to work and service would be appropriate. Another measure that could solve problems linked to long distances is intermodality. By making the use of public transport in combination with walking on feeder trips more attractive and efficient, even longer car trips could be replaced.

With respect to short trips there were several products mentioned in WP 5 that are of great importance and fit excellently. The most appropriate measures are "general maintenance", "winter service for walking /cycling lanes" and "a network that covers all important destina-

tions". Solving mobility problems can also be supported by measures giving priority to walkers, and reducing motor-vehicle speeds.

Financial advantage

Another aspect mentioned is financial advantage. This advantage for car users will lose importance in case that one of the two most important restrictive measures will be realised, namely "car tolls and other administrative measures".

Further supporting measures in that field that were assessed to be important, but not decisive, are "parking management (parking fees)", "higher petrol costs or taxes" and "increased taxes for company cars".

Comfort

Lack of comfort is perceived as a problem in connection with walking. This problem can be reduced by special comfort giving products. The most effective examples mentioned were a "good bicycle", "smooth and well maintained surfaces", and a "walkman".

Additional measures could be products and efforts giving priority to walkers and "basic requirements".

8.3 Women

Women are an interesting group to exemplify because of their usually very special preconditions for travelling.

Main barriers

There is one problem that is always mentioned when discussing this group, namely "impaired mobility". Three dimensions of this problem have to be distinguished and treated separately:

- Spatial proximity (long distances)
- High mobility requirements (shopping trips, trips with children, etc.)
- Lack of walking facilities

Spatial Proximity

Measures "to increase proximity to work and service" are above all the highest ranked measures in this field. Changing out-of-home workplaces by home-work could reduce the number of short-distance car trips, but without replacing them by walking. Moreover, even with this group enhancing intermodality appears promising, by making the use of public transport in combination with walking on feeder trips more attractive and efficient.

High Mobility Requirements

This aspect mostly focuses on support that is needed for the mode. The mobility requirements can be fulfilled by a variety of products. The most promising (with respect to reach the goal as well as to high cost effectiveness) are technical measures like "right of way at crossings for

walcers" and "right turn on red for cyclists". Additional highly important instruments with reduced cost effectiveness are improved network conditions like providing "direct connections", "shorter distances for walcers than for cars for the same trip", among other provided by a "network, that covers all important destinations" for pedestrians and cyclists.

The most important products to improve the transporting of goods are "better bike baskets and bags". The carriage of goods for pedestrians can be facilitated by trolley bags and rucksacks. In addition, a more systematic "home delivery service from retail dealers" is a very important measure. Even though the willingness of shop owners seems to be very limited, due to additional costs and logistic problems that customers are hardly willing to pay for, it seems as if there is some progress in this field. In several European countries (we have learned from examples in Austria, Sweden, and the UK) big food stores have recently started offering such a service.

The transport of children can be supported by "child seats for bicycles". Other supporting measures are "special bags for carrying babies for pedestrians" and "trailers for cyclists". Very important are "possibilities to transport the bicycle with public transport". Of minor importance are "customer carriages" and "children carriages for rent in the city / in shops".

Lack of consistent walcyng facilities

This problem aims at achieving consistency of the infrastructure, as women show more complicated trip patterns than man, because they are much more frequently than men doing shopping trips, trips with children, etc. Several products to reach this goal have been evaluated and assessed being of high importance: "A network, that covers all important destinations", preferably a "cycle net separated from cars and pedestrians", "direct connections", "winter services for walking and cycle lanes", "appropriate and obvious sign posting" and "interesting and attractive pedestrian areas" were mentioned.

Lack of security

Security is an aspect that is especially important for women: Fear of being harassed by men, or of other criminal acts of which they could become victims, are powerful barriers against walcyng, especially as far as night trips are concerned.

8.4 Regular walcers

One main reason why regular walcers are considered here is the fact that they are to a much higher degree affected by the problems caused by car traffic than any other group. Moreover, by learning from regular walcers, who know the relevant problems connected to walcyng from their own experience, we can see to it that every effort is taken to assure good walcyng conditions even for future newcomers.

This group is very heterogeneous. Of several possible subgroups we chose the following three in order to exemplify some typical problems:

- Elderly
- Functionally disabled.
- Children and youngsters

While the first and the third subgroup are totally different, there are of course road users in the mid-group that also belong either to elderly people or to children and youngsters.

Elderly are defined as people of more than 65 years. The behaviour of this social group is well-known due to empirical studies. Children and youngsters, however, are only partly taken into consideration in official behavioural studies. There is almost no information available dealing with out-of-home trips covered by young children. Many studies take into consideration only children older than 10, in some cases even older than 13. This lack of information can only partly be compensated by the fact that many trips of young children are not done alone but in company of other persons.

Functionally disabled people are normally not a part of official empirical studies of road user behaviour. This means that, systematically speaking, only prior information is available describing similarities and differences of behavioural patterns of functionally disabled and others.

Elderly

Traffic safety

One important problem of elderly people is traffic safety, both objective in terms of accidents and injuries, and subjective in terms of feelings of unsafety. Elderly road users are – as pedestrians - afraid both of car traffic and cyclists. In addition, they have technical/ergonomic difficulties with crossing the street and with traffic lights that are changing too quickly. A product with a high level of importance is "separation of pedestrian lanes from cycling lanes". Highly important to improve traffic safety are "zebra crossings and pedestrian signals in the logical routes of pedestrians and designed in such a way that road user behaviour promotes safety (low vehicle speeds, no driving or walking against red, etc)" , "bridges and tunnels where busy and logical routes of pedestrians cross very busy traffic roads designed in a walcyng friendly way (good light conditions, good sight conditions, well spaced)", as well as "refuges".

Security

Another very important problem of elderly people is personal security. The most important measure to meet this problem is expected to be "improved lighting".

Mobility

This problem can be solved by infrastructure and comfort measures. The most important contributions for this purpose can be expected from "resting facilities on regular distances" and "pedestrian zones / pedestrian streets". Both measures are ranked extremely high.

Comfort

Another problem mentioned for elderly people is comfort. The measures to solve their problems are largely the same as those mentioned under mobility.

Children and youngsters

In our case, this group consists of road users not older than 17 years. Since they are too young to have a driving license, they do not represent a direct potential for replacing short car trips by walking and cycling. However, a part of the car trips that are done are caused by this group (school trips and leisure trips). Besides, it can be assumed that those children and youngsters that are not satisfied with their present mobility conditions are the potential car drivers of to-morrow.

Traffic safety

An important problem identified for this group is traffic safety. Traffic safety in the sense that a poor safety assessed by parents is a relevant factor. Parents therefore often take their children to school by car in stead of having them to walk or cycle. Traffic safety can be improved best by "separation of pedestrian lanes from bicycle lanes" and by "improved lighting". Additional measures that can be realised to reach the goal of improving traffic safety are several infrastructure measures that help to avoid accidents as well as increased ambition of the "police to improve traffic safety, especially for pupils on their way between home and school".

Comfort

Another important problem for children and youngsters is comfort in the sense that their playgrounds often are located close to roads with heavy traffic. To locate playing and similar facilities for youngsters adjacent to the walcyng paths – and away from major streets - should mitigate this problem.

Functionally disabled

Mobility

Functionally disabled people have to deal with mobility problems first of all. Mobility can be improved by infrastructure and comfort measures that have already been described. In addition and as far as longer trips are concerned, better access to public transport, like level access etc. would be helpful.

In addition, mobility of blind people can be improved most efficiently by "special traffic light systems for blind people" and by "tactile and acoustic guidance for functionally disabled". The first of these products is very expensive and therefore not very cost effective. The second measure mentioned is supposed to be more cost effective.

8.5 Synthesis

One of the most important results that was carried further from the synthesis produced by WP 5, was that a segmentation of the target group was necessary. The reason is the significant differences in experienced problems among different sub-groups. To be able to complete the wide-ranging approach of WALCYNG it is important to have a comprehensive knowledge both about different groups of experienced walcers' problems and interests and about those whom WALCYNG wants to turn into experienced walcers. The differences might be the strongest indicators of what the most important changes are.

The sub-groups selected were covering the majority of people in the various countries and a conclusion of the WP5 - work was that the interests and problems represented by these groups also covered the vast majority of those problems that should be covered by a complete WALCYNG - strategy. At the same time it was made obvious that different sub-groups represented very different problems, and a successful strategy to enhance walcyng must therefore include different strategies focusing at different sub-groups.

8.6 Input for the Walcyng Quality Scheme (WQS)

Regarding our efforts to assess the importance and cost-effectiveness of different measures it must be stated that the present state of knowledge made this part incomplete. In many cases the assessments were not based on any empirical know-how, not even in case of individual measures and even less regarding the combination of different measures. The results in this case must therefore be looked upon as a first attempt to organise measures so that they could be included in further (= post WALCYNG) activities linked to a validation of the WALCYNG Quality Scheme.

9 INTERVIEWS, ATTITUDE ANALYSES, STATED PREFERENCES

(Work Package 6)

Partners from five different countries took part in WP6:

1. University of Helsinki, Department of Psychology, Finland
2. University of Valencia, Spain
3. FACTUM, Austria
4. Franco Gnani and Carlo Bonanni, Italy
5. Institute of Transport Economics, Norway (Work package leader)

Report: Stangeby, 1997

9.1 The purpose of WP6

The objective of WP6 is to obtain information on peoples' attitudes to walking and cycling instead of using a car, by interviewing people. Important interview objectives are:

- to let people inform about their habits with respect to short car trips, to walking and to cycling, and to describe/assess the situation for pedestrians and cyclists
- to learn from people what are the strongest practical attractors for walking and cycling, and what are the most severe barriers
- to develop suggestions for modifications and solutions for pedestrians and cyclists in communication with these groups.

The study focuses on short trips, i.e. trips up to 5 km.

9.2 Methods

To achieve the goal of WP6 we have utilised two different approaches:

1. Qualitative approach using data from in-depth interviews in Finland, Austria, Italy and Spain focused on target groups' attractions and barriers for walking and cycling and sug-

gested measures to improve conditions for pedestrians and cyclists. In this report we call these interviews "qualitative interviews" or "attitude studies".

2. Quantitative approach using data from interviews carried out in Norway, based on commuters' actual travel behaviour, preferences and attitudes. The Norwegian data is collected through a Marketing Survey. Stated Preferences techniques were among the methods used. In this report the study is called "Marketing/SP-survey".

The attitude studies made in Finland, Austria, Italy and Spain are based on interviews with two groups of respondents, walcers and car drivers. A car driver is defined as a person who uses car as the main traffic mode and drives even short distances by car. A walcer is defined as a person who walks or cycles certain distances at least three times a week, does not use public transport solely, and does not use car as the main traffic mode.

These studies were mainly based on the concept that there are factors making walcyng attractive that are connected to the car (e.g., difficult to find parking) and to walcyng (e.g., good networks, nice infrastructure, good image), and there are those that function as barriers for walcyng, connected to the car (car is fast, it is easy to use the car, it is comfortable) and connected to walcyng (bad infrastructure, bad quality at intersections, "holes" in the network, etc.).

Drivers and walcers were asked (de facto: those who came by car and those who came walcyng) about what they found attractive and what they found discouraging with respect to walcyng. What is discouraging can be called "demotivating" in psychological termini, some needs and interests are threatened due to these discouraging features. What is attractive can be called "motivating". We are rewarded by it (i.e., relevant needs and interests are fulfilled). Thus, we asked for the motives for mode choice. Satisfying motives means making walcyng more attractive:

When asking car drivers about such things, they will talk about expectations and clichés. Realistic wishes can be fulfilled. Unrealistic wishes have to be dealt with verbally (advertising), wrong ideas of walcyng (e.g., that there is bad weather every day) have to be corrected (communication and advertising).

Walcers will tell about experiences. Most of their wishes are probably realistic, and they tend to be quite operational (as they are based on frequent experience). Unrealistic expectations (e.g., that it will be easy to tame car traffic) have to be met by communication and advertising, wrong expectations (e.g., that one should be able to cycle with high speed through a pedestrian zone) as well.

The target groups selected had the function to allow a practice-related discussion. They were used for exemplifying: for instance, "what would you do for communication policy in order to assist women who have no access to the car". We used them in order to make sure in connection with practical examples, what the work dealing with product, communication and incentive measures should deal with. We made no marketing studies. i.e., our results tell that marketing rules should be used in order to enhance walcyng, and how this should be done, but they are not addressed to special target groups (except to our sponsors, to the interested experts and to the municipalities which co-operated).

In practice, when doing the interviews, we wanted to demonstrate generally that answers of the type we had expected will be given (i.e. related to needs and interests like comfort, safety, etc. which we had found in literature), to find indices for differences between countries, and between walkers and non-walkers, and to make some preliminary suggestions for improvements, both to be reported directly, and to be implemented in the WQS.

198 people were interviewed in the attitude surveys, respectively 50 from Finland, Austria and Italy and 48 from Spain. The interviews were not representative. To do representative, target-group oriented, interviews on the street in several European countries would have meant a totally different distribution of the budget. On the other hand that was not necessary in view of the aim of the interviews. The attitude surveys will tell us about the range, the depth and the width of attitudes to walking and cycling present among the interviewees, and are therefore of general interest as examples of attitudes towards walking and cycling for groups of people in Finland, Austria, Italy and Spain. They also indicate which advantages and obstacles people see as the most important to walking and cycling.

In the Norwegian Marketing/SP-survey we have analysed commuters' possibilities to replace car use with walking and cycling. 392 people who have a real choice between driving a car, walk or use a bicycle to work on trips shorter than 5 kilometres are interviewed. The method of collecting data was based on a combination of Stated Preferences techniques and observations of existing behaviour (revealed preferences). The sample is drawn by an established statistical method and should be representative for the target population. We should therefore be able to draw general conclusions from our sample with respect to our target population in Oslo.

SP-techniques is a common label for a number of different approaches, all of which built on people's statements of how they would respond to different hypothetical situations (Bradley 1991, Norheim and Hanssen 1990). The distinguishing feature of SP-techniques is their use of experimental designs to construct a series of alternative imaginary situations that people have to respond to. People are responding as if these situations faced them in reality, that is, state their preferences towards the choices offered. Use of SP-techniques makes it possible to analyse which factors are the most important for the hypothetical choice made. This is one of the reasons why Stated Preference techniques have been ubiquitous in transport research the last ten years.

Using SP-techniques, the respondents have to make a series of hypothetical choices. Hypothetical choices are usually associated to several types of biases affecting reliability. To reduce these biases, the respondent's journey to work or to school was established as the setting for all the choices made. The respondents travel to work or school almost every day, and we suppose they know this journey quite well. The respondents were asked to choose among several packages containing a specific mix of different factors at different levels meant to affect the choice between walking/cycling or driving a car to work or school. The following factors were used in the packages:

- travel time to work/school
- parking possibilities for cars at work/school
- car parking fees
- footpaths and separate lanes for cycling

- facilities for taking a shower and change clothes at work/school.

One factor - travel time, was used in all the packages. This makes it possible to relate the effects of all the other factors to the effects of travel time.

The factors used in the packages are quantitative factors that may influence people's mode choice. The factors used in the packages are of course not a complete list of influencing factors, but a selection of factors familiar to many of people's choices.

9.3 Respondent sociodemographics

People's attitudes towards walking and cycling vary with sociodemographic characteristics; such as age, gender, level of education and income.

In the attitude surveys half of the respondents are walcers and half are drivers, with about the same number of men and women in each group. Young people walk and use a bicycle more often than the middle aged, who drive their car on most trips. The number of trips on foot is rather high among the elderly, too. WALCYNG has defined regular walcers as target groups, for whom it is important to improve walking and cycling conditions. Among regular walcers we find a high share of young and elderly people. This is why a relatively high number of people under the age of 25 and older than 60 is interviewed in the attitude surveys.

The respondents in the Norwegian survey are mainly middle aged people with a high level of education and high household income. Almost the same number of men and woman are interviewed. The distribution of age of the Marketing/SP-respondents is similar to the distribution of age among the recruitment group.

9.4 Access to transport and use of modes

Travel behaviour surveys all over the world indicate that access to transport is the most important factor influencing mode choice. Transport resources like a driving licence and access to car are usually associated with the respondent's age and income. Even if the larger share of the population 18 years and older have a driving licence today, there are groups among the elderly and people with low income without these resources.

In the attitude surveys there are large differences in transport resources available to walcers and drivers. All drivers have a licence and most of them have always access to a car, while less than 60 per cent of the walcers have a driving licence and only 30 per cent of them have access to a car most of the time.

Most drivers use a car on short trips 5 times a week or more, while walcers with a driving licence use cars for short distance trips less than once a week. As expected, walcers choose to make the trip on foot more often than drivers, and most drivers feel they should walk more often than currently. Only in Finland cycling seems to be a transport mode used by all the respondents. In Austria, Italy and Spain most of the respondents, walcers as drivers, never or rarely use a bike.

All Marketing/SP-respondents have a driving licence and access to a car. Having a driving licence and a car in the household does not mean you can use the car whenever you want. In most European households there are still more people with a driving licence than cars, and many people have to share the car with at least one person. 54 per cent of the Norwegian respondents have a car of their own, but 46 per cent have to share the car with one or more persons.

Living close to where you work may increase the share of commuters walking or cycling, but not always. Many commuters drive their car to work, even when they live less than 5 km from work. 40 per cent of the Norwegian respondents use their car to work every day and almost 50 per cent used their car the last working day before being asked. 25 per cent cycle every day in the summer season, and 23 per cent cycle at least once a week.

There is a potential for changing commuters' mode choice in the summer season. The potential is found among those who sometimes walk or cycle to work. Nearly 30 per cent of the commuters walk or cycle to work once a week or once a month. Improved conditions for walking and cycling may lead to a change in mode choice among these commuters.

9.5 The benefits of walking and cycling

The majority of respondents in Finland, Austria, Italy and Spain, drivers as well as walcers, like walking and cycling. Especially walking seems to be a popular activity, while cycling is almost, but not quite as popular.

There are a lot of benefits associated with walking and cycling: Health aspects are important benefits of walking as well as of cycling. For walking environmental aspects and getting fresh air are additional important benefits.

Surprisingly, environmental aspects are not mentioned as positive aspects of cycling very often. Cycling is fun, gives you good exercise and is very convenient. There are small differences in the attractions mentioned by walcers and drivers, but the differences indicate that drivers use their bike for leisure activities, while walcers walk or use their bike as a mode of transport.

The most important reason for walking and cycling to work among Norwegian commuters is to get some "exercise". This reason is mentioned by almost 30 per cent of the respondents who walked as well as those who cycled to work. Other important reasons are: getting fresh air, walking and cycling is easy, cheap and environmental friendly.

Benefits of	
Walking	Cycling
Health aspects: Improving physical and mental health, relaxing, stressing down, good exercise	
Convenience: Independent, flexible, easy, reliable, pleasant	
Environmental aspects: Getting fresh air, being out in the nature	Other aspects: Economically efficient, cheap

Figure 6 Benefits of walking and cycling

9.6 Barriers for walking and cycling

Even though there are many benefits involved in walking and cycling, walkers meet a lot of barriers or obstacles. Walking and cycling conditions are not satisfactory and many trips are not suitable for walking and cycling.

Inconveniences are the barriers to walking and cycling most often mentioned. Among the inconvenience aspects mentioned are: Walking and cycling takes too much time and are not useful for longer travels. Walkers are more aware of the inconvenience aspects of walking and cycling than drivers, while drivers are more concerned with the time aspects.

Lack of ability to transport heavy things are among other important barriers of walking.

Environmental and geographical barriers, like the town is hilly, the weather is bad, the air is polluted etc. are important negative aspects of cycling. Also infrastructure barriers such as insufficient road cycle network, unsafe crossings, parked cars on the pavements and high curb stones are important negative aspects of cycling. Drivers mention infrastructure barriers for cycling more often than walkers. One of the most important reasons for commuters to drive their car to work is reducing travel time.

Barriers for	
Walking	Cycling
Inconvenience: Takes too much time	
Physical barriers: Cannot carry heavy things	Infrastructure barriers: Insufficient road cycle network, unsafe crossings
	Environmental and geographical barriers: Hilly, bad weather, polluted air

Figure 7 Barriers for walking and cycling

9.7 Measures to improve walking and cycling conditions

In the last 10 years use of financial measures in order to reduce car driving, like road pricing, high fees on car parking etc., have been common. In some European countries, mainly in the North, you have to pay quite a lot for day time parking. The Marketing/SP-study shows that the effect of a parking fee on mode choice increases with the sum of money you have to pay, even though the parking fees are not very high.

Both the Marketing/SP-study and the qualitative studies indicate that even other conditions for pedestrians and cyclists have to be improved if more people should walk or cycle instead of driving their cars on short trips.

Walkers as well as drivers find infrastructure and political measures, i.e., laws, prices, regulations, control, etc. as the most important to improve walking and cycling conditions. Walkers are more than drivers interested in giving advantages to people walking and cycling.

The most important infrastructure measures are:

- more footpaths and cycling lanes, complete the networks (e.g., allow cycling against one-way direction)
- wider pavements
- improved pedestrian subways and crossings
- smoother road surface.

The most important political measures are:

- city centres free of cars
- other measures to reduce car traffic, like increased gasoline prices, fees for parking spaces, restrictions on car driving etc.
- priority for walkers at crossing
- prohibit cycling on pavements.

These measures indicate conflicts between walkers, cyclists and car drivers. Lack of bicycle networks leads to cycling on the pavement. This is unpleasant for pedestrians. Because of heavy traffic and high speed the cyclists, however, fear using the same road space as cars and busses.

Other measures wanted to improve the conditions for walkers are:

- facilities for showering at work
- burglary-proof bicycle sheds.

9.8 Is it possible to change short trip mode choice?

An important question to improve conditions for walking and cycling is what measures have best effects in replacing short car trips with walking and cycling, and what groups of road users show a potential for mode choice changes.

There are factors in favour of investing to improve walking and cycling conditions. The majority of the respondents in the attitude surveys assume that a decrease in the number of people driving a car would improve the preconditions for walking and cycling considerably.

The Norwegian/SP-study indicates that the trips to work and to sports and exercise are easiest replaceable by bicycle. Respectively, 22 per cent and 20 per cent of the commuters interviewed would easily replace these short car trips with bicycle. Grocery shopping trips could easiest be replaced by walking. Short trips by car where you deliver or fetch someone, like children to kindergarten, are very difficult to replace by walking or cycling.

Commuters who usually drive their car and never cycle to work have the highest resistance for changing from car to bike. The parking fee has to be nearly NOK 30 a day (approx. 3.3 ECU) to motivate a change in travel behaviour. Respondents with a company car are willing to pay a parking fee of NOK 18 a day (approx. 2 ECU) before they choose to cycle rather than to drive their car to work.

Respondents with the highest probability for choosing bicycle in stead of driving a car are students and people with a mountain bike.

Physical and environmental conditions also have an effect on people's mode choice. The probability for using a bicycle is reduced by steep inclines or hilly surroundings, unsafe traffic conditions and rainy weather.

Commuters with the highest resistance to shifting from car use to walking are people with a company car. They are willing to pay a parking fee of NOK 36 per day (approx. 3.9 ECU) before leaving the car at home. Parking restrictions, like a reduction in the number of parking places and increased parking fees, may have a large effect on mode choice. Commuters with an indoor parking place are willing to pay a parking fee of NOK 17 per day (approx. 1.9 ECU) before they go to work on foot.

Walking and cycling are often regarded as taking too much time to be a relevant alternative to driving a car on the journey to work.

9.9 Synthesis

The majority of respondents in Finland, Austria, Italy and Spain, drivers as well as walkers, like walking and cycling. Especially walking seems to be a popular activity, while cycling is almost, but not quite as popular.

There are a lot of benefits associated with walking and cycling: Health aspects are important benefits of walking as well as of cycling. For walking, environmental aspects and getting fresh air are additional important benefits. Surprisingly, environmental aspects are not mentioned as positive aspects of cycling very often. Cycling is fun, gives you good exercise and is very convenient.

Even though there are many benefits involved in walking and cycling, walkers meet a lot of barriers or obstacles. Walking and cycling conditions are not satisfactory and many trips are not suitable for walking and cycling. Walking and cycling take too much time and are not useful for longer travels. Lack of ability to transport heavy things are, among others, important barriers for walking. Environmental and geographical barriers, like hilly towns, bad weather, polluted air, etc. are important negative aspects of cycling.

Also infrastructure barriers such as insufficient cycle-road network, unsafe crossings, parked cars on the pavements and high curb stones are important negative aspects of cycling. Drivers mention infrastructure barriers for cycling more often than walkers. One of the most important reasons for commuters to drive their car to work is to reduce travel time.

The Norwegian Stated Preference-study indicates that the trips to work and to sports and exercise are easiest replaceable by bicycle. Grocery shopping trips could easiest be replaced by wal-

king. Short trips by car where you deliver or fetch someone, like children to kindergarten, are very difficult to replace by walking or cycling.

Walcers as well as drivers find infrastructure and political measures, i.e., laws, prices, regulations, control (e.g., of speed), etc. as the most important to improve walking and cycling conditions. Walcers are more than drivers interested in giving advantages to people walking and cycling.

The most important infrastructure measures are more footpaths and cycling lanes, wider pavements, improved pedestrian subways and crossings and smoother road surface. The most important political measures are to prohibit cycling on pavements, city centres free of cars, priority for walcers at crossings, different measures to reduce car traffic, like increased gasoline prices, fees for parking spaces and restrictions on car driving etc. Other measures aiming at improving the conditions for walcers are facilities for showering at work and burglary-proof bicycle sheds.

9.10 Input for the Walcyng Quality Scheme (WQS)

Compilers should check whether relevant elements from the users' point of view have been taken up: Barriers, attractivity aspects, related to needs and interests, tailor made communication, and whether measures have been taken in harmony with knowledge of user aspects, or not.

10 IDENTIFICATION OF POSITIVE PRODUCT ASPECTS AND RECOMMENDATION OF NEW PRODUCTS

(Work Package 7)

All partners took part in WP 5:

1. Transport Technologie-Consult, Germany
2. University of Lund, Sweden
3. Chalmers Technical University, Sweden
4. FACTUM, Austria
5. Franco Gnani & Carlo Bonanni, Italy
6. City of Helsinki, Finland
7. Institute of Transport Economics, Norway
8. University of Helsinki, Finland
9. University of Valencia, Spain (Work package leader)
10. De Voetgangersvereniging, the Netherlands

Report: Carbonell Vayá & Martin del Rio, 1997

10.1 Introduction

One main objective of WALCYNG was to develop a Quality-based Scheme with important issues for pedestrians and cyclists, and to systematically relate qualities to user characteristics and user-requirements. Moreover, the importance of the context for the question of whether a product is "good" or not will be emphasised (i.e. an outline is required of where products work and where they do not work). Products must be looked at from different points of view, showing the complexity of product development and implementation.

Another main objective of WALCYNG was to give an overview of important user characteristics, user requirements and user behaviour, mainly based on the results from the interview studies in WP6.

The main work in this WP is the development of a categorisation and assessment instrument which makes it possible to evaluate existing and on-going solutions and products. The use of

this instrument is directed towards those persons, organisations and associations which intend to obtain the most comprehensive view possible of the modes of cycling and walking by means of two complementary views, that of the users of the general traffic system and that of traffic planning experts.

10.2 Purpose

The purpose of WP7 was to discuss ways of how to evaluate policies and measures that directly or indirectly affect walking and cycling, e.g., by improving infrastructure, by providing persuasive information, or by offering incentives.

The judgement of products is connected with the characteristics of the infrastructure, the vehicle and the social/societal structures (e.g., laws and regulations).

The quality of communication with the users is defined by its accuracy (i.e., that pieces of communication are comprehensive, correct and reliable) and by the degree of its referring to perspectives and values that are relevant for the users (WP6 and WP9). Researchers, experts and politicians are also considered as important target groups of the communication, which means that authorities that want to enhance walking and cycling also should address these groups. How well this is done has also to be evaluated (see WP10 and WP11 below). Especially incentives and the way they are provided have to be tailor-made for the user groups, so that this will be the third large block of evaluation (see WP8).

10.3 Method

The way to assess the aspects mentioned above was developed in the frame of a three-day workshop. With the material and results produced in the other work packages it was discussed, how product, communication and incentive characteristics could be typologised and in which way they could be assessed, referring both to criteria and methods for assessment.

It was decided that the instrument resulting from this work should be called the WALCYNG Quality Scheme (WQS).

10.4 Considerations

Some of the principal ideas obtained allowed us to anticipate at least three main characteristics to which the WQS must be adapted:

1. The WQS must be adapted to the fact that great differences exist amongst European Cities in their conditions and possibilities of enhancing walking and cycling, and that there is a great variety of situations and products which must be considered. The WQS must be capable of attending to these different conditions and providing evaluations and solutions adapted to this reality.
2. There are differences between different users of WQS. It is obvious that once the WQS is finalised, the possible users of this instrument are manifold and have different needs. This

instrument must respond to the diverse needs manifested by politicians, decision-makers, traffic and road safety experts, lobbies, users of the system, etc..

3. There is a considerable potential of car trips of less than 5 km that could be done by walking and cycling. The analysis carried out allows us to establish that it lies between 30% and 50% in European countries. The WQS must be suitable for achieving the objective of replacing these trips by increasing walking and cycling.

Especially the last point shows that maybe the most important perspective that is connected with the WQS is to develop ideas and proposals for measures, solutions and strategies that meet the needs and possibilities of the users in such a way that they start finding the idea of walking and cycling instead of making short car trips appealing and, that they possibly change their behaviour. (The last statement makes clear that when we talk of users we mean potential users, i.e., people who today use the car for short trips, and should change to walking and cycling. Thus, it has to be underlined, that all measures taken of course have the goal, as well, to improvingly satisfy the needs of those who already walk and cycle)

The information on basis of which all this should be done is:

- the level of WALCYNG (segmentation into different groups such as functionally disabled people, elderly, women, habitual car drivers, younger people). It is important to keep in mind the different needs of the groups that we consider potential users, among whom stand out so different types of road users as described above.
- the use of the general traffic system: level of walking and cycling in different cities, information on the use of existing products (including behaviour, etc.)
- the acceptance of the system. A system may appear to be well-designed and yet contain elements which receive low acceptance and by that prevent a higher level of use of the system.
- the safety of the system. Society would certainly consider it problematic if increased walking and cycling would result in an increase of accidents. Solutions have to be implemented in a way to avoid such an outcome.
- policies. It is necessary not only to identify and describe existing policies and groups which could influence them, but also to relate them to more or less explicit goals formulated by representatives of the municipalities or in official papers (see our questionnaire survey to European cities)

10.5 Derivation of standards

In order to do a sensible evaluation with the help of the WQS we had to refer to standards. To establish such standards, we used all the information collected in the frame of WALCYNG. These standards are related with:

Facilities for the use of WALCYNG

1. Network: net level, links, crossings, parking, intermodality, restrictions for the motorised traffic, continuity, intersection layout, covering city areas

2. Environment/Space: pollution, furniture, weather
3. Equipment: personal products (weather protection, carrying and transporting, route information, safety, comfort, aids for functionally disabled people), vehicle products (weather protection, carrying, transporting children, safety, vehicle products and accessories), etc..

Communication (target community). How, What and to Whom.

1. Users: lack of information, image problems
2. Non-users: image problem, prejudices, information
3. Lobbies: political and official preconditions, product creation, how much of a priority is WALCYNG in the society.

Incentives to promote WALCYNG at the local, regional, national and European levels, both positive as well as negative

1. Individuals: tax reductions, fines
2. Companies: to enhance companies, tax reductions, fines

Operationalising these elements and referring to them in detail will on one hand lead to a comprehensive list of aspects that have to be assessed. At the same time, by comparing them to standards, the possibility is given to check their quality. This modular division of the WQS into elements and areas makes it an open tool which allows the introduction of aspects connected to new elements and areas in the future.

10.6 Criteria

It is not so that there are elaborated standards for all the aspects that have to be considered. But standards are related to criteria, and by applying these criteria it should be possible to assess all relevant aspects. This process, performed in repeated cases, should lead to the development of more standards.

The table below shows the criteria dimensions that we think should be included and referred to in an assessment/evaluation scheme like the WQS. This does not necessarily mean that all dimensions have to be considered. In many cases it will simply not be possible to refer to, e.g., user assessments, because no such data have been collected. One result of any compiled WQS could in such a case be that it is pointed out that data referring to user needs and user assessments should be collected, if possible.

Table 3 Criteria dimensions used in the WQS

I. USERS	II. EXPERTS	III. PROCESS	IV. INDEX
Level of Use - Perception	Safety Mobility Comfort Health Security Aesthetics	I ___ I' II ___ II' Influencing the process in the wished direction	

	- Social Climate		
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I. Users: Users should give their assessment of different elements for different criteria regarding the level of use and the perception/assessment of each item of the WQS. Data that can be referred to are in the best case based on recent surveys; but it may also be possible to consider certain user aspects – e.g., typical aspects – by referring to literature, or even by referring to known standards (e.g., one could assume that certain intersection design is always assessed negatively by all walkers).

II. Experts: they represent the expert knowledge about the different elements regarding:

1. *Safety*: measures and elements designed to increase safety and reduce the risk of accidents for a mode of transport.
2. *Security*: measures and products which make the use of a mode of transport more secure.
3. *Mobility*: measures and products which make it possible for a mode of transport to be used in an easy and consistent manner throughout a given trip.
4. *Comfort*: measures and products which make a mode of transport comfortable for the user.
5. *Health*: measures and products which make the use of a mode of transport beneficial or at least not detrimental for the health.
6. *Aesthetics*: measures and products which make a mode of transport to be perceived as an aesthetically agreeable experience.
7. *Social Climate*: measures and products which contribute to a social climate of acceptance of the modes of walking and cycling.

III. Process: The WQS should allow the involved parties to a) influence the development process with respect to walking in the desired direction by b) evaluating the initial situation, the process of change and the (expected) final situation.

IV. Index: As a proposal for the future, the WQS, after its validation, could provide a synthetic measurement of the quality for walkers and/or cyclists regarding a specific city or product. The index will be developed as a mathematical combination of users', experts' and process measures.

10.7 Use of the WQS

Our intention is to use the WQS for evaluating products, communication and incentives addressed to walkers. This can be done for micro sections of the network, or for cities, regions or countries. But it can also be done with respect to products on the vehicle side, and with respect to laws and regulations. The modular system allows that easily. A greater quantity of information will be given with the "HELP"-functions that are connected to the WQS scales. They contain relevant parts of the knowledge and know-how that have been collected and compiled in the frame of WALCYNG. These help-functions are susceptible to be activated in the moment that the user of the WQS wishes it, for obtaining information about the items justification as well as all the studies and topics related.

The elements and areas under discussion, viz. the items or aspects they consist of can be evaluated by the experts according to the four following levels:

A) Direct expert evaluation

1. Current situation and implementation of the areas: An overall evaluation of the current state in each moment of the development or application of a measure or element (product, communication, etc.). When one starts to use the WQS today, this will most often refer to a historically grown situation and all its characteristics.
2. Importance of certain criteria: Such a type of assessment can be given after repeated use of the WQS. It provides information on the technical aspects of evaluation by the experts with regard to certain criteria or solutions and makes it possible to create a hierarchy of future actions
3. Feasibility of certain criteria or solutions: This involves an estimation of the possibilities of implementing a criterion or solution in a certain context in which it is being analysed, and makes it possible to estimate whether certain criteria play a reasonable role viz. Whether it is reasonable to apply them, keeping in mind political, social, and cultural factors, etc.

B) Information that experts have about users' opinions

4. Perception of the current situation: The perception that a user has about the current situation of each criteria that is known by the experts through user surveys, interviews, etc.

10.8 The presentation of the WQS

The WQS in its final version is included as an appendix at the end of this report. In the initial phase the intention is not to distribute the WQS to everybody who wants to use it. At the moment, the WQS is still an instrument for researchers, as it is still being developed to become a standardised tool. Therefore, things will be organised in a way that the WQS is only used by the members of the WALCYNG consortium, if feasible and reasonable in co-operation with interested experts from outside WALCYNG. This should allow the members of WALCYNG to gather practical knowledge with respect to the application of the WQS and the interpretation of its results, which is absolutely necessary before such an instrument is used in a wider scale.

In this sense, the WALCYNG consortium will look for possibilities to keep the development of the WQS under steady control. This, among other reasons, was the starting point for discussing further work. A rough outline of the possibilities to do further work is given in chapter 16 at the end of this report.

11 INCENTIVE STRATEGIES

(Work Package 8)

Three partners took part in WP 8:

1. Department of Traffic Planning & Engineering, Sweden
2. Chalmers Technical University, Sweden
3. FACTUM Consulting, Austria (Work Package leader)

Report: Ausserer & Risser, 1997

11.1 Incentives and WALCYNG

An incentive can be a positive or negative stimulus which aims at changing the behaviour of a person. The main objective of the introduction of incentive strategies is to convert an extrinsic motivation into an intrinsic one. In other words, the behaviour (=walcynng instead of using the car) should not only last because of the incentives given, but because of experienced consequences and feelings with regard to this special behaviour (e.g. healthier, more relaxed, etc.).

Car drivers have to be given the chance to learn that the negative characteristics they associate to walking and cycling are not at all as relevant as they feel, or think, and to experience the positive aspects that practising pedestrians and cyclists know of. At the same time, things that disturb practising pedestrians and cyclists have to be eliminated as far as possible, because otherwise this would disturb the assessment of those who test walking and cycling, and might cause a "boomerang"-effect: "I tried it once and it was terrible. I will never cycle in this city".

11.2 Methods

In order to gather different kinds of data, various methods were used. The methods complete each other.

- *Literature studies*
By means of literature studies, information about existing incentive strategies was collected
- *Focus Group Interviews*
The aim of these interviews was to discuss existing solutions and to think above all about new ideas, new incentive strategies which might increase the number of walcers
- *Semi-standardised expert interviews*
These interviews made it possible to range existing and new incentive strategies

11.3 Results literature studies

Looking for literature dealing with incentives for walkers turned out to be difficult. There is not such a book, which explicitly deals with incentive strategies for walkers. You rather have to look for measures and efforts, which improve the situation for walkers and thus increase their numbers.

However, different examples found in the literature showed, that incentives have a rather positive effect on peoples' travel behaviour.

The "bike busters"

In 1995 175 people, who all lived in the suburbs of the Danish town Aarhus, 2 to 8 km away from work and who used the car as their main traffic mode, were selected to take part in a project, for which they were offered some enforcement. The results were more than positive. Only 13 participants stopped taking part in the project, the traffic behaviour of the remaining part, however, changed dramatically. In April 1995 the car was used by the participants for 79 % of all trips. 9 % of the trips were made by bike, 2 % by buses and 10 % on foot. In September 1995 **53 % of all trips were made by bike**, only 34 % by car, 4 % by bus and 9 % on foot.

Case study "Giesinger & Kopf – wrapping industry"

Giesinger & Kopf is a medium sized enterprise in Voralberg, Austria, which produces packing materials. It has 95 employees. Six years ago the management decided to do something about the mode choice of their staff members. The management offered a large range of incentives to make employees walk and especially cycle instead of short car trips (e.g. bicycle lottery, possibility to buy bikes for reduced prices, etc.).

The modal split changed dramatically within six years for the benefits of cyclists. The table below illustrates the changes.

Table 4 Travel behaviour at Giesinger & Kopf 1990 and 1996

Mode	1990	1996
on foot	8 %	6 %
by motorcycle	12 %	8 %
by public transports	3 %	11 %
by car	62 %	34 %
by bike	15 %	41 %

source: Giesinger & Kopf, travel behaviour survey

Why should enterprises want to change the travel behaviour of their staff?

For enterprises there are not only costs connected to a promotion of walking, they certainly do benefit from it. The following advantages can be listed:

- fewer car parks, more space for other activities, like expansion of the company on former parking areas

- fewer car parks for employees, more parking room for customers
- fewer conflicts with residents, when employees do not park in residential areas
- improvement of the working climate, employees do not have to quarrel for parking places, anymore
- reduction of costs, compared to business trips which are done by car (fewer official cars are necessary)
- healthier employees, as they exercise more
- positive image of the company (environmental-friendliness can be sold)

11.4 Focus Group Interviews

On the basis and the knowledge of the literature studies five focus group interviews were conducted. Three focus group interviews were held in Austria and two in Sweden.

Aim and procedure

The focus group interviews aimed at a specification of incentive strategies. Three types of measures which were defined in the literature studies - preconditions (product policy), public awareness and incentives (communication policy) - were dealt with in the discussion.

Results

The following main goals were specified in order to make **preconditions** for walcyng rewarding:

- Cycle network with proper links and safe crossings
- Cycle infrastructure (safe cycle stands, showers and changing rooms, etc.)
- Cycling and walking have to become safer (e.g., advanced stop lines, dedicated approach lanes, etc.)
- Footways and cycleways should lead if possible along traffic-free routes across public open spaces or riverside paths
- Pedestrians and cyclists have to be treated as worthy road users. Their problems must be taken seriously

Public awareness measures

Public awareness measures should be planned to enhance walcyng and should help to improve the image of walcyng. They are very much connected to incentive activities:

- Information campaigns, e.g. in companies (e.g., positive health aspects, news on the cycle market etc.)
- Creation of central information offices, where road users receive information about all different kinds of traffic modes
- An own TV-cycle or walking show

- Cycle or walking quiz-rallies, organised by public or private enterprises
- Exhibitions on the history of walcyng
- Cycle or walking fairs
- Games and toys, which are somehow connected with walcyng
- Regular PR-traffic-meetings of different municipalities all over the country
- Sporting events (like Marathons, or bicycle races)
- Walcyng should be present on many articles (walcyng calendar, walcyng cups, walcyng pencils, etc.)

Car industry successfully introduced the subject car in nearly every field of our lives. Thus, investing money to increase the public awareness of walcyng will guarantee, at least, that people will think more about walcyng issues than today.

Incentives

There are mainly three types of incentives that can be given in the WALCYNG areas:

1. Incentives from public institutions to companies (e.g., tax reductions, walcyng certificates, etc.) to incite the employer to establish mobility management plans for their employees.
2. Incentives from public institutions to the citizens (e.g., tax reductions, reduced entrance fees, walcyng races, etc.)
3. Incentives from public and private institutions to their employees (e.g., bicycle lotteries, free service, etc.)

11.5 Semi-standardised expert interviews

In order to rank existing and new incentives with respect to efficiency and possibility of implementation semi-standardised interviews were carried out. 15 experts were asked to scale incentives for walcers and for public and private enterprises from one to six under the aspect of efficiency and the probability of their implementation. Besides, two open questions were included to give the experts the opportunity to bring in some new ideas.

Results of the open answers

In principle the same proposals were made as in the focus group interviews. The experts mentioned preconditions like attractive cycle and foot paths, shower and changing facilities, public awareness measures such as health campaigns, information folders about new developments on the cycle and walking market and of the incentives in the narrow marketing sense like bicycle-lotteries and certificates for walcyng friendly enterprises. Many of the experts pointed out the importance of setting up a lobby for walcers, which stand up for the cyclist's rights.

Effective incentive strategies

Incentives for cyclists

Giving free public transport tickets to employees is seen as an effective method to motivate employees to come to work by environmental-friendly modes. Official bikes, free check ups of bicycles and equipment to cyclists are other incentive strategies, which are considered as good ideas. Negative incentives like introduction of parking fees and increase of petrol prices are not very popular among car drivers but seem to be very effective, if one wants to change their travel behaviour.

Incentives for walkers

In order to make employees walk more often incentives of monetary character like a premium to walkers or an additional day off, tombola games etc. seem to be more effective than measures, which only have something to do with the image of a person like choosing the pedestrian of the year. Also providing walking equipment will not really have an influence on the travel behaviour, according to experts' opinion.

Incentives for private and public enterprises

Almost all experts underlined the importance of taking measures in the private and public sector. Changing existing parking laws is seen as positive motivation for companies in order to change conditions to the advantage of a walcyng-friendly infrastructure and to encourage employees to use other modes than the car on business trips and on trips to work. Reducing municipality taxes, a special ground price policy and explicitly considering the company in the master plans seem to be also attractive measures.

11.6 Synthesis

Incentives are important instruments to influence travel behaviour in a walcyng-friendly way.

At the moment incentive strategies are most often focusing on cycling and the use of public transport. Walking is still considered only marginally. However, walking, as the most natural form of moving, should be taken into account, too, when thinking of methods, how to change travel behaviour of road users.

Incentives by public institutions for private enterprises, who promote walcyng, are not very common, yet. In order to convince more employers of the importance of providing a walcyng-friendly infrastructure and atmosphere for their employees, incentive strategies for private enterprises should play a more important role in the future.

In general incentive strategies will not be successful, if preconditions for walcyng are not improved and if people are not informed about taken measures. Only the combination of the four marketing steps (information policy/product policy/communication policy/incentive policy) will guarantee a change in travel behaviour.

11.7 Input for the Walcyng Quality Scheme (WQS)

With regard to the WQS (the final product of this project) the following aspects will be of interest to be evaluated:

- Does the institution evaluated offer any incentives to the people to make them travel in an environment-friendly way?
- Is incentive policy based on information policy? Has information policy included incentive issues?
- Are there any quantitatively measurable changes after introducing incentive strategies, e.g., has the number of walkers changed?
- Have attitudes been measured before and after introducing incentive strategies?
- How much money has been spent for incentive policy measures?
- Are negative incentives used to make car driving less attractive?
- How well defined was the behaviour that should be motivated by incentive strategies?
- Can the given incentives be judged as being significant?

12 COMMUNICATION STRATEGIES

(Work Package 9)

Four partners took part in WP 9:

1. De Voetgangersvereniging, the Netherlands (Work package leader)
2. University of Valencia, Spain
3. Franco Gnani & Carlo Bonanni, Italy
4. City of Helsinki, City Planning Office, Finland

Report: Vermeulen, 1997

12.1 Aim

Communication is seen as a form of relationship between parties, in order to exchange thoughts, feelings, experiences, and knowledge. It presupposes the presence of some basic common references between head actor and co-actor who interact in some way. The way of interaction, the medium, may vary, as well as the substance that is transferred. The environment and external factors play a role as well; they may set conditions for communication (stimulating or inhibiting ones). The outcome of communication is a new equilibrium, which implies change of behaviour of at least one, but probably both actors.

Within the WALCYNG project, communication can be used as a means to promote the quality of supply, so that demand for walking and cycling will increase. When using communication in this sense one should reckon which characteristics that may influence quality and impact of communication, like characteristics of the target groups, cultural differences and existing "hardware" (like land-shape, topography, climate etc.). This means that the instrument of communication and campaigning should be adaptively used.

12.2 Preconditions for communication

In order to estimate the possible effects of communication in the field of travel, one must consider both the "objective" and the "subjective" potential for change. The objective potential for change may be considerable, but more important is the subjective potential (what people perceive to be possible). Generally speaking, it has to be underlined that the objective as well as the subjective potential is present, which offers a basic condition for possible influence by communicating.

However, one must take into consideration social-psychological phenomena, which influence the potential results of communication, especially when it comes to actual behaviour change.

First, people have the tendency to comply with the subjective norms, or the ideas that one has about the behaviour that important others would like to see. A car-minded environment will adversely affect the person who feels for more walcyng.

Second, the phenomenon of coping with feelings of dissonance will arise. Communication may evoke a gap between actual and desired behaviour. This gap will be closed, either by adapting behaviour, or by revising one's ideas. Experience teaches that people are inclined to revise the ideas about walcyng in order to keep car driving acceptable.

Third, people generally want to prevent insecurity, and avoid too demanding efforts. Shifting from car to walking and cycling may imply both: you need to find new routes, and crossing places, you may experience more physical strain, etc. This may prevent people from changing behaviour.

Fourth, perceptions are often biased. Many people think that they already walk and cycle a lot, and they forget the numerous times they use the car.

Finally, people select information. Messages about the virtue of walking and cycling may be rejected due to other, adverse ideas or opinions that support a refuting attitude. In brief, the process of changing mode-choice behaviour is full of possible pitfalls.

12.3 Communication as a modifying strategy

Nevertheless, communication may be used as a modifying strategy. It may fit in three general strategic approaches:

- power strategies (forcing people to show the desired behaviour); this strategy needs communication about the reason for a behaviour change;
- reinforcing strategies (rewarding desired behaviour); the possibility of and reason for rewarding certain types of behaviour should be communicated;
- persuasive and re-education strategies; in order to teach or convince people; the way how and the reasons why a change of behaviour is warranted, should be transferred.

When planning for communication activities, one has to take some formal aspects into account; the source of the message will influence the credibility of the message; the direction of communication (one-way or two-way) determines impact and investment required; the medium is connected with kind and impact of message, but also with preferences of target groups; planning for communication is important for optimal timing and phasing of communication; specificity of message is connected to specificity of behaviour to be influenced; and connection with other messages is of importance for strengthening the effect and for preventing interference. Communication activities thus require much insight, planning and overview of the field.

Communication programmes

16 existing communication programmes, mostly campaigns, have been reviewed from Finland, Italy, Netherlands, Spain and the UK. They were examined regarding aim, procedure, strategy, messages and materials used and with regard to evaluation data. The following findings were obtained:

- most campaigns were not specified to target group, thus general in kind.
- half of all campaigns were local ones, a quarter were regional ones, and another quarter were nation-wide campaigns.
- half of all campaigns were directed to stimulating (safe) cycling, a quarter to stimulation of (safe) walking, and the remaining part to reducing car use or changing life style.
- regarding strategy, mostly persuasive strategies were used; almost all campaigns make use of this strategy.
- regarding material and media, mostly written material, like papers, posters or leaflets were used; in less than half of the campaigns radio, television or computer were used.
- many campaigns made use of some sort of action, like games, or manifestations. These actions may vary widely.
- the character of communication is more often one-way than two-way.
- only half of the campaigns were evaluated. Results are most often positively characterised, although sometimes critical notes are made, as well. Most results are rather modest, when looking at behavioural changes.

The analysis shows that the approach of various campaigns differs so widely, that content analysis can only be qualitatively done. One important result of this qualitative analysis is that the idea that one could substitute short car trips by walking and cycling is increasingly accepted. This represents an important pre-condition for further communication.

Expert meetings

Expert meetings were held in order to obtain further insight in principles, creative ideas and options for a communication strategy. Relevant questions and statements were formulated. These statements were used as a basis for expert meetings.

Experts varied from education police officers to marketing managers, psychologists or publicity agents, from the profit as well as from the non-profit sector. In total, 22 experts were interviewed in four group discussions. The discussions were summarised and submitted to content analysis.

The following results can be reported:

- segmentation of the market, and taking into consideration the characteristics of different target groups is most effective. Target groups can be both individuals and enterprises.
- the sender of the message may vary, as long as he or she is credible. Persons of prestige may serve as role models but they should be credible.
- communication should be directed to municipalities. Providing them with well documented information about the state of walcyng is essential.

- communication may also be directed to the general public. Strategies must be adapted to the target group. One must reckon with defensive mechanisms.
- messages should refer to an existing frame of reference. They may directly refer to the expected behaviour, but they may also be more indirect, however without moralising anyway. The message should make clear what is expected from the target group.
- different strategies can be followed. Communication may be part of a power strategy, a reinforcing strategy, or a persuasive strategy. Mostly it is connected with the latter type of strategy. In that case, campaigns can be useful, if they are well-planned over time. Different actions may be included in the framework of a campaign.
- the effects of campaigning will show over a longer time. At first, one should aim at more involvement: people should be better informed and show more willingness. Most experts believe that behavioural change will only show in the long run. A message in itself will not easily result in behavioural change, and when appealing to change directly, counteractions may be expected.
- characteristics of the social and physical environment are conditional for bringing about change. Before expecting any dramatic change, the social and physical environment need to be analysed and improved.

The expert meetings largely confirm the ideas from literature, which means that theory is validated with respect to the experience of experts.

Possibilities for a communication strategy

The concluding chapter of the work package report deals with the question of a communication strategy. Several stages are distinguished:

- stage of arousal, during which people may be stimulated and be informed, which requires a clear, general acceptable message, and the use of various media and actions.
- stage of commitment, which requires segmentation and adaptation to group characteristics. The message may now be different for various groups, and media and communication channels must be adapted to the group's needs and prerequisites.
- stage of behaviour change, during which the new behaviour is tried out. A more personal approach can be fruitful in this stage, and groups of interested people may exchange experiences. This stage requires ample time, to get used to the new behaviour in different circumstances.
- stage of evaluation and consolidation. The experiences with the new behaviour are used to make a decision for continuation. Fair comparison of the new and old behaviour is needed. People should also be rewarded for maintaining the required behaviour, and they may be aware of the fact that they also can get others going.

The WP 9 activities remind us again of the fact that changing behaviour is a long lasting and complex process, which requires much planning and investment. Adaptations may be necessary during that process, and therefore flexibility of proceeding with frequent feedback is needed. The design of a simple, short term communication process, will not yield many results in this field.

12.4 Synthesis

In the frame of marketing, communication is used as a means to promote the quality of supply, so that a certain demand will increase. When using communication in this sense one should consider the characteristics of the target groups, cultural differences, existing "hardware" (e.g., land-shape, topography, climate), etc.. This means that the instrument of communication and campaigning should be adaptively used.

The following aspects should be considered in connection with communicative measures (e.g., information campaigns, advertising):

1. segmentation of the market, and taking into consideration the characteristics of different target groups is most effective.
2. the sender of the message may vary, as long as he or she is credible. Persons of prestige may serve as role models but they should be credible.
3. communication should be directed to municipalities. Providing them with well documented information about the state of walcyng is essential.
4. communication may also be directed to the general public. Strategies must be adapted to the target group. One must reckon with defensive mechanisms.
5. messages should refer to an existing frame of reference. They may directly or indirectly refer to the expected behaviour, however without moralising.
6. different strategies can be followed. Communication may be part of a power strategy, a reinforcing strategy, or a persuasive strategy.
7. the effects of campaigning will show over a longer time. Most experts believe that behavioural change will only show in the long run. A message in itself will not easily result in a behavioural change.
8. characteristics of the social and physical environment are conditional for bringing about change. Before expecting any change, the social and physical environment need to be improved.

12.5 Input for the Walcyng Quality Scheme (WQS)

With regard to the WQS the following communication aspects are of interest from an evaluation point of view:

- a) Have any communicative measures been used explicitly (campaigns, advertising)?
- b) What is everyday communication like:
 - Do any hotlines for walcers exist?
 - How is walcyng referred to in the media?
 - Is any information material (maps, etc.) available?
 - Are there identifiable persons responsible for walcers' matters?
 - Are special target groups referred to in communicative measures?

- Do messages refer to the relevant needs aspects (mobility, comfort, etc.)?

13 INOCULATION

(Work Package 10)

Three partners took part in WP 10:

1. FACTUM, Austria (Work package leader)
2. University of Helsinki, Finland
3. University of Valencia, Spain

Report: Ausserer & Risser, 1997

13.1 Introduction

WALCYNG's goal is to market WALking and CYcliNG instead of short car trips and to make these modes of transport safer.

Special target groups for marketing are policy makers, researchers, and practitioners. It certainly would be to the advantage of pedestrians and cyclists if more experts dealt with the topic to make these modes of transport more attractive. That this is not the case may be attributed to the fact that the field is not considered important enough by many. But experience tells us that there are also such persons who have worked in the field and given up, or who have considered working in the field, and given up the idea of working there, one main reason being that structural and interpersonal problems are connected to such activities: Persons of public and private institutions whose co-operation is needed, are reluctant to support work to the advantage of WALCYNG. Often, a pro-WALCYNG attitude is almost automatically equated with an anti car - or even anti technology - attitude.

The goal of the WALCYNG work package dealing with "inoculation" (WP 10) was to support those experts who work in the field, or who are prepared, however minimally, to work in the field. Support should be provided according to the "inoculation"-concept.

13.2 Definition in psychological terms

According to the Inoculation theory of McGuire (1964), and through analogy with medicine, the attitudes one wishes to preserve can be preserved if the target person is treated with weak attacks on his attitudes. He/she will develop resistance to a later massive attack.

13.3 How is the concept used in WALCYNG?

McGuinnies (1967) has constructed a down-to-earth formulation of the inoculation theory: forewarned is forearmed. This is the direction in which the impulses received by the Inoculation concept should lead work in WALCYNG. Therefore, we talk of arguments all the time, but what is also meant is: non-verbal communication that reflects arrogance, or nonchalance, or prepotence: lack of response to communications in writing, reluctance to spend money on projects in connection with WALCYNG, etc.

When we talk about inoculation in the following, we refer to an extended concept. Policy makers, researchers and practitioners should be supported in their decision to work for walcyng traffic and, once they have started to work in this field, they should not stop because they overestimate the strength of the "virus" they have to fight.

13.4 Methods

Material was collected with the help of literature studies, focus group interviews, expert interviews and a case study analysis.

Literature studies - state of the art

Each partner searched for relevant literature mainly from their own country. The aim of the literature studies was to look for barriers and conflicts which people working in the field of walcyng have to cope with.

Focus Group Interviews

In order to gain in-depth knowledge and an overview of the variety of problems you meet when working for the implementation of measures to the advantage of walcers, seven focus group interviews were carried out in Finland, Spain and Austria.

Expert Interviews

In order to obtain more detailed information about the structural problems that are relevant in connection with our inoculation topic and as background information for the authors of this report, three in-depth interviews with traffic experts were carried out in Austria. The interviews lasted between 45 minutes and one hour.

Case study analysis

The case studies analysis can be seen as an example of how politicians and decision makers argue when asked to improve the situation for walcers.

Common arguments against walcyng

The methods used brought similar results and complemented one another. For that reason, the following description is partly a synthesis of the three methods: literature studies, focus group interviews, and expert interviews.

The list of arguments against walcyng used by different "opponents"³ is quite long. "Opponents" in many cases turn out to be either *governmental institutions, private institutions, or certain individuals working in such institutions*.

The types of arguments met can be subdivided into three categories:

1. arguments of general character against walcyng
2. economical/political arguments
3. "democratic and communication" arguments

In table 5 we give a brief overview of these types of arguments identified in our work.

³ Opponents is a rather strong and negative word. Therefore we used quotation marks. People might oppose one demand or one certain point of view, but agree on another.

Table 5

Arguments against walcyng and relevant counterarguments

Types of argument	Arguments	Counterarguments
<i>Arguments of general character</i>	<p>Safety argument</p> <p>The weather/topography argument</p> <p>The mobility argument</p>	<ul style="list-style-type: none"> • an increase bicycle mileage does not cause a proportional increase in the bicycle accidents • speed reduction, humps, and other measures decrease the number of severe accidents and make walcyng safer • one only has to walce in favourable weather conditions, this alone reduces the need for a lot of short car trips • the textile industry has to be creative and to produce special weatherproof clothes for walcers • mobility is nowadays linked to cars, walcyng mobility is impaired by car traffic • the bicycle is in many cases the quickest mode on distances shorter than 5 km
<i>Economic/political arguments</i>	<p>The economic argument</p> <p>The bad customer argument</p>	<ul style="list-style-type: none"> • walcers pay taxes just like other people • car driving costs the society more money than car drivers pay (e.g., Schleicher 1997) • most shopping is done on foot, by bicycle or by using public transport (Knoflacher 1992) • new markets for trade industries, special delivery services for walcyng customers, would open new doors for businesses
<i>Democratic/communicational arguments</i>	<p>The minority argument</p> <p>The competition argument</p>	<ul style="list-style-type: none"> • laws should represent not only the strongest group and individuals, but should consider all social groups • less than 10 % of the world's population can afford cars, whereas an estimated 80 % can afford to buy bicycles (World future society 1993); this leaves us with about 20 % where the only possibility of being mobile is to walk • communication between different traffic organisations has to be improved (compare structural problems); social events of e.g., a cyclist interest group could be planned together with people from public transport, who might advertise bike&ride schemes

13.5 Difficult Working Situations

When working for WALCYNG for the implementation of measures to the advantage of walkers (which is necessary when promoting walking and cycling instead of short car trips), not only does one have to fight arguments against these modes of transport, but one also has to cope with a working situation linked to a "car orientated" system. Mostly, one meets two types of problems:

1. difficult situations which relate to structural problems and
2. difficult situations which have something to do with the image of walcyng. In the following table one will find the most common problems and a beginning of a systematic discussion of how one could deal with difficult working situations.

Table 6 *Difficult working situations and how one could deal with them*

Types of problem	Problems	Strategies
<i>Structural problems</i>	<p>No strong walcyng lobby</p> <p>Little co-operation between traffic organisations</p> <p>Small resources (money and human capital)</p>	<ul style="list-style-type: none"> • WP 11 describes important aspects of lobbying and what one can do to set up a walcyng lobby or how to strengthen the power of existing walcyng lobbies (Risser et al. 1997) • Communication has to be improved; one has to find out what the reasons for this non co-operative behaviour are (information policy, development of better communication strategies); find allies and enemies, use methods that improve one's understanding of such problems • One should not only look for public support, but for private investors, too; an important aspect is to show clearly who may gain from such sponsoring, and what type of advantages their may be
<i>Image problems</i>	<p>Little interest in walcyng matters</p> <p>It is hard to find sponsors</p> <p>A bikeway is no status symbol (probably also because it is not treated as such)</p>	<ul style="list-style-type: none"> • The WALCYNG project gives us a lot of information of what can be done to make walcyng a popular topic; especially WP 9 "Communication Strategies" tells us a lot about how to improve the image of walcyng • One should be well be prepared, and should look for all information about the possible sponsors one addresses in order to know in what way one has to communicate with the person one meets; never give up too easily; one has to be rather obstinate, if one want to find sponsors • Again one has to do a lot of communication work to convince the responsible persons of the contrary; as soon as officials start treating new cycle paths as symbol of successful work, and prepare favourable speeches, it will be a decisive step forward

13.6 Input for the Walcyng Quality Scheme (WQS)

With regard to the WQS the following inoculation aspects are of interest from an evaluation point of view:

- It is a good sign for the (e.g., motivational) situation of experts working in the walcyng field if there is an identifiable network of people dealing with these topics in the city or in the country where they work
- The communication culture among experts and officials may be different from town to town. It cannot be excluded that better results for walcers have to do with a more reasonable discussion and communication among experts in the area
- Assuming that the walcyng situation in a municipality is assessed with the help of the WQS, one question, or group of questions in the WQS should deal with what experts working in the walcyng field think of their situation, referring among others to the network aspect mentioned above

14 OUTLINING FUTURE LOBBYING

(Work Package 11)

Five partners took part in WP 11:

1. FACTUM, Austria (Work Package leader)
2. De Voetgangersvereniging, the Netherlands
3. Transport Technologie-Consult, Germany
4. University of Valencia, Spain
5. Chalmers Technical University, Sweden

Report: Ausserer & Risser, 1997

14.1 Introduction

WALCYNG has the goal of promoting walking and cycling instead of short car trips. This is done by following a social-marketing concept⁴.

Structural improvements like pressure groups, public departments that are responsible for pedestrians and cyclists, sections of industry, politicians and authorities will be needed in order to achieve and to preserve such changes in the modal split. The marketing steps (product, communication and incentive policy) will in itself enhance among other things the formation of interest- and pressure groups. But this process must also be supported actively.

In order to achieve this, it will be necessary to motivate representatives of the legislation, of jurisdiction and law enforcement, and of administration, to enhance walking and cycling by treating it fairly in comparison to driving motor vehicles. These motivation activities can be summarised under the concept of lobbying.

14.2 Objectives

WALCYNG deals with the question of how efficient lobbying in the area dealt with should look like:

1. What does lobbying consist of?
2. What position should supporters of walking and cycling try to take?

⁴The concept of social marketing is extensively displayed in the Technical description of the WALCYNG project

3. What activities should lobbying groups set?
4. What do WALCYNG lobbying activities look like, today?

Recommendations on how to develop and institutionalise interest groups will be developed based on literature on the topic.

A first step in this direction was to collect experiences of persons that have been active in connection with the establishment of such groups. To achieve this we have started a dialogue with some European and national associations in order to outline the usual central steps to be taken when new associations should be founded.

14.3 Definition and function

Lobbying activities are addressed towards all decision making institutions, i.e., legislation, jurisdiction and law enforcement administrations. Lobbying activities are of communicative character:

1. Decision makers should not forget or fail to see that there are certain groups in society with certain interests. The motivation of the decision makers is to achieve an agreeable social climate and to avoid negative consequences for oneself.
2. Moreover, by lobbying, decision makers should get a chance to hear good arguments why it is useful and fair to consider certain interests. From the *psychological* perspective, "good" arguments are a motivation per se, according to all we know from persuasion research.

More *philosophically* speaking, good arguments should reflect reality. Thus, lobbying has also the function to provide important pieces of information for decision makers.

14.4 Methods

Three different methods were used to gather various information about lobbying: *literature studies, case studies and expert interviews*

14.5 Results

Lobbying as an instrument to gain influence in certain questions has turned out to be highly important today. However, several aspects have to be taken into consideration, if one wants to lobby successfully.

One argument that one meets repeatedly in literature is that if one wants to lobby, one has to try to get in touch with as many important people (key persons) as possible. But before one starts setting up a walcyng lobby, one has to think about what are one's reasons: *Why does one want to speak out against something? What does one want to change? What are one's aims?*

In order to achieve one's goal different kinds of instruments can be used. The following instruments of lobbying can be combined or put into action separately:

- **Direct lobbying** (personal conversations, telephone talks, letters)
- **Indirect lobbying** (to use PR-instruments, mailings, parties etc.)
- **Third-party lobbying** (a third actor brings forward the lobbies interest, whereas the initiator is not mentioned at all)

In addition several instrumental aspects have to be taken into account. The most important aspects in connection with lobbying are:

1. Propagating walcers's interests includes to become part of the political sphere. Policy and its importance for walcyng has to be considered on international, national, regional and local level.
2. The effectiveness of lobbying is linked to power. There are various types of power: economical, representative, psychological, power through access to resources, etc..
3. Lobbies steer existing research. Car industry has an active lobby at research institutes. Lack of research means lack of attention and lack of adequate information. Research is connected with development.
4. The media influence people's attitudes and behaviour. For that reason it is very important to have the media on one's side.
5. Car manufacturers penetrate into all sectors of life. Walcers have to fight for a similar position.
6. Successful lobbying needs a network of co-operating partners. It has to be tried to achieve connections to important spheres in our society, with the self-assertedness of someone who works to defend legitimate interests.

In general there are three main points which should be considered when setting up a lobby for walcyng:

1. ***European perspective***

If one decides to set up a lobby for walcyng one has to keep in mind, that any activity will be more successful, if it is not concentrated on a local problem, but tries to see the whole target in a broader - if possible in a European - perspective. In this case it is more likely that one finds partners also from industry or other important branches.

2. ***A well organised information policy***

Correct and reliable information is the key to later success. In the frame of the information policy all different kinds of information has to be collected in order to be able to define one's targets precisely, to know, which person (opponents and partners) will be involved and to be prepared for resistance and barriers, one will meet during your activity, etc.

3. ***A well considered communication policy***

The most important aspect of the whole lobbying process is a network with co-operative partners. For that reason it is very important to know, how one communicates with whom, what language one has to use for which special partner. In this connection it is very important to transmit messages in the right way by sticking to certain rules:

- information has to be correct
- information has to be given on time
- information has to be easily understandable
- information should be consistent
- information shall contain instructions for the person one is talking to
- information shall be redundant but not boring

Setting up a strong lobby for walcyng is a rather long-term process. One has to fight with many problems, resistance and barriers. By collecting information about preconditions for setting up a walcyng lobby respectively for organising lobbying activities the first step is done to motivate more walcyng oriented people to stand up for their rights in a more organised way.

14.6 Input for the Walcyng Quality Scheme (WQS)

With regard to the WQS the following lobbying aspects are of interest from an evaluation point of view:

- Are there any institutions, private or public, who are responsible for walcyng matters in a certain area (a city, a region, a country)?
- Are there any officially responsible people who also are known to the public and who can be addressed?
- How many "meters" of lines are written in the newspapers in the region? What are the contents?
- Are there any well-known people, who walce obtrusively? Who is a "known person" depends on the target group (youngsters, "average citizens", elderly people, men/women)?
- Is there any "product-placement"-policy in the official papers (is walcyng demonstratively illustrated in some way in the papers that the municipality sends to the households)?
- When pilot projects are done to test the possibilities of enhancing walcyng, are they well prepared and is it a rule, then, that evaluation steps are taken?
- Are cycle-days, cyclists-meetings, amateur-races organised in the region or locally?
- Are there any "cycle saloons", or cycle fairs, organised? What activities can be registered at such events, are they really promoting walcyng?

15 QUESTIONNAIRE SURVEY TO EUROPEAN CITIES

All the partners were involved in distributing and collecting questionnaires and summarising results:

1. Department of Traffic Planning and Engineering (DTPE), Sweden
2. Chalmers Technical University, Sweden
3. FACTUM, Austria
4. Franco Gnani & Carlo Bonanni, Italy
5. City of Helsinki, Finland
6. Institute of Transport Economics, Norway
7. University of Helsinki, Finland
8. University of Valencia, Spain
9. Transport Technologie-Consult, Germany
10. De Voetgangersvereniging, the Netherlands

DTPE made the synthesis and wrote the report (Hallqvist, 1997).

15.1 Aim

The specific aim of the questionnaire was to obtain basic information that can be compared with the results of Work Packages 1-4. What did the compilers in the addressed cities consider being relevant.

There was also a more general aim, namely to establish contact with cities in Europe. From those cities that have answered we have got references of surveys and contact persons and an overview of the conditions and taken measures for walkers in Europe. We will use this to establish a network of interested cities. The first step - and the only one before the WALCYNG project is finished - will be to distribute the special report presenting the results of the questionnaire.

15.2 Procedure

A questionnaire was sent out to head traffic engineers in different municipalities in 15 EU-countries plus Norway and Switzerland.

Cities in the following countries were included in the survey: Austria, Belgium, England, Finland, Ireland, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, Denmark, France, Germany, Greece, Italy, Norway and Portugal. Results were obtained from 12 countries. There are thus results missing from 5 countries; France, Germany, Greece, Italy and Portugal.

DTPE has developed the questionnaire. Each contractor was responsible for carrying out the questionnaire study in some countries. In most cases these consisted of the home country and in some cases one or even two other countries, mainly neighbouring ones. The following distribution of countries was made:

CTH	Ireland
DTPE	Sweden, United Kingdom
FACTUM	Austria, Switzerland
FG	Italy, Greece (no answers)
HKI	Finland
TØI	Norway, Denmark
UH	Luxembourg
UVEG	Spain, Portugal (no answers from Portugal)
TTK	Germany, France (no answers)
VV	Belgium, The Netherlands

Data treatment

The data that have been collected can be divided into three main groups. All of them are in some way connected to, or resulted in, measured or experienced changes in the traffic behaviour, the modal split, the accident situation, the user's view on the traffic situation, etc. etc.:

1. Information about measures to promote walking, that can be split up in three different types, namely
 - technical measures
 - political measures
 - public relations
2. Effects of taken measures according to the assessment, or impression, of the compilers, with respect to
 - safety
 - life quality
 - choice of modes
3. Measures for the citizens/employees taken by the municipalities in order to affect mode choice for commuting to work, e.g. by
 - improving facilities
 - providing incentives

15.3 Overview of the results in the different countries

122 European cities filled in the questionnaire (see table 7). The quality of answers is rather different. In the following a summary of each country (not of each city) will give a brief overview of the most important results.⁵

Table 7 Number of cities which filled in the questionnaire in each country

Austria	Belgium	Denmark	England	Finland	Ireland	Luxembourg	Netherlands	Norway	Spain	Sweden	Switzerland
12	4	11	12	16	2	2	12	13	9	19	10

Austria

In Austria all municipalities stated that they have in general good conditions for pedestrians and cyclists in their town. They all listed measures which they took in order to promote cycle and pedestrian traffic, whereas mainly infrastructural, technical and political measures were mentioned. Only in some cities representatives tried to convince people of the advantages of walking and cycling by improving the image of these modes.

In the following the most frequent measures mentioned are listed:

<p>Technical measures</p> <ul style="list-style-type: none"> • creation of a closed system of pedestrian and cycle paths with short connections • creation of a spatial path-net for leisure time • speed limiting measures for the car traffic (optical and architectural speed brakes, etc.) • broadening of pavements • improvement of the connections between pedestrian traffic and public transport 	<p>Political measures</p> <ul style="list-style-type: none"> • management of parking space • short-term parking liable to charge • restrictions for car traffic in down-town areas • 30 km/h zones • implementation of city buses and night taxis <p>Public relation</p> <ul style="list-style-type: none"> • info-campaigns about the positive effects of cycling • cycling exhibitions
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In general it turned out that the taken measures concentrated on improvements in the area of cycling. Thus in most cases being asked for positive effects of taken measures an increase of cycle traffic but not of pedestrian traffic was mentioned. Besides the representatives stated a decline of severe accidents, an increase in traffic safety, traffic abatement and a reduction of car traffic. It has to be pointed out, though, that they did not mention any data in order to check the reliance of the positive effects.

⁵ For detailed information about each city see internal Report No. 10 "Questionnaire survey to European cities"

Belgium

Also the municipalities interviewed in Belgium stated that they do promote walking in one or the other way. The following measures were listed by the representatives, who filled in the questionnaires:

Technical measures <ul style="list-style-type: none">• extension of pedestrianised areas• speed limiting measures• designing a plan for cycle routes• making a network of cycle routes	Political measures <ul style="list-style-type: none">• parking restrictions in inner-city• stimulation of car-pooling• restrictions for car use in the inner-city• extra buses to city centre
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According to the given answers a positive effect of the taken measures turned out to be an improvement of the quality of life.

Asked for incentives for employees the following two measures were mentioned:

- moderate prices for the use of public transports
- plans for a community transport plan

Denmark

Also in Denmark the promotion of walking mainly concentrated on technical and political measures. Some measures were, however, related to public relation.

Technical measures <ul style="list-style-type: none">• speed limiting measures• pedestrianisation• planning to complete the network of bicycle lanes and at the same time improvement of the quality of bicycle lanes• providing secure cycle parking facilities	Political measures <ul style="list-style-type: none">• car traffic is banned from central streets• parking restrictions Public relation <ul style="list-style-type: none">• maps indicating the bicycle routes• information campaigns• campaigns for increased cycling
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As effects of taken measures the questioned representatives mentioned a reduction of car traffic, better security, a decrease of cycling accidents and an increase in the number of cyclists and pedestrians.

England

The measures brought forward by English cities' representatives are the following:

Technical measures <ul style="list-style-type: none">• extension of cycle route network• implementation of special cycle lanes• providing of secure cycle stands	Political measures <ul style="list-style-type: none">• parking restrictions• traffic abatement/30 km/h zones Public relation <ul style="list-style-type: none">• increased cycle training at school• cycle information
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Positive effects of taken measures mainly related to the safety aspect. One representative mentioned an increase of pedestrian safety and a reduction of severe accidents. Besides the local air quality has been improved. Unfortunately the volume of car traffic continues to increase. Furthermore, more conflicts between cyclists and pedestrians have been observed.

In order to raise the share of walcyng employees in the municipalities the following improvements were introduced:

- cycle stands in front of the working place
- restricted access to parking close the places of work
- 20 pence allowance per day for those riding into work
- changing and shower facilities at the working place

Finland

All municipalities stated that they took measures in order to promote walcyng.

Technical measures <ul style="list-style-type: none">• increase of the length of walking paths• pedestrianisation of shopping streets	Political measures <ul style="list-style-type: none">• 30 km/h or 40 km/h zones• parking restrictions in the down town
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As effect of these measures the share of cyclists has increased. Unfortunately there turned out to be also more conflicting situations between cyclists and pedestrians.

Measures for employees were mentioned in three municipalities:

- 400 company bicycles (for 30 000 employees)
- secure cycle stands
- showers and changing rooms
- 5 FIM (approx. 0.95 ECU) per day if using ones own bicycle during work time

Ireland

In Ireland the following measures were taken:

Technical measures

- pedestrian zones in the inner city
- traffic signals with pedestrian facilities
- improvement of the quality of footpaths (especially for disabled)
- extension of the cycle network

As a result of these measures people are using the areas outside the town centres to park their cars.

Luxembourg

The representatives in Luxembourg who filled in the questionnaire listed the following measures:

Technical measures

- pedestrian areas in the town centre
- providing of cycle stands
- extension of cycle network inside and outside the city

Political measures

- 30 km/h zones
- general speed reduction
- traffic unification for all public transport

These and other measures led to a reduction of the individual traffic and to an increase of the share of public transport users.

The Netherlands

The Netherlands as a cycle-friendly country is doing quite a lot in order to improve the situation for cyclists.

Technical measures

- construction of residential areas for cyclists and pedestrians
- pedestrians may extend green light phase at traffic lights
- extension of cycle network
- red strips for cyclists on the road
- a plan for safe storing of bicyclists
- special sign posts for cyclists
- separated routes for cyclists and cars

Political measures

- discouraging parking in inner-city
- extension of car free inner-city
- parts of the centre of the city are closed for motorised traffic

As a result of taken measures the number of severe accidents have been reduced, the quality of life improved in the inner city, the number of cyclists increased as the number of people walking to the inner city.

In order to increase the number of walcyng employees in the municipalities, the following improvements were introduced:

- a dozen of official bicycles are available at the employees' disposal
- employees have to pay for parking their car
- employees using the bicycle get a compensation (the more the bicycle is used the higher the compensation)

Norway

The following measures were taken in order to promote walcyng:

<p>Technical measures</p> <ul style="list-style-type: none"> • pedestrian zones in the inner-city • safe routes and crossing • extension of the cycle network • improvement of the signing of cycle routes • sheltered parking for bicycles • increase of parking areas for bicycles 	<p>Political measures</p> <ul style="list-style-type: none"> • restrictions for car parking <p>Public relation</p> <ul style="list-style-type: none"> • campaigns • maps for cyclists • providing bikes for municipalities' employees
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The municipalities were not yet able to say if taken measures showed any positive effects.

Spain

In Spain a few measures were mentioned which should improve the situation for pedestrians and cyclists:

<p>Technical measures</p> <ul style="list-style-type: none"> • horizontal traffic signs or markings • more traffic lights • removal of barriers • widening of sidewalks • pedestrian zones in the inner-city • more cycle lanes 	<p>Political measures</p> <ul style="list-style-type: none"> • restrictions for car parking
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As a result of these measures road danger was eliminated, traffic on alternative routes increased, the supply of surface parking was reduced, the number of accidents were diminished, the number of pedestrians increased and the quality of life was improved.

Sweden

The representatives of the Swedish cities mentioned the following measures:

<p>Technical measures</p> <ul style="list-style-type: none"> • extension of the amount of pedestrians and cycle paths • a well developed cycle network • speed limiting measures 	<p>Political measures</p> <ul style="list-style-type: none"> • traffic abatement • restrictions for parking in the inner city <p>Public relation</p> <ul style="list-style-type: none"> • a new bicycle strategy • bicycle maps
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Many municipalities stated that it was too early to say if taken measures are successful. They, however, noticed an increase in the number of pedestrians and cyclists in town.

For employees the municipalities introduced:

- low prices at public transports
- covered cycle parks
- restricted access to parking close to places of work

Switzerland

All Swiss municipalities that filled in the questionnaire tried to improve the situation for pedestrians and cyclists.

<p>Technical measures</p> <ul style="list-style-type: none"> • extension of the amount of pedestrian and cycle paths • measures to increase and improve the pedestrians' and cyclists' safety • traffic islands for pedestrians 	<p>Political measures</p> <ul style="list-style-type: none"> • management of parking spaces <p>Public Relation</p> <ul style="list-style-type: none"> • VELO initiative
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As positive effects of taken measures a reduction of road accidents was observed, an improvement of the safety for pedestrians and cyclists, an improvement of the air quality, an increase in the number of pedestrians and cyclists, a reduction of car traffic in the inner-city, a decrease of the speed level, and a reduction of severe accidents.

15.4 Synthesis

One of the objectives of the questionnaire was to get an overview of the conditions and measures for pedestrians and bicyclists in different European cities.

The results show that all of those who answered our questionnaire in the different cities stated that measures had been taken in order to encourage pedestrian and bicycle traffic in their municipalities. The results can be displayed according to the two respective types of questions that have been asked:

1. What measures/actions have been taken?
2. What effect did the mentioned measures have?

What measures have been taken to promote walking?

Mainly technical measures were mentioned, but also some political measures and public relations measures.

Technical measures

Three types of measures stick out:

1. The measure that practically all cities state that they have taken or plan to take is an extension of pedestrianised areas or pedestrian streets.
2. Planning to complete the network of bicycle lanes or improving the bicycle lanes is the second measure that the addressed cities' compilers of the questionnaire mentioned as important.
3. The third measure that was mentioned rather often was to improve pavements and footpaths, viz. to broaden pavements.

Other measures mentioned by more than one city were:

- to produce cycle parking facilities
- to reduce car traffic in inner city areas by various means (see also "political measures" below)

Political measures

The most important political measure mentioned by compilers from cities in the twelve different countries were parking restrictions in inner city areas.

The implementation of city buses and the installation of better bus lines was the second most important measure that was mentioned.

30 km/h zones were mentioned by the compilers from cities in three different countries.

Public relations measures

Under this heading, mainly maps showing the bicycle network and the distribution of other relevant information for walkers (e.g., new facilities) were mentioned.

Effects of taken measures

According to the compilers, the main effect of the taken measures with respect to safety, life quality, and mode choice, were the following:

Safety

Three effects were mentioned by cities from more than one country:

- fewer accidents
- reduced speeds of car traffic
- increase in traffic safety (expressed in general terms, as an experience)

Compilers in cities from two of the countries, Finland and England, mentioned that they had seen an increase of conflicts between cyclists and pedestrians due to the measures taken (thus, obviously resulting from an increase of cyclists and pedestrians - see heading "choice of mode" below, as well).

Life quality

Under this heading, a reduction of car traffic, leading, e.g., to lower noise levels, better air, and less stress, was mentioned by compilers from cities in six different countries.

Choice of mode

An increase in the number of pedestrians and cyclists was noticed by compilers of several cities.

Measures for citizens/employees to influence behaviour on an individual level

We also asked if the municipalities had offered any facilities or incentives that may affect the citizens choice of transport mode. There, we focused on commuter traffic to work, when asking for improved facilities or incentives provided in order to enhance walking instead of using the car for shorter distances to work. Compilers from cities in a few different countries mentioned that they had taken such measures.

Facilities

The following two types of measures to improve facilities were mentioned in connection with this question:

- more parking space for bicyclists was provided
- the facilities for parking cars close to the places of work were restricted

Incentives

Compilers from cities in some countries stated that the responsible planners in the municipalities had tried to take steps in order to influence the employees. Some municipalities in three European countries stated that they pay a certain amount of money to those of their employees who used the bicycle to work.:

- 20 pence (approx. 0.3 ECU) allowance for those riding a bike to work (Norfolk, England)
- 5 FIM (approx. 0.95 ECU) per day of using one's own bicycle during work time (Helsinki, Finland) and 5 FIM per cycle trip during work time (Oulu, Finland)
- employees using the bicycle get a compensation, the more the bicycle is used the higher the compensation (Alkmaar, the Netherlands)

Discussion of the main results

The results show that among the cities in the twelve countries included in our survey all state that they have taken measures for encouraging pedestrian and bicycle traffic in their municipalities.

There are three dominant measures among the answers:

1. extension of pedestrian areas or pedestrian streets
2. planning to complete the network of bicycle lanes or improving the bicycle lanes
3. improving pavements and footpaths

Compared to what has been found out in the frame of WALCYNG, these measures certainly are of importance and relevance. According to the compilers, they led to fewer accidents, to reduced speeds of car traffic, to an increase in traffic safety, and also to an increase of pedestrian and bicycle traffic, and to some degree to an improved quality of life.

However, it is very clear that the range of potential improvements is much wider, and that many more measures, or combinations of measures can, and should, be taken. It is obvious, thus, that the material WALCYNG will provide will be of great value for the municipalities.

16 THE SYNTHESIS - DEVELOPMENT AND EVALUATION OF CONDITIONS FOR WALCYNG

Most generally speaking, WALCYNG is providing an instrument, which should make it possible to evaluate the quality of walcyng-conditions. This evaluation has to be seen on a general level. Not only should municipalities be able to check the walcyng conditions in their town, but e.g. private companies, too. Such checks have to be made on a sound basis, that is provided by the WALCYNG project work. According to our original plan, this should be done with the help of the WQS (see chapter 10).

The WQS is still a reasearch tool. In the long run, we intend to adress it to all kinds of providers, e.g. authorities or companies that can produce or influence something for walcers.

16.1 Instruction for evaluation work

As certainly has been understood by now, the WQS is an instrument that helps one to assess the attractivity of the preconditions for walcers. By answering a systematised set of questions, the person who assesses a certain product relevant for walcyng (a part of the network, a new bike, even a whole city or region, etc.), and the implementation strategies connected to it (communication, incentives, co-operation between researchers and authorities, lobbying) makes sure that:

- he/she does not leave out important aspects in the assessment and
- that every element/category that is assessed also gets a kind of mark. It has to be made clear whether anything has to be improved, and in which way.

The assessment result, thus, is not as important as a mark, but rather as a construct that helps developing ideas of what should be improved, and how this should be done in order to make people walk and cycle instead of using the car for short trips.

A compiler will thus be asked to give an opinion and/or a judgement of how good the attractivity of the preconditions for walcers is of an assessed area or product. To do this, he/she should thoroughly consider the WQS questions. When all relevant questions have been answered, an aggregate evaluation of the answers will be put out by the WQS software, and if

necessary some additional questions will have to be answered. The whole process is rather lengthy. But it has been underlined frequently that in order to enhance walking and cycling as efficiently as possible it is necessary to consider all aspects that are important for walcers, and to do it in a holistic way.

According to the state of the art, these aspects are many. Preconditions have to be analysed, and if necessary improved in two respects:

1. with respect to traffic safety of walcers (facilities, behaviour of motor vehicle drivers, etc.), an objectively measurable variable that is not directly, and not linearly, related to individuals needs
2. and with respect to the needs of walcers, that represent subjective variables that are difficult to measure, but that influence modal choice more than safety aspects in most cases; the needs dimensions we have considered were:
 - mobility (how are walcers' needs to be mobile, to move without decisive barriers, met?)
 - security (can walcers feel safe, what about women's security by night, etc.?)
 - comfort and affordance (how easy is it to make use of the facilities for walcers, is it comfortable enough, are the needs of elderly and handicapped considered?)
 - social climate (how is interaction of motor vehicle drivers with walcers? How seriously do authorities take walcers - see media, officials' statements, decision makers attitudes, etc., availability of information materials, etc.)
 - aesthetics (layout aspects, areas that cycle and pedestrian paths are led through, etc.)
 - others (health, well-being, etc.)

The strategies adopted to achieve an increase in walcyng consist roughly of product improvements and communication, including both communication in the more narrow sense, and incentive measures, co-operation among and between researchers and authorities, lobbying. Thus, all aspects treated below can be seen as communicative measures in a wider sense.

All kinds of measures are necessary and essential both in the safety area and in all areas where user needs are assessed. An important question, though, is how to differentiate between safety and security; All pieces of information that contain instructions for all involved groups on how to behave in order to guarantee safety can be seen as safety measures (even if they might have security effects), whereas all information that is meant to give the involved persons a feeling of the safety situation can be seen as security-increasing measures.

All information and arguments reflecting walcyng being "better" than driving a car can be seen as the communicative part of lobbying, especially if such arguments are addressed to decision makers and politicians. Elaboration on and use of such arguments are also a necessary precondition for the inoculation of people working in the walcyng area, as they should have a reassuring effect.

Some examples for aspects that are taken up by the WQS are summarised in the enclosure 2 of this report.

16.2 The WQS: Still an instrument for researchers

In the initial phase the intention is not to distribute the WQS to everybody who wants to use it. At the moment, the WQS is an instrument for researchers still being developed to become a standardised tool. Therefore, things will be organised in a way that the WQS is only used by the members of the WALCYNG consortium, possibly in co-operation with interested experts from outside WALCYNG. This should allow the members of WALCYNG to gather practical knowledge with respect to larger-scale application of the WQS and the interpretation of its results, and to design for the development of aggregate evaluation procedures.

In this sense, the WALCYNG consortium will look for possibilities to keep the development of the WQS under steady control. This, among other reasons, was the starting point for discussing further work.

16.3 Expected results of the use of the WQS

Our conclusion after the work in WALCYNG is that it is not easy to collect and to compare data concerning walcyng from different countries, because there are so many different standards regarding definitions and collecting of data. One effect of a more wide-spread use of the WQS (or similar instruments) would certainly be that such differences in standards become even more transparent, hopefully leading to efforts to improve the situation in this respect.

Another important aspect that may become visible is that many efforts to the advantage of walcers are not taken because walcers and their representatives do lack means and resources for a well designed implementation strategy.

17 CONCLUSIONS AND NEED FOR FURTHER RESEARCH

17.1 Conclusions

The conclusions of the work in the frame of WALCYNG are manifold. In the following, the most important aspects that mainly refer to both implementation and further work, including research work, are summarised:

1. How to enhance walcyng instead of short car trips?

This was, in fact, the main goal of the work in WALCYNG. What can be said very shortly is that such an effort demands a multidisciplinary approach where different types of efforts are combined. The "classical" example that reflects this aspect is: If you have good walcyng facilities but the road users do not know or believe this then you will have far from as many walcers as you want to have. If you tell people to walce and even convince them with arguments and good advertising, but if they then come to the conclusion that they were not told the truth, because walcyng facilities were much worse than promised, then this would also deter people from walcyng.

2. The function of research in the area

Research in this area is to a large degree dealing with a societal subject in change, wanting change. Developmental work is therefore badly needed. The attractiveness of walcyng facilities depends on the perspective that the users take. Such a perspective is context related. It depends on the comfort users perceive when they set a certain behaviour, on values that they believe in, on the experienced fairness of the preconditions that are connected to the behaviour etc. All of these variables change over time, due to a change of perspectives which is partly driven by communication in the society: Whether people appreciate to try to change their own behaviour or not depends on how well and honestly they are informed, on how respectfully and consistently they are treated, on how well and convincingly the necessity of a change is explained, on the fairness of the rewards for ones own attempts, and on the fairness of the distribution of efforts among groups and individuals in society. The scientific job, thus, is to understand, to describe, and to communicate, more than to measure and to construct.

3. Who are "the users"

In WALCYNG we have always differentiated between users and potential users: Users, according to our definition are those people who already walk and cycle instead of using the car

for short trips. Who are they? We have learned that woman, elderly people and children/youngsters are more often users in this sense, than other citizens are. They represent societal groups that so far do not have much power, which is combined with the fact that they are not getting heard as much as others are. Thus, their needs and wishes have to be made transparent and to be considered when measures are taken, so we do not lose them as users as soon as they get a chance to change mode. Potential users are those we want to gain - for trips that are shorter than 5 km they should leave the car and join the walkers. A good precondition to achieve this would be the creation and keeping up of good conditions for current users as was just mentioned above, and to combine these efforts with efficient communication measures. However, what "good preconditions" and "efficient communication" are depends on the user's perspective. Knowing "who the users are" means also to know their taste and their opinions with respect to walking facilities and all efforts to market them.

4. Differences between countries - back to context aspects

It has repeatedly been said that values, taste, life style, etc. - in summa, culture - constitute a most relevant background to the development and carrying out of behaviour. They are the highest-level context variables. Identical stimuli presented in different countries - or even in different cities in the same country - may have different effects. This is a problem as long as there are no systematic experiences with such differences, and no "transformation rules" saying that certain conditions that generate results of type A in one country may lead to results of type A' in another country. The better comparable information policy will be done in several countries simultaneously the better known such predictions will be, though. This is an extra argument for carrying out information policy regularly.

5. Segmentation of user groups

What has been said under point 3 and 4 reflects the aspect of segmentation: To consider the characteristics of different user-group segments will be necessary in order to efficiently enhance walking. Theoretically, every user group segment could have different points of view on good product and communication quality. Analysing this question will show what differences there are between the segments, and it will probably also show that there is not an endless list of differences between the user-group segments, but that there are only some, though important, differences that have to be considered, as is known from ordinary marketing. In many cases, the same marketing strategy applies for all groups and segments, or for a large part of them. It is important to find out, however, when this is not the case in order not to lose relevant groups or segments (like, e.g., young road users, who have to be addressed in a special way, differently from ordinary communication with grown ups). Some user-group segments have a key function, e.g., when the minimum standards of product comfort are concerned, as is the case with disabled users. Special attention has to be given to these aspects.

6. Evaluation

Efforts to enhance walking instead of short car trips have to be evaluated. This is the only way to find out what solutions are really good, in practice. Combined to information policy, this would mean that one first tries to meet different target groups' needs, and that one then analy-

ses whether such attempts were successful. Such evidence would give strong support to adequate implementation and management activities: To show that any measure is successful because it is accepted by the citizens, that it is therefore used to the expected extent, and that it is therefore time efficient but most of all cost efficient. The latter is a most important approach in times of restricted budgets. However, this implies that the chance to try and to test solutions is provided, which much more often than today could be done in the frame of pilot- and demonstration projects.

17.2 Need for further research

Management and implementation research

It has become clear when working in WALCYNG that technical solutions to provide safety and to fulfil the needs of the target groups do exist. The problem, though, is to find out in a more systematic way why certain solutions are not implemented. According to the research work we have done our assumption is that partly good solutions are not implemented due to organisational and co-ordination problems. However, another reason definitely is that structural reasons prevent good solutions from getting implemented (e.g., powerful interest groups that are against certain measures). Research in the areas that we have called "inoculation" and "lobbying" should thus go on and be intensified viz. segmented: E.g., different strategies with respect to different tasks, pilot- and demonstration work that includes evaluation of measures and, connected to this, systematic improvement of methods and measures.

Information about WALCYNG has to be systematised

In connection with what has been said above, information about walcyng has to be systematised: Opinions about, attitudes towards, and acceptance of measures to enhance walcyng of different target groups have to be analysed further. Politicians, decision makers, officials, etc. have to be included as target groups which, however, not could be done in the present frame. As far as contents of research are concerned, the cost aspect should be tackled especially thoroughly. In those work packages where experts were interviewed it was often stated that, societally speaking, a lot of budget money could be saved if one succeeded in convincing relevant proportions of those who use the car for short trips to walce instead.

Demonstration projects

In WALCYNG, many measures and solutions have been dealt with that are either new in tendency or have never been evaluated thoroughly. The idea is that such evaluation would make the advantages of such measures much clearer. Therefore, it is necessary that opportunities are created to demonstrate the advantages of suggested measures. This can be done best in the frame of pilot- and demonstration projects. Moreover, such projects are also necessary in order to test and adjust network - or holistic - approaches, where solutions on different levels and in different areas are combined, in such a way that their contribution to success can be assessed systematically. Ideally, the optimum result would be to show that the systematic application of measures according to the marketing model in a city or region leads to a satisfying reduction of car use for short trips and to an increase of walcyng.

Demonstration projects should also include co-operation with big companies and institutions. Especially, co-operation with public institutions should be attempted. Projects together with private companies have already been done (see WP 8) and it has been shown, there, that measures taken in such a context have the potential to influence modal choice in the wished-for way.

The fact that even other EU-projects, like ADONIS, have produced material and know-how in this area widens the possibilities for demonstration work and opens a promising perspective on the European walcyng scene in the future.

Validation of the WALCYNG Quality Scheme

The WALCYNG Quality Scheme is an instrument both to guide activities to enhance walcyng and to evaluate such efforts. However, to start with, the WQS is just a research tool that has still to be further developed in order to become a standardised instrument. To achieve this, it should initially be used under test conditions and by researchers only. Moreover, at the first occasions when it is used it should be applied together with other - traditional and accepted - evaluation methods in order to display its validity. Provided that these preconditions are given the WQS, later on, could be used comfortably at all relevant occasions. Pilot and demonstration projects would also have the function, viz. make it possible, to validate the WQS under systematic conditions.

Further lobbying

It has been said above that further lobbying is necessary in connection with management and implementation issues. It should be made more clear, though, that in order to evaluate measures it would be advantageous to assess two types of strategies:

1. How does it work, and how successful is it, to focus on allies: to establish networks, to make sure that one has reliable partners?
2. How important is it to achieve at least limited co-operation from the side of "enemies". From a persuasion point of view it is most efficient if a person that usually would be expected to do the contrary made statements in favour of walcyng or acted in favour of walcyng.

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DISSEMINATION

The products described below are the main disseminating efforts made by WALCYNG. They can all be requested via the members of the Co-ordination Committee or - in relevant cases - directly via the authors.

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Final report

The final report is a summary of all the work done in the frame of WALCYNG, that includes the WQS as an appendix. The report itself can be seen as the most important "reservoir" of facts and perspectives that have to be included in help pages produced for and presented together with the WQS.

Folder for large scale distribution

A folder is produced that contains the most important recommendations. This will be distributed to:

- European Commission and other relevant persons and institutions on European level
- Ministries of transport and of environment of the countries of the WALCYNG partners
- NGOs in the Mobility, Traffic safety and Environmental area, Municipalities, especially those who have filled in the WALCYNG questionnaire
- The companies whose addresses have been collected in the frame of WALCYNG work (WP8)
- Town- and traffic planning offices in towns that have filled in the questionnaire distributed by WALCYNG

- Insurance companies
- Press and media organisations
- Lobbying institutions (addresses have been collected in the frame of WP 11)

Work package reports

The internal reports will be "refined" and made available for everybody who is interested in them. They will be stored both at the co-ordinators' and at the authors' institution. All WALCYNG partners will be provided with a list of WALCYNG publications, including the addresses of the authors and the co-ordinator, so that they both can answer any request that concerns written WALCYNG material, and that they distribute such lists to everybody who might be interested in the material.

Report on questionnaire to cities

This report is especially interesting for the municipalities as it reflects what other municipalities do in order to enhance walcyng. One main effect will, of course, be to demonstrate that one's own measures and activities are "not so bad". Another effect is, hopefully, that measures that have been successfully implemented in one municipality will be copied by others.

WQS on paper, on diskette and on Internet

The WQS by now exists on paper and on diskette. Later on, it will also be available on Internet. During the testing and validation phase, the use of the WQS will be connected to conditions. Everybody who asks will be allowed to use it under the precondition that the results are made available for us (the WALCYNG consortium) and for our research, and that no work of others than the WALCYNG partners based on the use of the WQS will be made official or published until the allowance is given by the WALCYNG co-ordinator.

The WALCYNG film

A film about walcyng issues is produced by our partner at the City Planning Office, City of Helsinki, Finland. It is 28 minutes long and includes material from all over Europe, and sequences displaying the walcyng practice in the Hague, Groningen, Tilburg, Rome, Malmö, Lund, Oulo and in Helsinki, among other places. The film is up till now produced in Finnish, English and in Swedish.

The WALCYNG slide show

A slide show on video is produced by our partner at Chalmers University of Technology, Sweden. It is based on a large number of slides from all over Europe. It will be 17 minutes long and presents lots of good and bad examples for walcers, both visually and audibly.