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D1.3 Monitoring and Evaluation

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Executive Summary

The CATCH project was a three year project to address a gap in awareness of urban transport Greenhouse Gases (GHG). The project's mission is "to become the natural place to look for mobility related GHG reduction advice and information". This has been pursued by building an internet-based resource "Knowledge Engine" which engages, informs and stimulates stakeholders at different levels to tackle transport related emissions in their urban centres. The CATCH platform provides objective, comprehensive and timely information to facilitate stakeholders to identify policies to reduce GHG from urban mobility, and empower them in making informed, innovative, and effective change.

This report details work done in task 1.4 (T1.4), *Monitoring and Evaluation*. There were three main objectives for this task:

- To evaluate the success of the platform design in terms of objectives (and specifically in increasing awareness on transport CO_2);
- To establish a connection between the grounding work of D1.1[1] and D1.2[2] and the platform design of the final product;
- To examine the effect of the platform design on awareness of transport CO_2 and motivation or intention to lower transport CO_2 emissions.

Findings from the Monitoring and Evaluation tasks were analysed and disseminated to CATCH partners and informed the iterative design process of the platform's tools.

This report is distinct from the D6.2 report, *Validation* which is responsible for analysing the technical performance of the platform and its components. *Evaluation* is more concerned with impressions and responses of the users, though the technical performance can play a role in those.

All eight objectives have been addressed by the project partners in the development of the platform's tools, although their level of implementation varies (see 6.1 Meeting CATCH Objectives). In most of those cases, a tool has been created that would allow for those objectives to be met, but the content to meet that objective must be developed by users. That latter point is possibly a circular cause and consequence, but *the platform must first be reliable and well designed in order to attract and retain users.* This issue is discussed more thoroughly in this report and D6.2 Validation.

Recommendations from earlier work (D1.1, D1.2, D2.1's Interim Report) have emerged in the tools *My City* and *Scenarios* as well as the *Knowledge Platform* produced for the project. *Over ten distinct concepts have been clearly implemented, while another eight are feasible, though not explicitly incorporated* (see 6.2. Implementing Grounding Research). The ten objectives that were explicitly incorporated were: designing the presentation of information to improve motivation; allowing users to enter with their motivations/priorities; social networks; address low awareness of transport CO_2; information through various media types; recommend locally relevant actions/information; basic layout recommendations; link CO2 to other areas; trends; global dimension of GHG reduction.

[1] Avineri and Waygood (2010), *Behavioural Inception Report*, available online at:

http://www.carbonaware.eu/fileadmin/user_upload/Deliverables/CATCH_DEL_DOC_D1.1_20Behavioural_20Inception_20Report_orginal_V1.pdf

[2] Waygood and Avineri (2010), *Research and Design Report*, available online at:

http://www.carbonaware.eu/fileadmin/user_upload/Deliverables/D1.2_Research_and_design_report.pdf

Many recommendations were not incorporated, but that was expected as the concepts and recommendations from the earlier work went beyond the potential of this project's life. Overall findings from the evaluation are summarised in chapters 5 and 6.

The final objective of the evaluation was addressed by the grounding research (D1.2) and the last stage of external evaluation addressed in sections 5.3 and 5.4. The presentation of CO_2 information is based on research into the presentation of such information reported in D1.2. *This new form of presentation should increase interpretability and motivation* over the most common presentation format of only mass. Further, it was found that the automatic presentation of a better performing peer city *increased the perception that one's own city should reduce its transport CO_2 outputs*. However, this last point was not empirically tested and can only be inferred from the responses in both the survey and the focus groups which were conducted.

The overall theme of the CATCH project (transport and climate change awareness) was clearer to transport practitioners than it was to the general public (see Chapter 4). The general public were aware that the project was about climate change, but did not mention transport in the survey that was conducted. For many users, significant technical problems existed, that in focus groups were reported to affect the user's response to the platform. As well, the layout and user-friendliness of the platform was felt to be out-dated, with users referring to the 1990s.

The main findings of the evaluation and validation work suggest that technical and user-friendly design must be improved for the platform. The organisation of the information should also be better suited to the different stakeholders with more general information for casual users and detailed information for practitioners or interested members of the public. Better highlighting of the most useful information for each stakeholder group would increase the user-friendliness of the platform. Expanding the content would improve the value of the platform, but currently replies on users generating content. Some automation of this process could improve content availability and reduce the dependency on users.

The My City tool was the most well received aspect of the platform with those who were able to use it finding it interesting, stimulating motivation to learn more, and well designed. Potential points of success for this product of the CATCH project are: followed guidance from earlier work; engaged with the grounding and design teams; developed initial concepts; went through an iterative process of seeking feedback from internal and external reviewers and then addressing problems. For further discussion on the My City tool development please see the Work Package 4 reports D4.1, D4.2, and D4.3.

In summary, the evaluation found that CATCH met its objectives either fully or created a product where it would be possible, but that improvements must be made to the platform's user-friendliness. Grounding work suggested how CO_2 might better be communicated, and much of this was taken up by the My City tool, and to a lesser extent in the Knowledge Platform. Findings from the grounding work and evaluation suggest that these techniques can highlight less desirable CO_2 amounts and motivate people to learn more.

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TABLE OF CONTENTS

Executive Summary **3**

1 Introduction **10**

1.1 Purpose of Report 10

1.2 CATCH vision and mission 10

1.3 CATCH objectives 11

1.4 CATCH main outputs 11

1.4.1 Knowledge Platform 11
1.4.2 CATCH Performance Database and Interactive tools 12

1.5 Structure of Evaluation 12

1.5.1 Early evaluation and feedback: Chapter 2 12
1.5.2 Mid-point evaluation and feedback: Chapter 3 12
1.5.3 Final evaluation and feedback: Chapter 4 12
1.5.4 Summary of External Evaluations: Chapter 5 12
1.5.5 Internal Review: Chapter 6 13
1.5.6 Recommendations for Future Work: Chapter 7 13

2 Early Evaluation and Feedback **14**

2.1 The Hague Survey and Focus Groups 14

2.2 Is there sufficient knowledge to use CO_2 mass only to motivate change? 14

2.3 What additional information might be required? Or, how effective is including additional information at reducing "not sure" responses? 15

2.4 Creating motivation – which of the different presentation styles resulted in response of motivation to change? 17

2.5 Additional comments from the focus groups - ranking 18

2.6 Visual representation 18

2.7 Knowledge Platform filters 21

2.7.1 Additional comments: 22

2.8 City data presentation and comparisons 22

2.8.1 Additional comments: 23

2.9 Other policy considerations 23

2.9.1 Additional comments: 23

3 Mid-point evaluation and feedback **25**

3.1 Initial Impressions 25

4 Final evaluation and feedback **26**

4.1 Transport Professionals 26

4.1.1 Initial Evaluation 26
4.1.2 Summary 34

4.2 General Public 35

4.2.1 General Public Evaluation 35
4.2.2 Content 40
4.2.3 Recommending CATCH 41

4.3 Summary 41

5 Summary of Evaluation Stages **42**

5.1 Early evaluation 42
5.2 Midpoint review 42
5.3 Final review part I 42
5.3.1 My City/Co-Benefits tool 43
5.3.2 Content 43
5.4 Final evaluation part II 43
5.4.1 My City tool 44
5.4.2 Content 44
6 Internal Review 45
6.1 Meeting CATCH Objectives 45
6.1.1 Grounds the project in a detailed understanding of the perceptions and attitudes of citizens and stakeholders towards greenhouse gas reduction in mobility and develops a knowledge engine based upon the motivational triggers derived from this understanding 45
6.1.2 Enhances and increases awareness of the environmental impacts of mobility and potential solutions to their management 45
6.1.3 Enables travellers to make informed climate-friendly travel choices 46
6.1.4 Empowers public transport operators, city managers and other mobility stakeholders to more readily and accurately incorporate environmental opportunities and challenges into their planning and innovation processes 46
6.1.5 Understands the potential for change in climate-friendly behaviour resulting from the introduction of mobility packages and measures targeted on GHG reduction. These measures might include taxes, user charges, carbon trading schemes, incentive/reward schemes, etc. 46
6.1.6 Links the knowledge platform to a package of mobility policies and measures which ensure that the combination of such measures and the knowledge platform encourages behavioural change 47
6.1.7 Ensures that new behavioural change mechanisms will be exploited, integrating the global dimension of GHG reduction with individual behavioural change 47
6.1.8 Enhances the transparency and public understanding of climate change policies and thereby increases trust 47
6.1.9 Section Summary 47
6.2 Implementing Grounding Research 47
6.2.1 Explicitly Implemented 48
6.2.2 Possible, but Not Explicitly Incorporated 50
6.2.2.2Local information on transport-linked knowledge/issues 50
6.2.3 Section Summary 51
6.3 Examining the effect of the platform design on awareness of transport CO_2 and motivation or intention to lower transport CO_2 emissions 51
7 Recommendations for Future Work 52
7.1 Main recommendations from external evaluations 52
7.2 Main recommendations from internal evaluation 52
8 Conclusions 54
9 References 56
10 Appendix A: Stage 1 Survey and Focus Group Transcripts 57
10.1 Survey for Group 1 57
10.2 Survey for Group 2 66
10.3 Focus Group Transcripts 74
11 Appendix B: Initial Impressions Survey 80
12 Appendix C: Topic Guide for Final Evaluation Focus Groups 82

12.1 Topic Guide 82
12.2 References 83
13 APPENDIX D: WP1 Design Concepts and Recommendations 84
13.1 Recommendations from D1.1 84
13.1.1 D1.1 Chapter 1 84
13.1.2 D1.1 Chapter 2 85
13.1.3 D1.1 Chapter 3 86
13.1.4 D1.1 Chapter 4 87
13.1.5 D1.1 Chapter 6 89
13.1.6 D1.1 Chapter 7 92
13.1.7 D1.1 Chapter 9 92
13.1.8 Practitioner specific recommendations 93
13.2 D1.2 Design concepts and recommendations 95
13.2.1 Recommendation Example Applications 96
14 APPENDIX E: WP2 Design Guidance 104
14.1 D: Transfer of findings from WP1 to design guidance in WP2 104
14.2 WP2 Interpretation of guidance from grounding 109
14.3 Technical team interpretation 109
15 Appendix F: Detailed results of final evaluation 113
15.1 Part I: Transport Professionals 113
15.1.1 General Message 113
15.1.2 My City Tool Responses 118
15.1.3 Improving the Platform 121
15.2 Part II: General Public 125
15.2.1 General Comments 125
15.2.2 My City Tool Responses 129

TABLES

Table 2-1 Responses to being told that the average per capita transport CO_2 was either 3t or 3.5t. 15
Table 2-2 Percentage of responses that were “don’t know” for different contextual information and framing. 17
Table 2-3 The percentage of respondents who said they were either “slightly” or “highly” motivated to reduce CO_2 outputs based on the information given. 18
Table 3-1 Initial impressions to knowledge platform and communication tools (1 is low, 5 is high). 25
Table 4-1 Summary demographics of participants. 28
Table 4-2 Responses to the statement, "Having used the platform, I feel that I am more aware of the impacts of transport on climate change at a:" 29
Table 4-3 Reported use, interest, and clear purpose of most features of the platform. 29
Table 4-4 Summary demographics of participants. 37
Table 4-5 Responses to the statement, "Having used the platform, I feel that I am more aware of the impacts of transport on climate change at a:" 38
Table 4-6 Reported use, interest, and clear purpose of most features of the platform. 38
Table 13-1 Recommendation objectives and source from this report. 95
Table 14-1 WP2 Design guidance for general public users. 104

Table 14-2 Design recommendations from WP1 for transport professionals. 108
Table 14-3 Linking CATCH Objectives to Options – Public 110
Table 14-4 Linking CATCH Objectives to Options - Professionals..... 111

FIGURES

Figure 2-1 The visual style used with the first Group. It presents Paris as being in the middle of the categories. 19
Figure 2-2 The visual style used with the second group. It presents Paris as being at the bottom of the categories. 20
Figure 2-3 Descriptive results of framing question with visual component. 21
Figure 4-1 Overall results for My City tool. 30
Figure 4-2 Useful to the individual personally or at work. 31
Figure 4-3 Understanding the Co-Benefit diagrams. 32
Figure 4-4 Interest level of the co-benefit diagrams. 32
Figure 4-5 "How can my city improve" button. 33
Figure 4-6 Content on different areas. 34
Figure 4-7 Overall My City responses. 39
Figure 4-8 Content on different areas. 41
Figure 13-1 Example of citizen's motivation choices. 96
Figure 13-2 Examples of a second selection stage for local amenities. 97
Figure 13-3 Example of access to local shops selection. 97
Figure 13-4 Examples of potential solutions for improving access to local amenities. (The potential impacts given here are merely examples). 98
Figure 13-5 Illustration of examples given for improving pedestrians' experience. 98
Figure 13-6 Example of possible further actions by user. 99
Figure 13-7 Example of pledges by user. 99
Figure 13-8 Example of co-benefits at city level (based off work by Systematica). 101
Figure 14-1 CATCH conceptual framework (based on D2.1 Interim Report). 104

D1.3 Monitoring and Evaluation Report

1 Introduction

1.1 Purpose of Report

This report details work done in task 1.4 (T1.4), *Monitoring and Evaluation*. Task 1.4 had three main objectives:

- To evaluate the success of the platform design in terms of objectives (and specifically in increasing awareness on transport CO_2);
- To establish a connection between the grounding work of D1.1[3] and D1.2[4] and the platform design of the final product;
    - Following the list of recommendations produced in those reports.
- To examine the effect of the platform design on awareness of transport CO_2 and motivation or intention to lower transport CO_2 emissions.

Findings from the Monitoring and Evaluation tasks were analysed and disseminated to CATCH partners and informed the design of the platform's tools, as part of an iterative design process.

This report is distinct from the D6.2 report, *Validation* which is responsible for analysing the technical performance of the platform and its components. *Evaluation* is more concerned with impressions and responses of the users, though the technical performance can play a role in those.

The main components of this report outline the work done to achieve these three objectives. Specifically it will detail the purpose of each stage, the methods used, and highlight the main findings. The results of the work were targeted at the development teams of CATCH, but many of the findings might be relevant to anyone working in the field of communicating climate change information, specifically related to carbon dioxide and transport.

Throughout the report, the key points are emphasised by italicised summary lines.

1.2 CATCH vision and mission

The CATCH vision relies on the fact that while many stakeholders on the urban level face the challenge to reduce their carbon emissions under existing or upcoming national commitments, there is a lack of knowledge of how to carry out this in practice. Essentially a gap exists between political commitment, and methods to fulfil these obligations.

CATCH aims to contribute in closing some of this gap by developing a tool which helps in the reduction of overall carbon emissions from urban transport - one of the major sources of Greenhouse Gases emissions (GHG) at a city level.

The CATCH mission is "to become the natural place to look for mobility related GHG reduction advice and information". This is mainly pursued by building an internet-based resource "Knowledge Engine" which engages, informs and stimulates stakeholders at different levels to tackle transport related emissions in their urban centres. The CATCH

[3] Avineri and Waygood (2010), *Behavioural Inception Report*, available online at:

http://www.carbonaware.eu/fileadmin/user_upload/Deliverables/CATCH_DEL_DOC_D1.1_20Behavioural_20Inception_20Report_orginal_V1.pdf

[4] Waygood and Avineri (2010), *Research and Design Report*, available online at:

http://www.carbonaware.eu/fileadmin/user_upload/Deliverables/D1.2_Research_and_design_report.pdf

platform provides objective, comprehensive and timely information to facilitate stakeholders to identify policies to reduce GHG from urban mobility, and empower them in making informed, innovative, and effective change.

The following CATCH mission statements summarise the gist of the project vision and main goal:

- 'Choosing to reduce carbon impact of urban mobility'
- 'Facilitating behavioural change to stimulate mobility related carbon reductions'
- 'Your clever carbon friend'
- 'New thinking for a low carbon future'

1.3 CATCH objectives

Objectives are clearly identified in the Description of Work of CATCH, as follows:

1	Grounds the project in a detailed understanding of the perceptions and attitudes of citizens and stakeholders towards greenhouse gas reduction in mobility and develops a knowledge engine based upon the motivational triggers derived from this understanding;
2	Enhances and increases awareness of the environmental impacts of mobility and potential solutions to their management;
3	Enables travellers to make informed climate-friendly travel choices;
4	Empowers public transport operators, city managers and other mobility stakeholders to more readily and accurately incorporate environmental opportunities and challenges into their planning and innovation processes;
5	Understands the potential for change in climate-friendly behaviour resulting from the introduction of mobility packages and measures targeted on GHG reduction. These measures might include taxes, user charges, carbon trading schemes, incentive/reward schemes etc).
6	Links the knowledge platform to a package of mobility policies and measures which ensure that the combination of such measures and the knowledge platform encourages behavioural change;
7	Ensures that new behavioural change mechanisms will be exploited, integrating the global dimension of GHG reduction with individual behavioural change;
8	Enhances the transparency and public understanding of climate change policies and thereby increases trust.

1.4 CATCH main outputs

1.4.1 Knowledge Platform

The CATCH Platform can be described as a combination of information and knowledge which aims at triggering real behavioural change on climate-friendly travel choices and sustainable urban mobility planning. The Knowledge Platform (to underpin the Tools)

- CATCH CMS (content management system) and Support database which is a source of links, documents, multimedia data and information to support the Tools and be a source of innovation to change.

1.4.2 CATCH Performance Database and Interactive tools

The CATCH Platform includes interactive tools that communicate information for the purpose raising awareness and with the secondary objective of improving motivation to change to more sustainable transport. Within this, there were two tools developed: the Co-benefits[5] tool (also named as the “My City” tool) and the Scenario tool.

The Co-benefits tool uses the most recent data to show how a city is currently performing with respect to road transport CO_2 emissions. The “co-benefits” relate to the secondary information that uses other indicators from a range of fields to measure how a city is performing. The six fields currently included are: health, budget, community, planning, safety, and accessibility & time.

The Scenario tool presents information across time allowing for trends to be visible. Like the Co-benefits tool, it includes indicators that are directly related to transport as well as indicators from other fields such as health.

1.5 Structure of Evaluation

1.5.1 Early evaluation and feedback: Chapter 2

The purpose of this first stage of monitoring and evaluation was to gain insights and feedback from transport professionals as a target audience. Along with a short survey to gain quantitative responses, focus groups were held in November 2010 to expand knowledge and feedback beyond the limitations of the survey. Design considerations and concepts related to the knowledge platform and communication tools were the primary focus.

1.5.2 Mid-point evaluation and feedback: Chapter 3

An evaluation was planned upon the initial release of the platform in spring 2011. However, a delay occurred in the release and the version that was available for review in the summer of 2011 was not sufficient for a thorough evaluation. Despite this, a small-scale evaluation was conducted to provide feedback on initial designs.

1.5.3 Final evaluation and feedback: Chapter 4

The purpose of the final evaluation was to examine how the products developed for CATCH were functioning, whether project objectives were being met, and to gain insight for improvement.

The final evaluation was split into two parts: the first with mainly transport professionals; the second with participants recruited from the general public. The purpose of this separation was to initially evaluate the platform by individuals more familiar with the topic area and who could provide constructive feedback to the developer teams. Feedback from that first stage was used to improve the platform in preparation of more general public users who would most likely not be as familiar with the topic and might have different familiarity with computers, different levels of access, and potentially different computers (e.g. older models, different operating systems, etc.).

1.5.4 Summary of External Evaluations: Chapter 5

This chapter brings together the findings from each of the three above stages with consideration to the final product. Its purpose is to highlight what the external (to the project)

[5] The Co-Benefit tool was named ‘My City tool’ in the final version of CATCH platform. References to both terms are made in this report as the evaluation took time at different stages of the platform development.

users found lacking and to suggest, through “Future Recommendations”, what should be addressed.

1.5.5 Internal Review: Chapter 6

The evaluation had three main objectives listed above in section 1.1. This chapter responds to those three key objectives.

1.5.6 Recommendations for Future Work: Chapter 7

This chapter includes recommendations from the evaluation team for future work on the platform (including the Knowledge Platform, Co-Benefits tool, Scenario tool). The two key sections of this chapter are recommendations from external evaluators, and recommendations from an internal review.

2 Early Evaluation and Feedback

The purpose of this first stage of monitoring and evaluation was to gain insights and feedback from transportation professionals as a target audience. It was carried out in month 16 (Nov., 2010) in The Hague, Netherlands with 18 transport practitioners from a range of nationalities represented. Along with a short survey (see 10.1 Survey for Group 1 and 10.2 Survey for Group 2) to gain quantitative responses, two focus groups (see 10.3 Focus Group Transcripts) were held to expand knowledge and feedback beyond the limitations of the survey. Design considerations and concepts related to the knowledge platform and communication tools were the primary focus. In this chapter, general participant information is followed by specific questions that the evaluation hoped to answer. Italicised summary points were written to highlight design recommendations based on the feedback received.

2.1 The Hague Survey and Focus Groups

Section 2 reports the findings from the qualitative analysis of the focus group discussions and from18 completed surveys by the focus group participants, to best highlight user needs, user wants, and user perception of information formats to be used by the CATCH platform.

The main characteristics of participants of this stage:

- Age: 27 to 56, average 38
- Gender: 59% male
- All higher education
- Positions: Manager (4), consultant (3), policy officer (2), transport planner (2), director (2), researcher (2), advocate, architect, trainee.

2.2 Is there sufficient knowledge to use CO_2 mass only to motivate change?

The survey started with a question where only the mass of CO_2 per capita due to transport was given. The participants were asked if they:

- Strongly feel that the city should reduce those CO_2 outputs.
- Somewhat feel that the city should reduce those CO_2 outputs.
- Feel that this is an acceptable level and the status quo can continue.
- Feel that this is low and that outputs could be increased.
- Not sure.

Two groups were presented with information about CO_2 mass; the first (with 7 participants) was presented with the above set of questions associated with transport-related GHG emissions of 3.0t of CO_2 per capita, and the second (with 11 participants) with the same set of questions associated with an amount of 3.5t. The amounts were chosen as mid-range results and were deliberately chosen as close to each other to help highlight whether such subtle differences resulted in perception differences. Further, the survey was designed so that on the first page, only that mass information was given, with no additional information. The purpose of this was to gauge whether transport professionals had a good knowledge base by which they could interpret such low context information. The responses of each group to the first question where only the mass of CO_2 was given are shown in Table 2-1.

29% of the first group and 36% of the second answered “not sure” to this question. Those levels are not statistically different (ANOVA). *This suggests that nearly one third of transport*

professionals had insufficient knowledge to enable interpretation of CO_2 information presented simply as a mass.

Later discussions held with the participants indicated that only 10%of them actually felt they had sufficient knowledge to determine if the amount was high. This highlights that although they gave a response, their actual confidence was quite low. The others were just responding with the assumption that the amount was high, normal, or low.

The above suggests that mass information is not sufficient, and that additional contextual information on CO_2 emissions might be necessary for practitioners[6].

Table 2-1 Responses to being told that the average per capita transport CO_2 was either 3t or 3.5t.

Response	3.0t (n=7)	3.5t (n=11)
• highly motivated	29%	0%
• slightly motivated	14%	36%
• acceptable and status quo can continue	0%	27%
• low and outputs could be produced	29%	0%
• not sure	29%	36%

2.3 What additional information might be required? Or, how effective is including additional information at reducing "not sure" responses?

As a measure of effective communication, the reduction or elimination of "not sure" responses was used. It is assumed that such a result reflects an increase in the ability of the individuals to interpret the information and have confident in it, which are considered to be important for individual's motivation and intention towards sustainable transport choices.

As can be seen in

6 Similar observation was made regarding the perception of CO_2 information, presented as mass, by members of general public. This format was not found to be efficient in terms of understanding the sustainability of a travel scenario. For detailed analysis see D1.2. Waygood & Avineri, 2010.

Also see: Waygood and Avineri (2011), Does "500g of CO_2 for a 5 mile trip" mean anything? Towards more effective presentation of CO_2 information. Transportation Research Board (TRB) 90th Annual Meeting, January 24-27, 2011, Washington, DC. Available online at:

http://www.carbonaware.eu/fileadmin/user_upload/Publications/OW_and_EA_Information_coding_and_the_editing_phase_4.pdf

Table 2-2, the percentage of a recommended level was the most effective at eliminating the "don't know" responses, whereas giving the number of trees[7] actually increased it. The latter response was in contrast to the findings of previous work (D1.2, Waygood & Avineri, 2010) which found that trees reduced the occurrence of "don't know" responses in comparison to simply mass information. Here, the focus group participants commented that been told that trees could absorb the CO_2, that there was a less motivation to change as it appeared that a simple solution existed – plant more trees. There was the acknowledgement that an aggregate or spatial representation of that might work better.

For the first group, one individual responded "not sure" to all questions. In the second group, one individual responded "slightly motivated" to all responses. This might suggest that for some individuals, it doesn't matter how the information is presented, they will respond consistently based on some other pre-determined factor.

[7] The percentage of recommended level (or 'budget') of individual contribution to carbon emissions, and the number of trees that need to be planted in order to absorb and cancel the effect of a certain amount of carbon emissions, were two of the formats studied in Waygood and Avineri (2010, 2011) (see footnote 4).

Table 2-2 Percentage of responses that were "don't know" for different contextual information and framing.

Information format	first group (%; n = 7)	second group (%; n = 11)
• Only mass	29	36
• Average given	14	27
• Average + absolute amount higher	14	27
• Average + % higher	14	9
• % of recommended level	14	0
• Mass + trees	43	45

Those results suggest that a recommended level would increase confidence to work with the CO_2 amounts. From the focus groups discussions, it has emerged that the recommended level could be framed as a government goal (such as the % reduction by 2020/2050 or a scientifically justified level).

The potential exists that using trees would still be effective if the amount of space needed to balance the entire city's outputs was conveyed.

2.4 Creating motivation – which of the different presentation styles resulted in response of motivation to change?

The results shown in Table 2-3 suggest that using percentages would be effective at increasing motivation, specifically if they relate to a recommended level. However, there were comments in the first group from one practitioner that in their experience, percentages were difficult for both citizens and decision makers to work with. This was in contrast to the general feeling in the second group, where a number of people (3/11) said that they converted to percentages in their head for all of the questions and others (2/11) said that the percentage was easiest to work with. Prompting from the facilitators with the second group for people who found percentages difficult or not as useful produced no responses.

Therefore, to increase motivation for practitioners, the % of the recommended level is seen as the preferred presentation style.

Table 2-3 The percentage of respondents who said they were either "slightly" or "highly" motivated to reduce CO_2 outputs based on the information given.

Information format	first group (%; n = 7)	second group (%; n = 11)
• Only mass	43	36
• Average given	86	73
• Average + absolute amount higher	57	73
• Average + % higher	86	91
• % of recommended level	86	100
• Mass + trees	29	45

2.5 Additional comments from the focus groups - ranking

Ranking was an important consideration. For some representatives of cities, there was a constant comparison to similar cities in their own country. For other representatives of large cities, it was comparisons to other areas of the city (i.e. London's boroughs), and specifically those which had similar attributes such as distance from the centre. This highlights that *information on similar areas or cities would be of benefit*.

2.6 Visual representation

One last presentation style that was tested was a visual one where the cities had a mark that indicated the CO_2 per capita based on a categorical ranking as shown in Figure 2-1 and Figure 2-2. Both groups were asked to imagine that they were a representative of Paris and to respond how motivated they felt to reduce CO_2 outputs based on the map. The first group were shown a map that had more cities and Paris was ranked in the middle in the middle. The second group saw a reduced set where Paris was shown to be amongst the worst performers. Both groups had previously seen that a potential recommended level was 2.0 tonnes, and Paris was between 2.0 and 2.49 tonnes for the first group and larger than 2.1 tonnes in the second.

As the first Group had a reduced set where Paris was shown to be in the worst category, it was anticipated that there would be greater motivation to reduce CO_2 outputs.

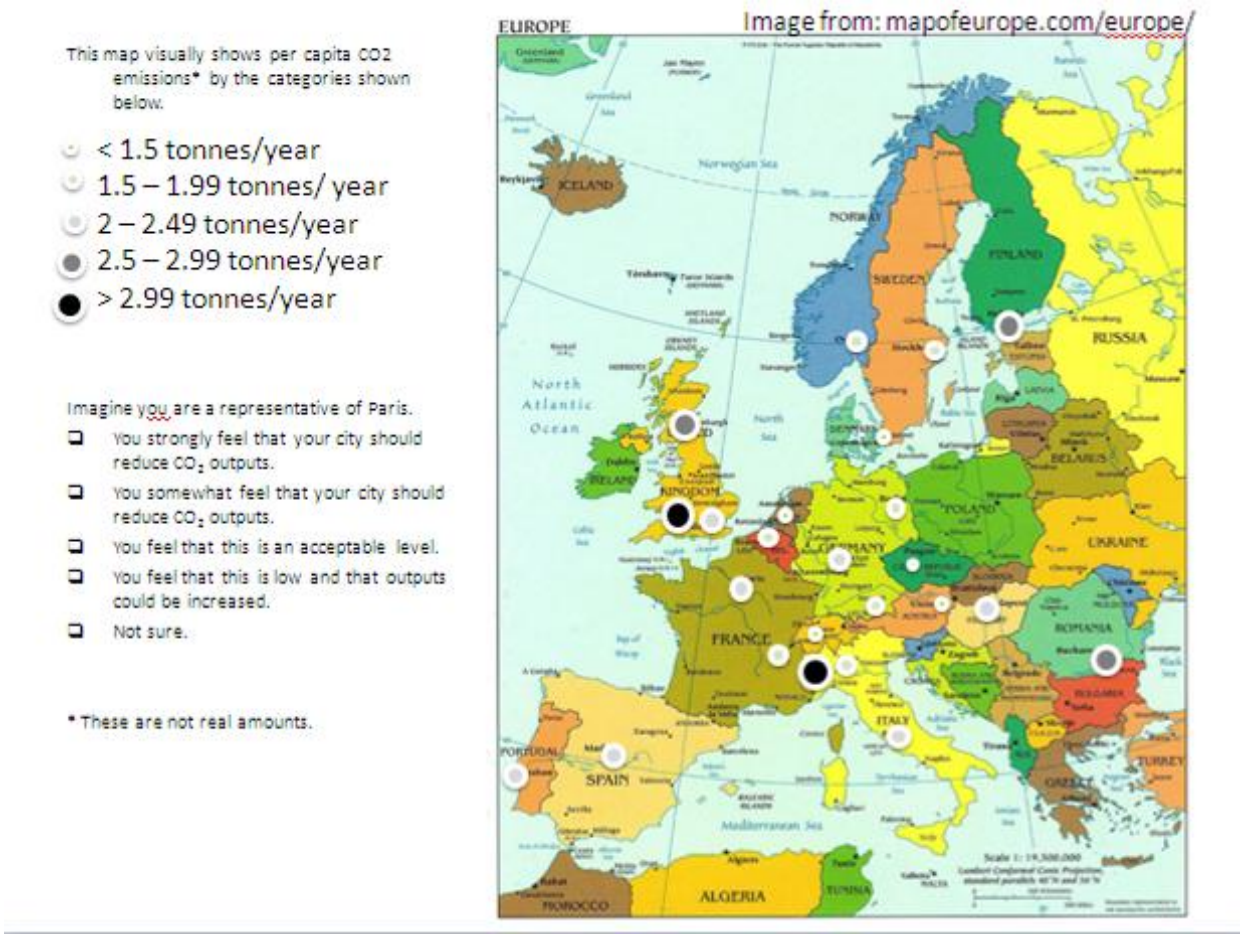

Figure 2-1 The visual style used with the first Group. It presents Paris as being in the middle of the categories.

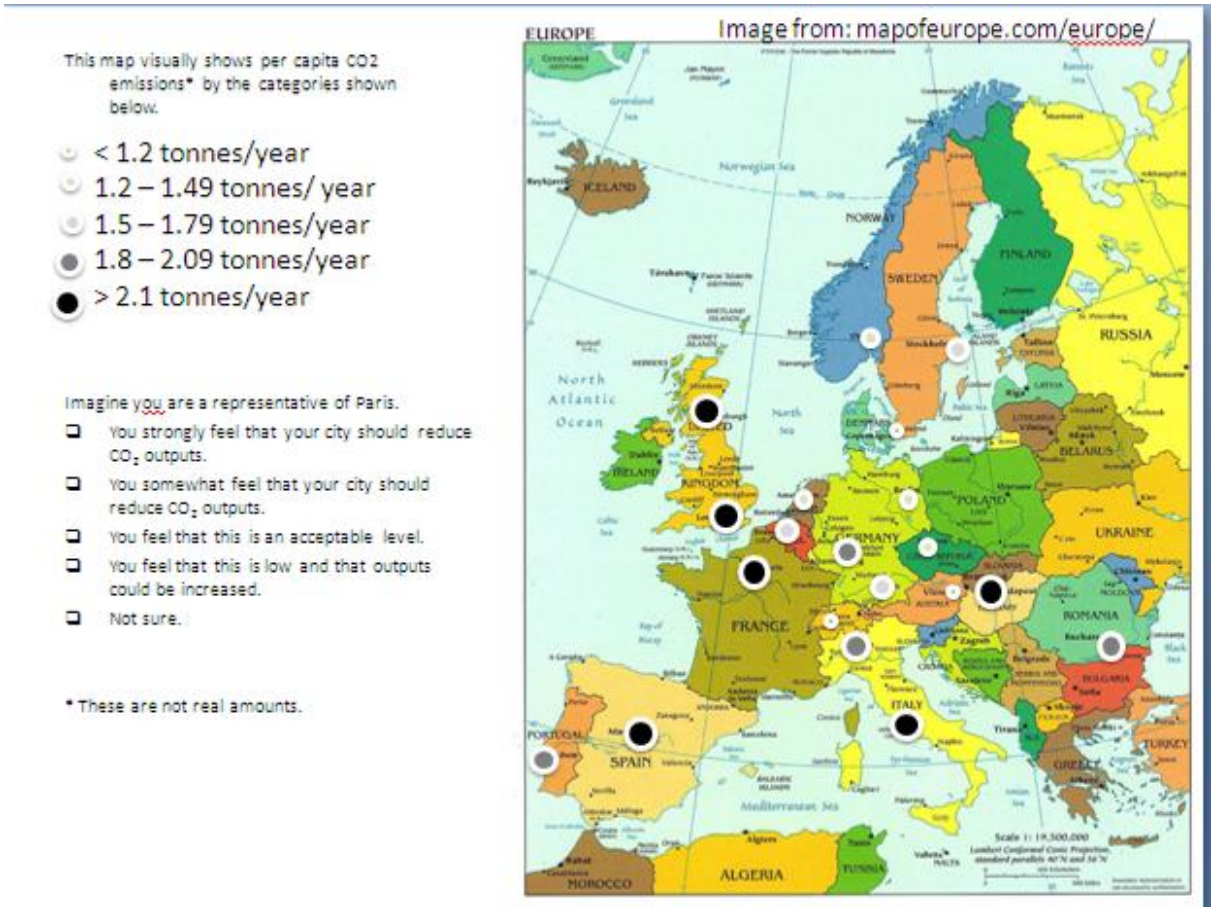

Figure 2-2 The visual style used with the second group. It presents Paris as being at the bottom of the categories.

There was one "not sure" response in the first group and three in the second group. These individuals typically answered "not sure" for the previous questions discussed above. 57% and 73% of the respondents answered "slightly" or "highly" motivated for the first and second groups respectively (Figure 2-1). This statistically significant result[8] supports the proposition that framing can influence the interpretation of the result.

[8] A one-way between-groups analysis of variance was conducted using the dummy variable of the participant responding that Paris should reduce its CO_2 or not.. There was a statistically significant difference at the $p < 0.05$ level: $F(1,12) = 5.143$, $p = 0.043$.

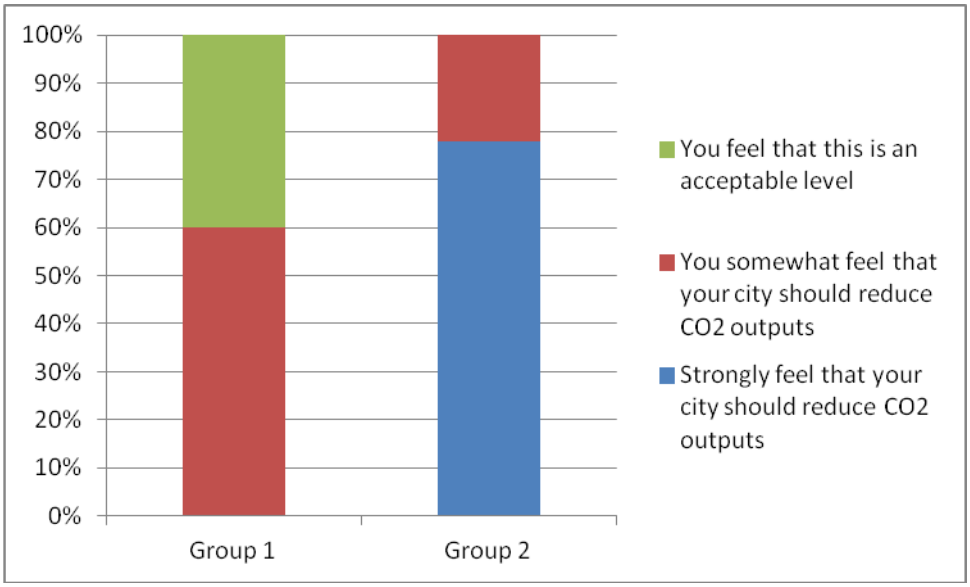

Figure 2-3 Descriptive results of framing question with visual component.

Unfortunately, time did not permit discussion of this presentation style with both groups, but individuals in the first group said that they looked at other capitals such as Rome, Madrid, and London and ignored other cities. This led them to report no motivation to change as their (imagined) peers were behaving the same.

Other members of the first group said that this was the most useful to them, as they knew which cities were producing more or less and they could compare to who they felt their competitors were.

The above responses emphasize the importance of ranking or league tables[9]*.*

2.7 Knowledge Platform filters

Interviews with practitioners suggest that finding relevant information on the Internet can be time consuming. To improve the acquisition of relevant information, CATCH considered the use of filters to reduce results and help narrow searches to more relevant material. The range of answers was from 1 ('not useful') to 5 ('very useful'). Participants were asked to rate the usefulness of these proposed filters (listed in order of average response):

- Focus results by mode (e.g. tram, bicycle, etc.) (4.2)
- Focus results by other challenges (e.g. congestion, health, etc.) (4.1)
- Focus results by city population size (4)
- Focus results by country (3.9)
- Focus results by target group (e.g. citizen, business/service, freight, etc.) (3.9)
- Focus results by project scale (e.g. road, neighbourhood, city, regional, etc.) (3.8)
- Focus results by capital required (3.7)
- Focus results by continent (3.3)

The above suggests that the top three priorities for filtering would be mode, other challenges, and city population size. The capital required was one of the lowest ranked filters.

[9] The concept of ranking and the findings reported here further support literature reviewed in D.1 (Avineri & Wygood, 2010) regarding social norms and social 'nudges'.

2.7.1 Additional comments:

How many people are affected from the project: i.e. there is a factor that is polluting X tonnes/per year and there is a health problem next to it. The city next to it has 10m inhabitants. It is difficult - but worth the trouble.
Years; capital received and through what source
Filter case studies by user feedback from practitioners? E.g. Highly rated case studies appear first.
scale of impact (% reduction)
GDP/capita; transport (road) injuries/fatalities per capita; car ownership/use
density is key - there should be the ability to consider regional impact
By the amount of time between project design and implementation (i.e. how long would it take to realise potential positive impacts?)
degree of urbanisation; density
developed/developing countries
ways of combining measures; single action; combine with one other complementary transport related measure (with two or three..) e.g. A travel demand measure with infrastructure improvement and (not legible); the above with additional non-transport related measure (e.g. building regulations); maybe as a drop down menu choice with an "effect" coefficient.

All of the additional comments contribute further ideas to how information in this field could be better focused to meet the needs of practitioners.

2.8 City data presentation and comparisons

Interviews with practitioners suggest that comparisons between cities would be more relevant if certain characteristics were used to filter results. Responses could be from 1 ('strongly disagree') to 5 ('strongly agree'). The participants were asked to answer the following statements:

I'm interested in comparing my city to other cities that...

- Are of similar population size (4.1)
- Have similar mode splits (3.7)
- Are of the same country (3.3)
- Have similar Gross Regional Product (3.1)
- Are geographically close (2.9)
- Are of similar climate (2.8)

- Are of the same continent (2.4)

The top characteristics related to city population size and transport modes. This supports the previous finding.

2.8.1 Additional comments:

Has the same average income or McDonalds' Rate.
political stability
budget
GDP per capita (ppp is necessary); population density
similar setting (topography); diversity of population (heterogeneity of population)
degree of urbanisation; density

The additional comments contribute further ideas to how information in this field could be better focused to meet the needs of practitioners.

2.9 Other policy considerations

Research and interviews with practitioners (D1.2, Waygood and Avineri, 2010) suggested that aligning projects to reduce CO_2 emissions with other policy considerations will increase the likelihood of implementation. The range of answers was from 1 ('not useful') to 5 ('very useful'). To help focus resources, the participants were asked to rate the usefulness of these policy considerations in influencing the decision making process:

- Related to health (e.g. daily exercise, asthma, etc.) (4.2)
- Related to city budget impacts (4)
- Related to users' (e.g. citizens, businesses) budget impacts (3.9)
- Related to community (e.g. noise, local travel) (3.8)
- Related to time use (e.g. travel time) (3.7)
- Related to safety (e.g. crashes, "eyes on the street") (3.7)

All of these considerations ranked relatively high (3 would be neutral), but health and budget impacts were the top results suggesting that practitioners feel that economic motivations are important.

2.9.1 Additional comments:

health budgets
link to mental health in terms of active travel
accessibility

overall sense of "well-being"/satisfaction

Two of the four additional comments relate to “well-being”. Subjective well-being or happiness may be an emerging policy consideration.

3 Mid-point evaluation and feedback

An evaluation was planned upon the initial release of the platform in spring 2011. However, a delay occurred in the release and the version that was available for review in the summer 2011 (month 23 of the project; June) was not sufficient for a thorough evaluation. Despite this, a small evaluation was conducted to provide feedback on initial designs. This section reports on that compacted work.

3.1 Initial Impressions

The three independent participants in the meeting were requested to complete a form (see Appendix B: Initial Impressions Survey) that related to impressions of the platform and tools that were demonstrated. Average responses are reported in all cases. Table 3-1 provides a summary of the responses.

Table 3-1 Initial impressions to knowledge platform and communication tools (1 is low, 5 is high).

	Factsheets	Co-benefits tool	Knowledge: good practice	Scenario tool
Would you likely look at this part?	2.67	3.33	4	4
It is visually organised	3.33	3.33	2.5	3.67
The purpose is clear	2.67	2.67	3	3.67
How to use it is clear	3.67	2.33	3	3
Would you trust the information?	3.67	3.67	3.5	3
Would you return to this function?	3.33	3.67	3	3.67
Would you recommend this aspect?	3.33	3.67	3.5	4.33

The negative responses are considered first. The factsheets were unlikely to be looked at by the participants and their purpose was not clear. Further, the co-benefits tool did not have a clear purpose. Lastly, the good practice was not visually well organised.

The good practice and scenario tool were the most intriguing to these participants with the scenario tool being the most likely to be recommended.

Unfortunately, do to the stage of development; it was not possible to delve further into evaluation at that point in time. The basic form of the questions asked here was repeated in the final evaluation, discussed next.

4 Final evaluation and feedback

The purpose of the final evaluation was to examine how the products developed for CATCH were functioning, whether project objectives were being met, and to gain insight for improvement.

The final evaluation was carried out in months 25 to 27 of the project. The final evaluation was split into two parts: the first with mainly transport professionals; the second with participants recruited from the general public. The purpose of this separation was to initially evaluate the platform by individuals more familiar with the topic area and who could provide constructive feedback to the developer teams. Feedback from that first stage was used to improve the platform in preparation of more general public users who would most likely not be as familiar with the topic and might have different familiarity with computers, different levels of access, and potentially different computers (e.g. older models, different operating systems, etc.).

This chapter summarises responses, but a more detailed report of responses can be found in Appendix 15. In both cases, the surveys were conducted in coordination with *validation*[10] work (D6.2). Italicised summary points in this chapter relate to potential future work.

4.1 Transport Professionals

The purpose of this exercise was to collect user feedback on the pilot version of the platform so that the developers could better focus the next iteration of development. Validation focused on technical issues, while the evaluation looked at wider responses using the platform including whether it is meeting the goals of the project and the design guidance that came out of WP1 (Behavioural Grounding) and WP2 (Design).

In general, user comments suggest that major technical failures and better user-friendly design are required before the features of the tool could be properly assessed. Of the 26 people who completed the survey, 23 were able to load the program, and 21 of those were able to use some features. That means that nearly 20%, or one in five people, were unable to use the platform as it should work.

There were 17 specific comments about technical problems and 26 that could be categorised as user-friendly deficiencies. Ten comments related to the organisation of information.

Within the responses, the My City feature received positive responses coming across as professional, interesting, and generally a clear purpose. The content, although interesting, needs to be better organised with consideration to its target.

Overall, participants felt that major improvements were necessary before it could be released for general use.

4.1.1 Initial Evaluation

Following the preliminary release of a working version of the platform, a validation and evaluation was conducted with 24 transport professionals and 11 general public users of which 19 professionals and 7 general public users were able to use the platform and complete the survey. Summary demographics are shown below in

[10] Validation's focus is on the technical performance of the platform and its components, whereas evaluation is focused on user's impressions and responses.

Table 4-1.

Table 4-1 Summary demographics of participants.

	Overall (n=26)	Transport Professionals (n=19)
Age (yrs)	average: 39 (range: 26-65)	average: 37 (range: 26-62)
Gender Female	57.70%	57.90%
Education		
12-15 years	7.70%	5.30%
16-19 years	42.30%	31.60%
20 or more	42.30%	52.60%
Still studying	7.70%	10.50%
Employed full-time	72%	83.30%
Employed part-time	28%	16.70%
Country		
Belgium	1	1
Italy	5	4
Spain	5	4
UK	13	10
Canada	2	0
Environmental Stage of Change		
I don't worry about climate change.	5.70%	8.30%
I worry about climate change and would like to lower my CO_2 outputs, but don't know what to do.	34.30%	25.00%
I am planning to lower my CO_2 outputs.	20.00%	20.80%
I have lowered my CO_2 outputs in the last year.	40.00%	45.80%

The transport professional participants described how transport was relevant to their work. Nine could be classified as researchers, ten as practitioners, and five as other.

4.1.1.1 Overall impressions

In order to gauge whether the participants were able grasp the overall message of CATCH, they were asked, “What is the CATCH platform about?” Of those who were able to use the

platform (23), 20 responded to that question. Eleven could be classified as an accurate description of the purpose of CATCH (to increase awareness about transport CO_2 and help reduce overall emissions). Four more were CO_2-related, though not totally accurate descriptions of the purpose of the CATCH platform. Of the remaining five, three were not sure and two weren't able to load information, though they loaded the platform.

Next we examined their self-reported improvement about awareness of the impacts of transport on climate change (Table 4-2). From the figure, fewer than half report that they have increased their awareness and there is a lean towards disagreeing with this statement.

Table 4-2 Responses to the statement, "Having used the platform, I feel that I am more aware of the impacts of transport on climate change at a:"

	Agree	Neutral	Disagree
Personal level	**38.1%**	**23.8%**	**38.1%**
City level	**33.3%**	**23.8%**	**42.9%**
National/international level	**38.1%**	**23.8%**	**38.1%**

To identify the best aspects of the CATCH platform, users were asked what they liked best about the platform. Of the 18 responses, four liked the My City tool, five liked the content, three liked the purpose, and one liked the layout. Three responded that they didn't like anything, though some of those had severe problems with use.

Specific comments for improvement were requested. In general the responses that are relevant to evaluation, eleven of them related to the layout or interface and five related to how the content was organised. The remainder were technical points.

The main message of the platform was clear to most of these participants. Despite self-ranking themselves as fairly aware of climate change issues, over a third felt that their awareness had increased. The My City tool was the overall best feature, but considerable technical and layout problems must be fixed.

4.1.1.2 Key Features

The participants were asked in three separate questions to respond to questions on whether they used the different features of the platform, how interesting they were, and whether their purpose was clear. A summary of their responses are shown in Table 4-3 and graphs of their full responses can be found in.

Table 4-3 Reported use, interest, and clear purpose of most features of the platform.

	Looked at briefly	Explored/spent some time	Interesting	Clear purpose
The platform overall (n=23)	-	-	40.9%	31.8%
Editor's choice (n=18)	18.2%	45.5%	33.3%	27.8%
Liveable cities (n=20)	13.0%	47.8%	42.9%	42.9%

Co-benefit tools (n=21)	8.7%	47.8%	61.9%	52.4%
Leaders (n=17)	19.0%	66.7%	13.3%	26.7%
Events (n=19)	9.5%	81.0%	18.8%	25.0%
Forums	-	-	25.0%	25.0%
Contacts (n=7)	66.7%	28.6%	10.0%	40.0%

The co-benefit tools received the most positive responses, with most people saying that it was interesting. Those tools are directly investigated in a later part of this section. The "Leaders" feature received low responses, but it should be mentioned that the write-ups were not included at the time of the study due to a technical error that was resolved after the close of the survey.

The purpose of the functions and features are not clear to users, apart from the co-benefit tools.

4.1.1.3 My City

Eighteen individuals tried the My City tool. The majority (89%) found the tool by just clicking on the "coolbar" button.

General Interest and Stimulating Change

Overall, the participants found the tool interesting, and the information made them want to learn more. However, few responded that it motivated them to reduce their own or other's transport CO_2 emissions. Therefore, it seems clear the tool could be useful as an introduction to direct people on to further information.

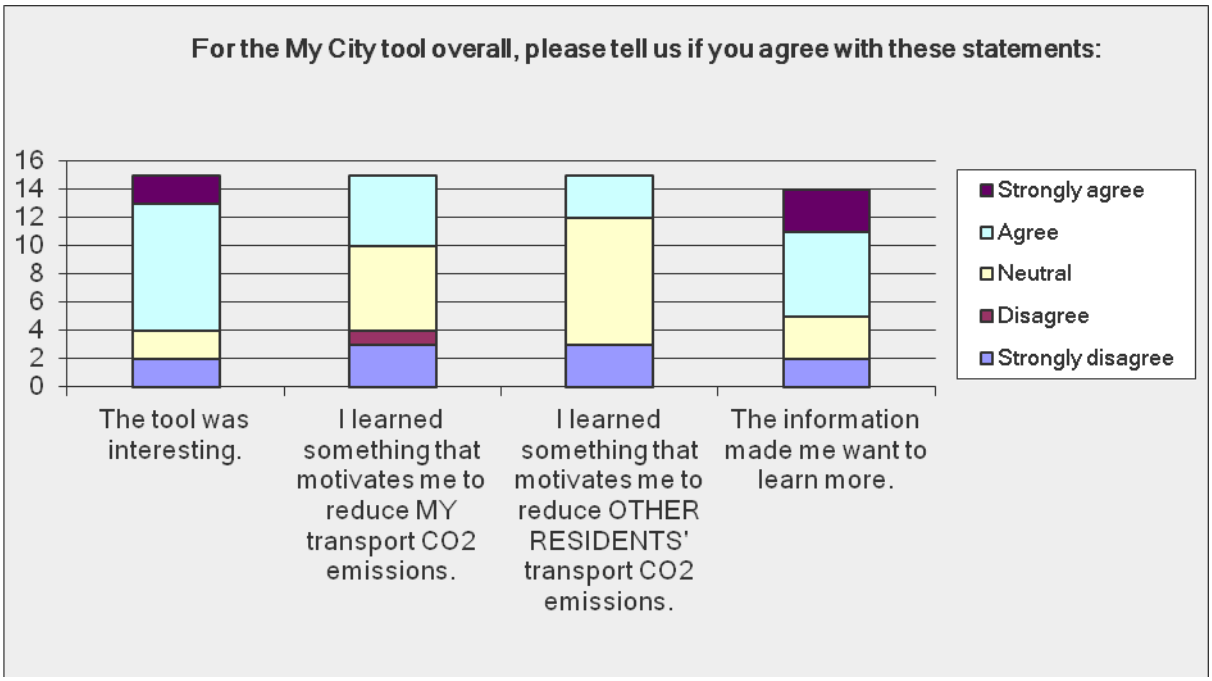

Figure 4-1 Overall results for My City tool.

What did they like most about the My City tool?

In response to the question of what they liked most about the tool, there were five comments about the amount of information available, three about comparing cities, and three about the design of the tool.

How useful is the tool to themselves or their work?

The majority of participants thought that it would be useful to themselves (60%) or their work (73%). This is a very positive response for the My City tool and suggests that this is a key feature of the CATCH platform.

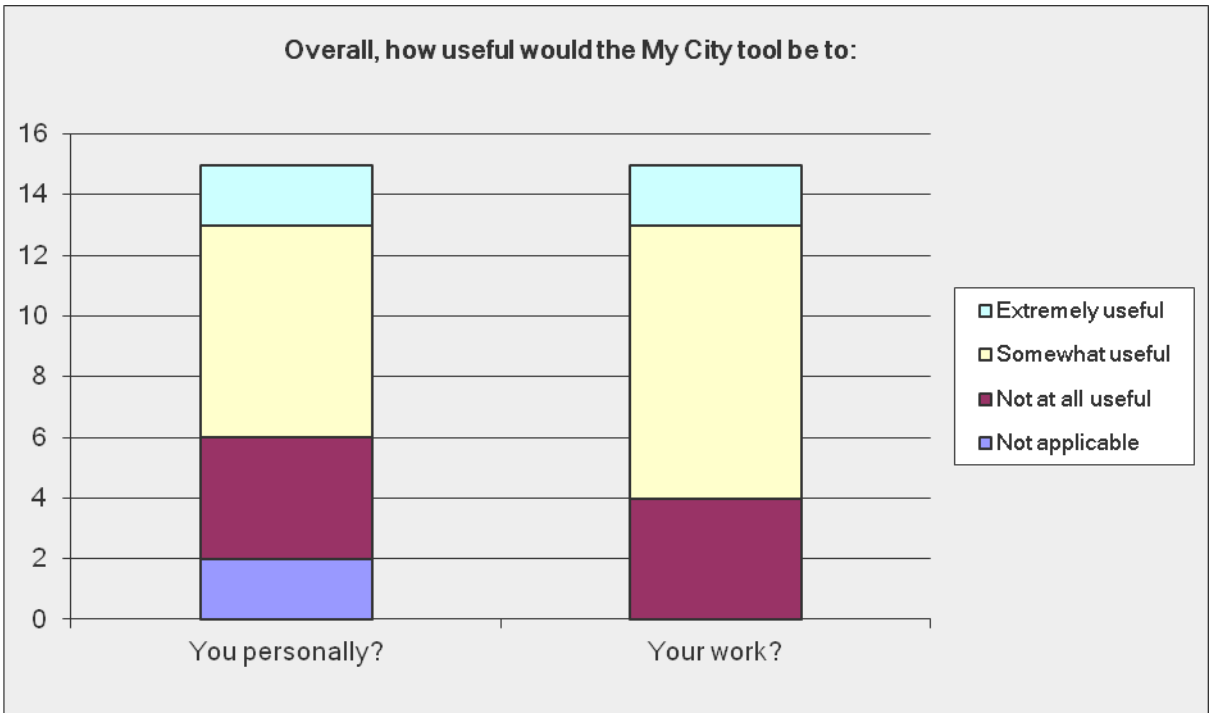

Figure 4-2 Useful to the individual personally or at work.

How would they improve the tool?

There was no point that emerged highly often here. Making the purpose of the tool clear was the most common with three responses, followed by organising the information more (two responses). The other comments were single comments: the use was not intuitive; there was too much information; and the response speed of the tool.

Affecting Perceptions and Motivating

The majority (53.3%) of users presented with their city's per capita transport CO_2 emissions felt that they were high. Three users felt that it was low and four that it was reasonable.

Of the users that noticed the comparison city (10), 70% felt that their own city should reduce their CO_2. The My City tool is designed to always show a city that has lower CO_2 levels as an initial reference point. The other three users said the comparison city did not affect them.

Of the users who commented that they were not affected, one wrote that they didn't know how the data was collected. The other wrote that they didn't know the comparison city.

Co-Benefit Section

The majority of people said that they did not check the co-benefits area, though nearly 40% of those said that they didn't notice, as opposed to not being interested.

Of those who did check them, they were asked about use, understanding, and interest. 75% changed the indicator at least one, and the majority of those checked more.

Most users found the images easy to understand, though the Health diagram received one “difficult” response.

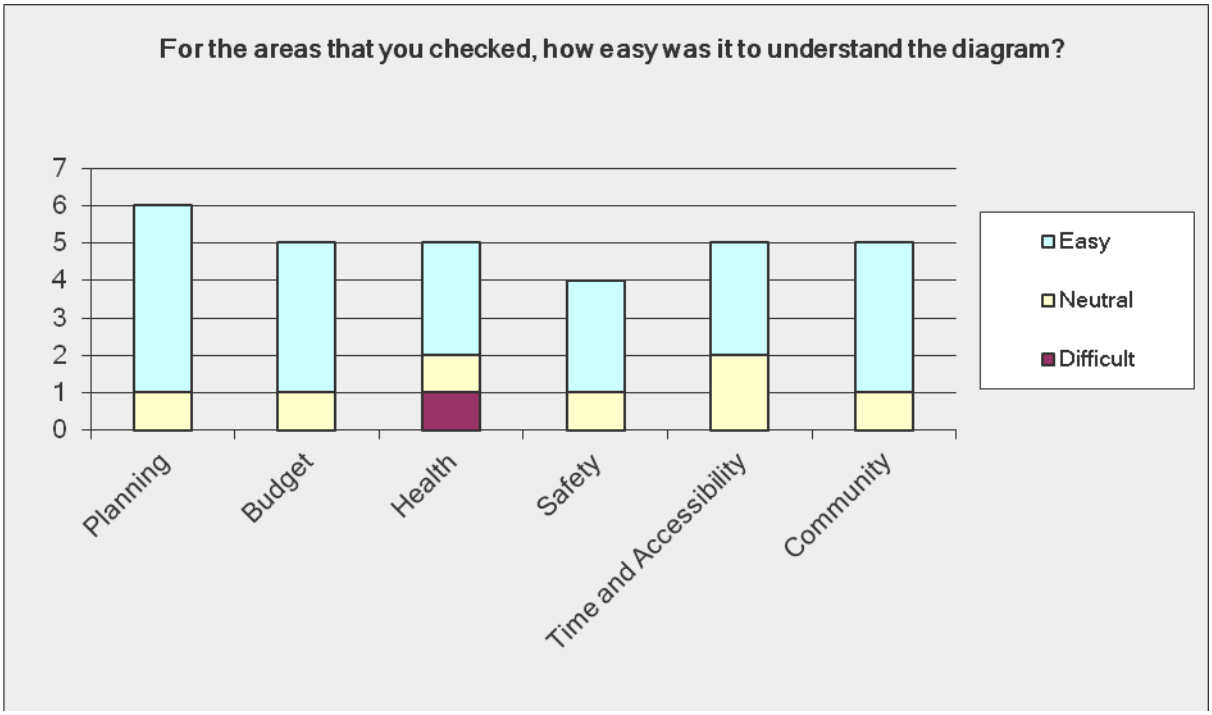

Figure 4-3 Understanding the Co-Benefit diagrams.

Most users found the diagrams interesting, but one user found them uninteresting, though easy to understand.

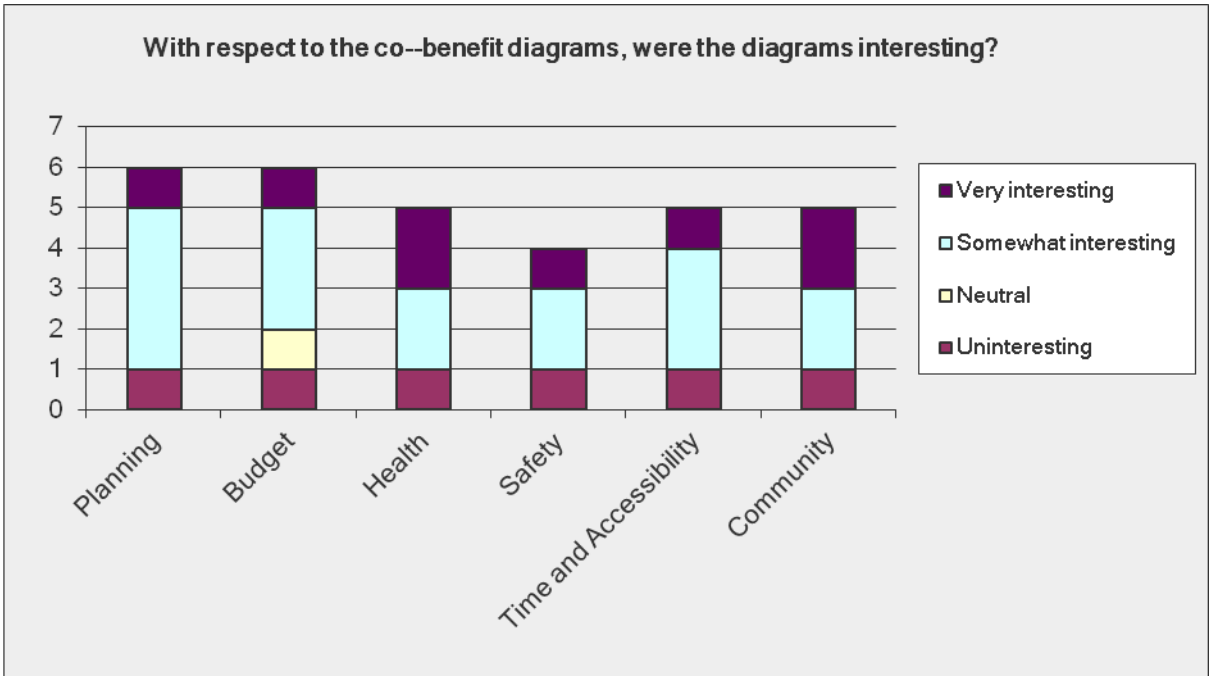

Figure 4-4 Interest level of the co-benefit diagrams.

How Can My City Improve Feature

Seven users out of a potential nine used this feature. Of those, most found the information interesting, though relevance must be increased.

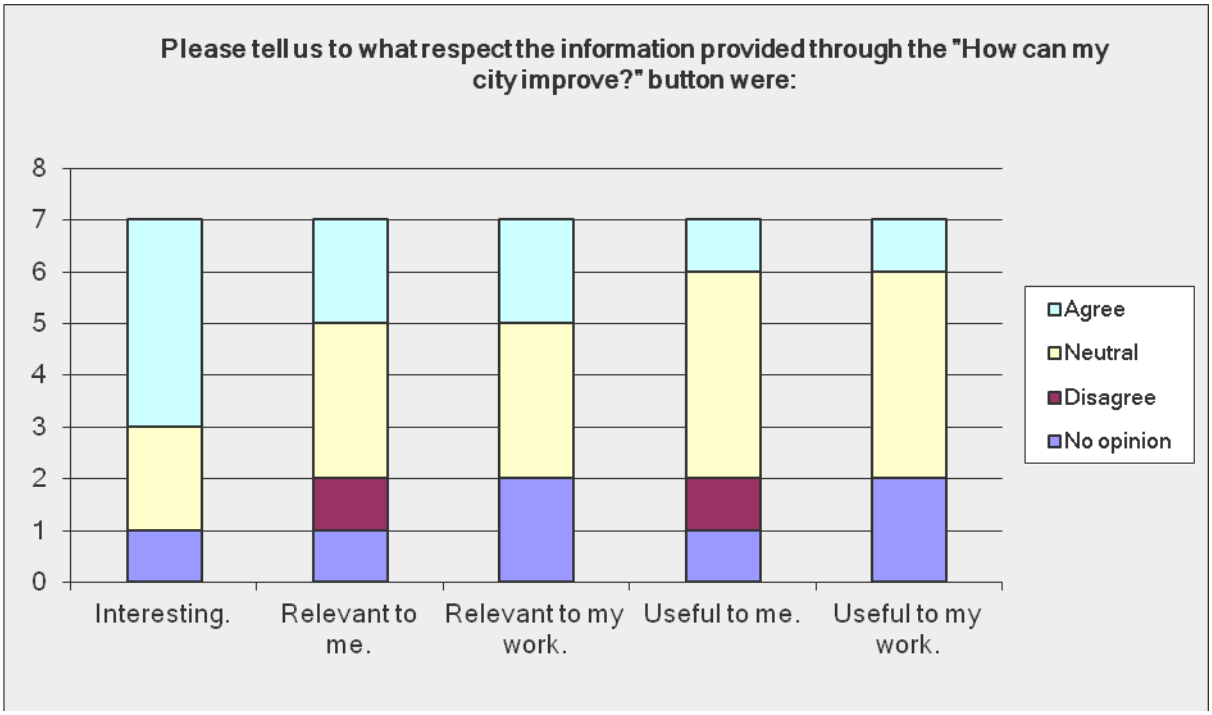

Figure 4-5 "How can my city improve" button.

The My City tool was well received by those who used it. Its main effect may be to stimulate interest in learning more, but this is currently not supported by the content in the Knowledge Platform.

4.1.1.4 Content

The users were not directed to seek out content, nor create it. Fourteen at least briefly looked at. It was perhaps not clear that they could create content, as there was no mention of attempting this. However, with respect to finding content the users were asked about whether they found content on awareness, knowledge, behaviour, or actions to reduce CO_2. Ten users reported having found at least one of those. It is perhaps notable that only five people reported spending a little longer on it, but that seven to nine people reported finding material related to one of those four areas.

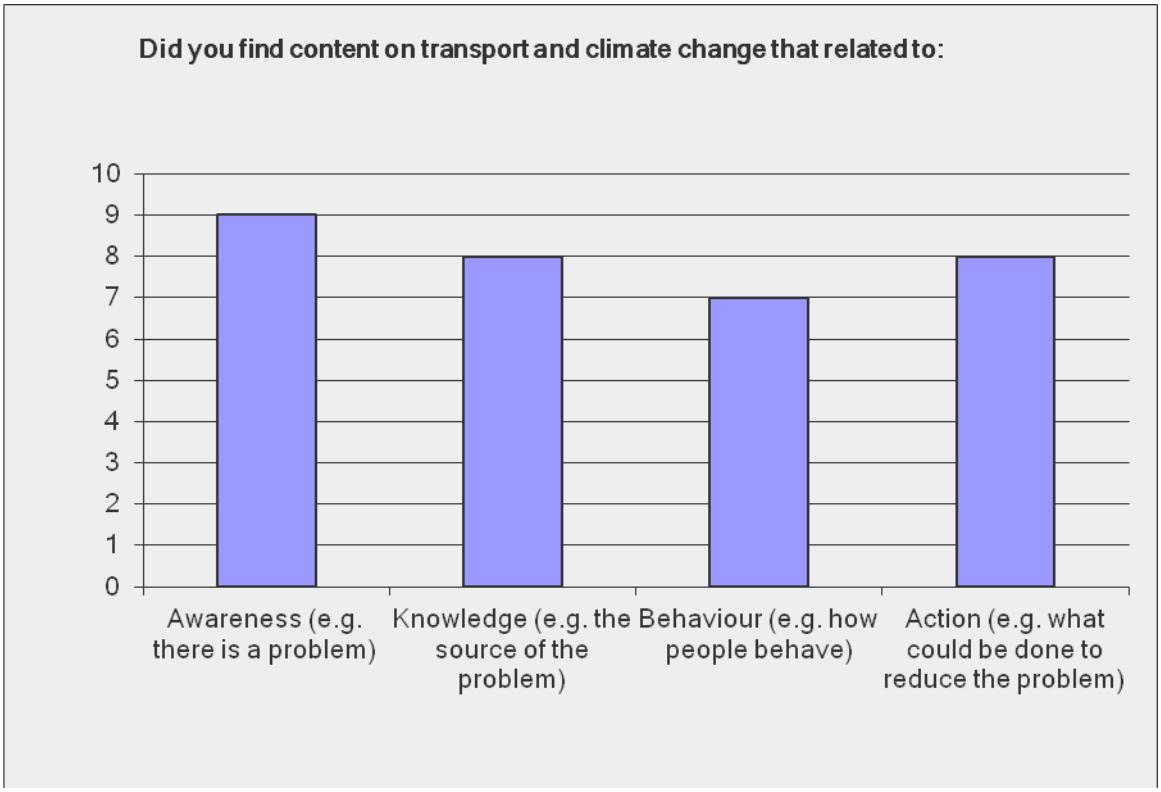

Figure 4-6 Content on different areas.

4.1.1.5 Improving the CATCH platform – suggestions from participants

A number of questions related to improvements for the platform (Improving the Platform). There were 17 comments specifically highlighting technical problems with using the platform. There were 26 comments related to the usability of the platform. There 10 comments related to how the content was organised. There were four comments related to guiding the user better on the use and purpose of the platform and its various features.

4.1.2 Summary

Overall, the participants felt that the platform needs significant technical and user-focused design improvements. A number were clear that the platform was not ready for a general launch. Addressing technical and design failures are critical to the success of the platform, as users highlighted. The My City Tool and the content organised under “Liveable Cities” are likely the two key features of the platform and are discussed further.

The My City tool was the one feature that was both interesting and had an overall clear purpose. Making this tool a clear feature of the platform and perhaps the starting point that leads people to content might be a better entrance to platform use.

The participants who spent some time reading content found useful information, but there were technical problems loading the information (e.g. error messages or time-lags that lead them to think the page was blank) for others. As well, there was no clear distinction between the different levels of the information and people felt that better organisation of the information was required. As one participant put it, if they just want to search for information, why not use Google? The purpose of this information is to lead people to useful information as well as being a repository, but it is not succeeding at that currently.

4.2 General Public

The purpose of this exercise was to collect user feedback on the pilot version of the platform so that the developers could better focus the next iteration of development. Validation focused on technical issues, while the evaluation looked at wider responses using the platform including whether it is meeting the goals of the project and the design guidance that came out of WP1 (Behavioural Grounding) and WP2 (Design).

Although the purpose of the CATCH platform was linked to climate change, transport was not mentioned by this group. Less than one quarter thought that their awareness was improved. Problems related to navigation and the organisation of information likely affected this. Along with technical and navigation problems, participants felt that they had to search for information, as opposed to being led to relevant information.

The function, “Liveable Cities” was rated the most interesting and it was the only function where the purpose was clear for more than 50% of individuals. However, a number of individuals were unable to load information while others could not load the My City tool. The majority of users who used the My City tool thought it was interesting.

Major problems and points to improve, related to navigation, layout, “easier content” (audience-appropriate), and technical aspects (for example loading speed).

4.2.1 General Public Evaluation

Following the preliminary release of a working version of the platform, a validation and evaluation was conducted with 30 general public users of which 19 were able to use the platform and complete the survey. Of those who were unable to install the platform, two participants were using Mac computers, but the majority (73%) reported using a regular PC with Windows OS. Summary demographics are shown below in

Table 4-4.

Table 4-4 Summary demographics of participants.

	Overall (n=30)
Age (yrs)	average: 42 (range: 21-72)
Gender	
Female	52%
Education	
less than16 years	48%
16 or more years	44%
Still studying	8%
Employment status	
Employed full-time	60%
Employed part-time	16%
Retired	16%
Other	8%
Country	UK (100%)
Environmental Stage of Change	
I don't worry about climate change.	42%
I worry about climate change and would like to lower my CO_2 outputs, but don't know what to do.	52%
I am planning to lower my CO_2 outputs.	6%
I have lowered my CO_2 outputs in the last year.	29%

4.2.1.1 Overall impressions

In order to gauge whether the participants were able grasp the overall message of CATCH, they were asked, “What is the CATCH platform about?” Of those who were able to use the platform (19), 17 responded to that question. All seventeen knew that the platform information was related to the issue of climate change, though no responses mention transport.

Half of the users found it very or extremely easy to install the platform. However, nearly a third of them were unable to install it which is substantial. As well, only one quarter said that having to install the program would not be a barrier to user.

Next we examined their self-reported improvement about awareness of the impacts of transport on climate change (Table 4-5). From the Table, The results show that less than a quarter felt that their personal awareness had improved at any level.

Table 4-5 Responses to the statement, "Having used the platform, I feel that I am more aware of the impacts of transport on climate change at a:"

	Agree	Neutral	Disagree
Personal level	**23.8%**	**28.6%**	**47.6%**
City level	**19.0%**	**33.3%**	**47.6%**
National/international level	**14.3%**	**23.8%**	**61.9%**

To identify the best aspects of the CATCH platform, users were asked what they liked best about the platform. Of the 16 comments, the most common response was “nothing” (6), followed by the potential for interaction and sharing knowledge, My City (3), then the concept (2).

Specific comments for improvement were requested. The most responses related to navigation (7), then consideration of the audience (6), layout (5), speed (3), and wording (3).

Related to that was a question on what would make them use the platform more. Of the nineteen comments collected, ten related to navigation, eight to the layout, three to greater interaction, three to more relevant information, two to being able to use the platform (technical issues), and two to showing where the information was coming from.

The platform purpose was more ambiguous to the general public. However, this might not be a bad thing, as the grounding work highlighted that to get people who are not environmentally motivated, other motivations to change behaviour would be key. Unfortunately though, having used the platform, only roughly one in five said that their awareness had increased, though this may be related to technical difficulties that many experienced.

4.2.1.2 Key Features

The participants were asked in three separate questions to respond to questions on whether they used the different features of the platform, how interesting they were, and whether their purpose was clear. A summary of their responses are shown in Table 4-6.

Table 4-6 Reported use, interest, and clear purpose of most features of the platform.

	Looked at briefly	Explored/spent some time	Interesting	Clear purpose
The platform overall (n=23)	-	-	14.3%	20.0%
Editor's choice (n=15)	80.0%	6.7%	50.0%	28.6%
Liveable cities (n=16)	31.3%	43.8%	61.5%	53.3%
Co-benefit tools (n=15)	60.0%	26.7%	35.7%	33.3%
Leaders (n=16)	50.0%	25.0%	46.2%	38.5%
Events (n=14)	57.1%	14.3%	25.0%	30.8%

Extras (n=15)	53.3%	13.3%	-	-
My Content (n=15)	33.3%	26.7%	-	-
Admin (n=14)	35.7%	21.4%	-	25.0%
Contacts (n=15)	40.0%	20.0%	9.1%	25.0%
Groups (n=15)	33.3%	33.3%	25.0%	-

Liveable cities received the most positive responses, with most people saying that it was interesting. The “Leaders” feature received low responses, but it should be mentioned that the write-ups were only available mid-way through the survey time period.

The purpose of the functions and features are not clear to users, apart from the Liveable Cities section.

Few features of the platform stimulated users to spend much time. Therefore a key direction for future work is to captivate the audience better.

4.2.1.3 My City

Eleven individuals tried the My City tool. The majority (55.5%) found the tool by just clicking on the coolbar button.

General Interest and Stimulating Change

Overall, the majority of participants found the tool interesting, but few felt that they were motivated to reduce their own or other residents’ transport CO_2 emissions.

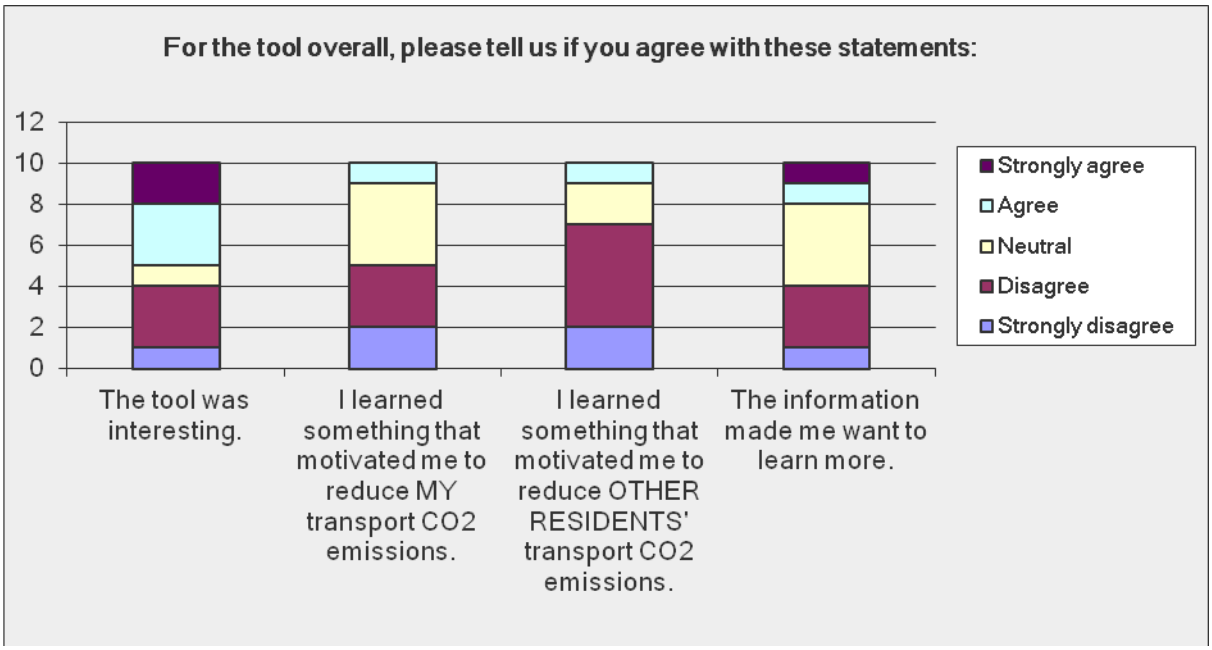

Figure 4-7 Overall My City responses.

What changes would most improve the My City tool?

Five participants offered suggestions on how the tool could improve. Three comments related to improving the graphics and making the diagrams easier to understand, while two comments related to using the tool.

What did they like most about the My City tool?

Five participants responded to this question. Two respondents liked that it was visual as opposed to just text. Another two respondents liked being able to compare their city's results with other cities'. The last comment related to interest in the topic of the environment.

How useful is the tool to themselves or their work?

40% of participants felt that the toll would be useful to them personally and another 14% said it would be useful at their place of work. The majority however said that it would not be useful personally or at work.

Affecting Perceptions and Motivating

All participants chose Bristol as their city. The majority (70.0%) of users presented with their city's per capita transport CO_2 emissions felt that they were high. The remaining 30% felt that it was reasonable.

Of the users that noticed the comparison city (7), 71.4% felt that their own city should reduce their CO_2. The My City tool is designed to always show a city that has lower CO_2 levels as an initial reference point. The other two users felt that their city's CO_2 levels were not a problem.

Of the users who commented that they were not affected, one wrote that the comparison city was, "not a true comparison city!" The other said simply that their city's CO_2 levels didn't seem high.

Co-Benefit Section

The majority of people said that they did not check the co-benefits area, though nearly 55.5% of those said that they didn't notice, as opposed to not being interested.

Of those who did check them (3), they were asked about use, understanding, and interest. All users checked health, most check Safety, Community, and Planning, while only one person checked Budget and Time and Accessibility.

The Health diagram was the only diagram to receive a "difficult" response. The diagrams were generally felt to be interesting, with no "uninteresting" responses.

How Can My City Improve Feature

Two users out of a potential ten used this feature. Those users did not find relevant information.

The My City tool was found to be interesting my those who used it and may be a better "entry point" than the current starting page.

4.2.2 Content

Thirteen users responded to a question on content. With respect to finding content the users were asked about whether they found content on awareness, knowledge, behaviour, or actions to reduce CO_2. Nearly all users reported finding information related to awareness, and more than half found information related to knowledge, behaviour, or action. Although this suggests that relevant information might be available, earlier responses related to consideration to the audience and guiding people towards introduction information would be better.

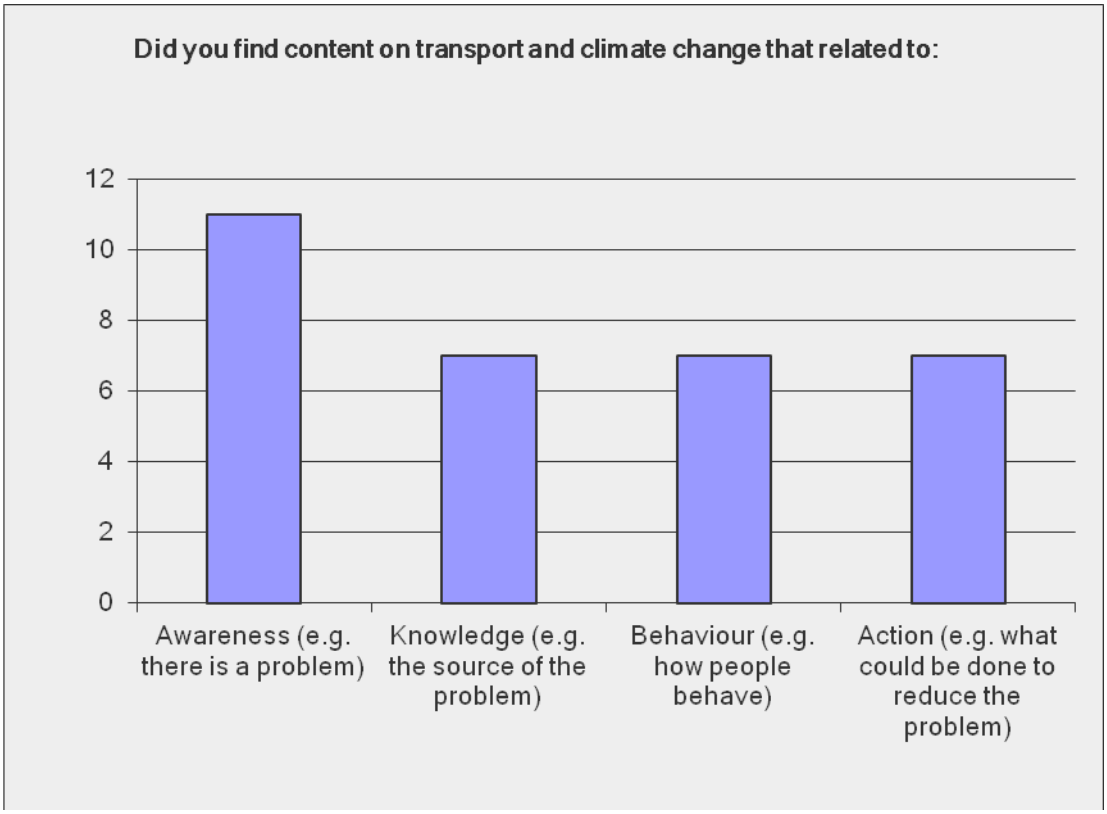

Figure 4-8 Content on different areas.

4.2.3 Recommending CATCH

Nearly 2/3rds of participants would *not* recommend the platform to friends or colleagues. This highlights that significant work remains to improve the product. As one person wrote, “it is not a very pleasant experience using it.”

4.3 Summary

Overall, the participants felt that the platform needs significant user-focused design and general use improvements. Addressing technical and design failures are critical to the success of the platform, as users highlighted. The My City Tool and the content organised under “Liveable Cities” are likely the two key features of the platform and are discussed further.

Liveable cities was the most interesting aspect for the users, but that may relate to technical problems as only half of the participants were able to use the My City tool. Of those who used the tool, half felt that it was interesting.

Participants were able to find information on awareness, knowledge, behaviour, and action, but they felt that better guidance to relevant information would improve usability. This included guiding users to information that was not so academic or dry. The interactive nature of the My City tool was appreciated and quickly digestible information would be one way to retain interest and allow users to skim for things of interest.

5 Summary of Evaluation Stages

This chapter brings together the findings from each of the three stages with consideration to the final product. Its purpose is to highlight what the external (to the project) users found lacking and to suggest through "Future Recommendations" (italicised) what should be addressed.

5.1 Early evaluation

Early evaluation built on design recommendations by asking a few specific questions related to design in the Co-Benefits and Scenario tools as well as filtering for the Knowledge Platform.

From those recommendations, nearly all of the Co-Benefit and Scenario tool recommendations were followed. The one outstanding recommendation was to use a percentage of the recommended amount to communicate CO_2 information. From attempts to apply this, the question arose as to what the "recommended level" should be: the 2020 target, the 2050 target, a "sustainable" target?

Research gap: what is the best "recommended level" to use to improve awareness/motivation to change to more sustainable behaviours?

Filtering is difficult, but desired by users. In the Co-Benefit tool, it is possible to filter by population quartile and nation. However, filtering by other important policy considerations was not incorporated, nor was by mode. These two considerations were ranked as the most important to the transport practitioners who responded to the questionnaire.

For the Knowledge Platform, it is conceivable that if all the information was tagged by the filter categories, one could search along those themes. However, it is not currently explicitly required of those uploading information.

The main missing component from this early evaluation for the Knowledge Platform is likely feedback from practitioners on the information content. It is possible, if the content creator chooses, to add comments and the site should automatically highlight the content that is most frequently viewed, however there is no "voting" mechanism that would allow users to find the most *useful* pieces of information, as opposed to ones that might just have a good title.

Future recommendation: Implement a "voting" system so that users can help identify the most useful/interesting pieces of information.

5.2 Midpoint review

The midpoint review was limited in two aspects. The knowledge platform was not properly functioning, and the number of external participants in the meeting was small as a result. The main findings from this stage were that "best or good practice" along with the Scenario tool were two important features of CATCH that should receive most resources so as to improve them.

5.3 Final review part I

The final review was carried over two stages for the evaluation. The first was with mostly transport professionals and a few general public users. Overall, this group could be characterised as being highly educated, female, and highly aware/active with respect to climate change.

At this stage of the technical development, nearly 20% of the participants were unable to launch the CATCH platform. As a result, technical barriers were one of the key target points for improvement. The second major area was user-friendly design, followed by better

audience consideration. Layout and content organisation were specific recommendations for improvements.

Most users (55%) understood the purpose of the CATCH platform, with a further 20% recognising the connection with climate change. However, most did not find that it increased their awareness of the problem.

The Co-Benefits tool (also known as the My City tool) was rated the most interesting and had a clear purpose. However, in general, the features of the platform were not found to be interesting or clear in their purpose.

Future Recommendation: Each function must have a proper introduction to its proposed uses and purpose.

Future Recommendation: Better tailor information, better identify information that is relevant to different segments (e.g. general interest, detailed information, etc.).

5.3.1 My City/Co-Benefits tool

This tool was at a more advanced stage and more detailed questions were asked to the users who tried it out. Those users who tried the tool found it interesting and that it motivated them to want to learn more, but not necessarily motivated to change behaviour.

Most of the users found the tool useful for themselves and nearly 75% felt that it was relevant to their work.

The use of the comparison city was found to increase the user's perceptions of whether their city should reduce its CO_2 outputs.

Future Recommendations: Improvements could be made in:

- *the trust of the data,*
- *the "health" image, and*
- *insuring that more relevant information is returned for the "How can my city improve" button*

Future Recommendation: Consider using the My City tool as an entry point to stimulate users to investigate more.

5.3.2 Content

The greatest number of participants found information related to awareness, followed by knowledge, action, and finally behaviour. It was not clear to users that they could create their own content.

Future Recommendations: Highlight that the site is dependent upon the community to input relevant information.

Future Recommendations: Information could be better organised with consideration to the audience (e.g. an action for a city to reduce CO_2 is not necessarily relevant to an individual trying to reduce their outputs).

Although the second recommendation is feasible through tagging, it is not implemented in the recommended key words, not is it required of new content.

5.4 Final evaluation part II

The second final evaluation was with participants from the general public only. These individuals were recruited through a professional recruitment agency. There was a better balance between those with higher education and those without. The vast majority of the participants were either not concerned with climate change or didn't know what to do. Lastly, this group was roughly gender balanced.

Although improvements had been made between the previous evaluation and this evaluation, the overall responses were more negative. The overall purpose of the platform

was not as clear to this group, with no mention of transport, although all respondents stated that it related to climate change.

Technical and layout design concerns continued to dominate the recommended improvements. As well, consideration to the audience was also evident here with a number of individuals feeling that the content was very high (detailed/complex) level.

Despite having lower awareness to begin with, there was greater disagreement with the statement that the platform had improved one's awareness.

The feature, "Liveable Cities", was the most interesting and had a clear purpose. For most features though, the purpose was not clear.

(As above) *Future Recommendation: Each function must have a proper introduction to its proposed uses and purpose.*

Future Recommendation: Techniques to capture the audience's interest better must be found.

5.4.1 My City tool

Although these individuals were paid to try the platform out, only a few were able/willing to try this tool. Of those who did, they found it interesting, with a clear purpose, and well designed. Its main benefit though seemed to be in stimulated the users to seek out more information, with few reporting that it motivated change in behaviour.

Nearly all users felt that their chosen city had high CO_2, with that percentage increasing for those who noticed the comparison city.

As well, related to recommendations from the first stage of the evaluation, users found the ranking of cities useful and helpful with interpreting their own city's results.

Few users checked the Co-Benefits' section. As with the previous users, the health diagram was difficult to understand.

(As above) *Future Recommendations: the health image needs to be improved.*

Future Recommendation: Consider using the My City tool as an entry point to stimulate users to investigate more.

5.4.2 Content

Most users were able to find information related to awareness, behaviour, action, and knowledge. However, it was repeated many times that better consideration of the audience's knowledge state would improve the use of the platform.

Future Recommendations: Distinguish information as general/introductory and detailed/advanced (or some similar and appropriate distinction) to better guide people to appropriate information.

6 Internal Review

This chapter responds to the main objectives of task 1.4. That task, Monitoring and Evaluating, had three key objectives:

1. Did the CATCH project meet its objectives (with particular focus on improving transport CO_2 awareness)?
2. Was the grounding work evident in the final product?
3. Was the platform design effective at increasing awareness of transport CO_2 and motivation or intention to lower transport CO_2 emissions?

Each of those objectives is considered in turn in the following sections.

6.1 Meeting CATCH Objectives

This section considers the main CATCH project objectives as described in the Description of Work and whether the project has met these objectives. Each objective is discussed separately and is considered with respect to fully meeting the objective, partially meeting the objective, or failing to meet to the objective. The evaluation outcomes are italicised at the end of each subsection. Although the authors of this report are part of the CATCH consortium, the authors strive to be objective.

6.1.1 Grounds the project in a detailed understanding of the perceptions and attitudes of citizens and stakeholders towards greenhouse gas reduction in mobility and develops a knowledge engine based upon the motivational triggers derived from this understanding

The first part of this objective was met by the tasks 1.1 *Behavioural Inception Report* and 1.2 *Grounding Interviews/Workshops* whose outputs D1.1 and D1.2 contain knowledge founded on published literature and creates new knowledge through quantitative and qualitative research.

The second part of this objective relates to the development of the knowledge engine based upon motivational triggers derived from the understanding developed in the grounding work. Chapter 5 summarised the results of the external evaluation of the CATCH platform. Those findings suggest that although the platform must improve in its technical functionality and layout design, there is content based on the grounding work that relates to motivational triggers in both the knowledge engine and the interactive tools My City and Scenarios.

Evaluation outcome: Objective met.

6.1.2 Enhances and increases awareness of the environmental impacts of mobility and potential solutions to their management

The first part of this objective was initially addressed in tasks 1.1 and 1.2. Task 1.1 looked at the current state of knowledge and application of CO_2 communication. Task 1.2 addressed the finding that CO_2 was not being communicated effectively and through both qualitative (focus groups) and quantitative (survey) analysis recommended a more contextual approach to presenting CO_2 information.

Further to the above, through the application of behavioural economics, the research carried out in task 1.2 discovered that perceptions of sustainability can be influenced through design considerations. One key consideration is that the CO_2 attributes of alternatives will greatly affect the interpretation of sustainability (anchoring effect). This means that designers must consider what alternatives are shown, as this will affect how individuals perceive the sustainability of the results.

A second key consideration is that if the mass of CO_2 is presented using loss framing (highlighting a negative difference between two alternatives) the two alternatives are *perceived* as more different. This means that an alternative with lower CO_2 outputs can be made more distinct from other alternatives, hopefully increasing the likelihood of it being chosen. The word "hopefully" is used as this has not been empirically tested.

The second part of this objective is to enhance and increase awareness of the potential solutions to their management. This was addressed in a number of ways. The Co-Benefits tool highlights the best performing cities in terms of transport CO_2 per capita. Users can then click on those leaders to search for knowledge contained in the Knowledge Platform. Content is user dependent, so the ability to find relevant information on each city will require a community of invested users.

The second part of the objective is also met by highlighting and linking to useful knowledge repositories on the subject such as The Urban Mobility Portal (ELTIS).

Evaluation outcome: Objective met.

6.1.3 Enables travellers to make informed climate-friendly travel choices

The CATCH platform addresses this objective in a number of ways. It was never the intention of CATCH to create another carbon calculator or travel planner, but exemplar examples of such tools are currently loaded on the platform and more could be added if the need exists, or if users wish to add them.

Information and evidence exist in abundance about more sustainable transport choices. Example information has been loaded as content onto the platform. Additional information can of course be added by future users.

Evaluation outcome: Objective met

6.1.4 Empowers public transport operators, city managers and other mobility stakeholders to more readily and accurately incorporate environmental opportunities and challenges into their planning and innovation processes

Although this objective is not explicitly met by the current platform, it is feasible. From the grounding work, in particular interviews conducted in task 1.2, it was apparent that reliable/trusted sources of information that could be used in proposals/evaluations of projects were needed. However, it was not possible for the CATCH project to collect such information for all stakeholders. Although it was explicitly included, the CATCH platform is a content management system where knowledgeable users could load content that meets this need.

Evaluation outcome: Objective possible, but not currently met by the user content.

6.1.5 Understands the potential for change in climate-friendly behaviour resulting from the introduction of mobility packages and measures targeted on GHG reduction. These measures might include taxes, user charges, carbon trading schemes, incentive/reward schemes, etc.

The CATCH platform addresses this through by highlighting what cities have the lowest per capita transport CO_2 and pointing users towards "Leader" cities. Differences obviously exist between model predictions of outcomes and "real world" outcomes. By using a measure such as the per capita transport CO_2, "Leader" cities are found which drives research and policy analysts to examine why those cities are succeeding. The Knowledge Platform allows for content to be added as it is revealed.

With respect to the latter part of the objective, grounding research challenged whether economic levers were the appropriate tools for a social dilemma such as climate change (see D1.1). However, such tools are discussed in various knowledge repositories such as the Urban Mobility Portal (ELTIS; www.eltis.org) or the European Platform on Mobility Management (www.epomm.eu).

Evaluation outcome: Objective possible, but not currently met by the user content.

6.1.6 Links the knowledge platform to a package of mobility policies and measures which ensure that the combination of such measures and the knowledge platform encourages behavioural change

The CATCH project addressed this objective through its Knowledge Platform and interactive tools. The Scenario tool for example could be used to find trends in a number of different indicators. Currently however, it was not possible to develop trends of transport CO_2 for cities as such data does exist reliably over time.

Through grounding work described in D1.1, a number of exceptional websites have been highlighted that discuss behavioural change. Where that information did not directly address transport concerns, the report attempted to make the connections. As research grows in this evolving area, it will become clearer what methods might work better in what situations.

Evaluation outcome: Objective possible, but not currently met by data and user content.

6.1.7 Ensures that new behavioural change mechanisms will be exploited, integrating the global dimension of GHG reduction with individual behavioural change

The CATCH project addressed this objective through its grounding research (D1.1, D1.2), exploitation efforts (see CATCH Final Report), its expansive coverage of per capita transport CO_2 for cities across Europe (see D3.2), and the capacity for expansion of content in both the database (see D3.2, D4.3) and user content (D5.2). However, transport CO_2 at the city level is only currently estimated for European cities and an expansion to include cites from all continents would improve global consideration.

Evaluation outcome: Objective met.

6.1.8 Enhances the transparency and public understanding of climate change policies and thereby increases trust

The CATCH platform can be used by users to increase transparency only if used for that purpose. It is currently not explicitly addressing this objective.

Evaluation outcome: Objective possible, but not clearly implemented.

6.1.9 Section Summary

Of the eight objectives set out in the Description of Work for CATCH, four were deemed to be met by this evaluation and four were possible, but were not deemed to be fully met. In most of those cases, a tool has been created that would allow for those objectives to be met, but the content to meet that objective must be developed by users. That latter point is possibly a circular cause and consequence (e.g. a “chicken or egg” problem), but the platform must first be reliable and well designed in order to attract and retain users.

6.2 Implementing Grounding Research

One requirement of the evaluation was to examine what and how concepts and recommendations from WP1 (Grounding) and WP2 (Design) were developed and incorporated by the technical teams. The full list of findings, concepts, and recommendations can be found in D1.1, D1.2, and D2.1, however, the main recommendations have been included in this report as *Chapter 12* Appendix C: Topic Guide for Final Evaluation Focus Groups

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This section will highlight what has clearly been implemented and what aspects are possible, but not explicitly incorporated. Aspects that are deemed important, but which have not materialised in the outputs are included in Chapter 7 Recommendations for Future Work.

6.2.1 Explicitly Implemented

This section specifies what recommendations have been explicitly implemented in the CATCH platform. It is distinct from the following section which describes recommendations that are possible with the platform, but not currently obvious to users.

6.2.1.1 Designing the presentation of information to improve motivation.

Recommendations from early work (D1.1 and D1.2) in the CATCH project highlighted that information could be designed to influence interpretation and motivation. The inclusion of this concept is most clearly seen in the Co-Benefits tool developed by Systematica.

In the Co-Benefits tool a number of algorithms exist to influence the interpretation of results. These include:

- A better performing city of the same population quartile (*peer comparison*) is automatically shown to display that improvement could be made. (*Default option*, but user can select other comparison cities if they desire).
- Displaying a league table that *highlights the top performers* and where the user's city falls.
    - This also relates to *social norms*, and by highlighting only the top performs could suggest that is the direction that most should be aiming to achieve. The Co-Benefits tool further makes these results relevant by allowing filtering by nation and population quartile.
- A colour-coded "gauge" ranges from 0 to the highest road transport CO_2 per capita amount included in the database. This related to findings in D1.2 that suggested a budget/percentage type presentation was relatively well understood and gave context to allow for interpretation.
- An estimate of the city's 2020 target (default is a 20% reduction from 1990 levels unless otherwise specified (please see D3.2 for details)) is given to *suggest room for improvement*.
- The data used in the Co-Benefits and Scenario tools is filtered down to the *smallest geographically relevant level*: the city/large urban zone. On a continental (Europe) level, the city is the smallest geographically relevant level possible at the current time (see D3.2).

The automatic presentation of a better performing city (with respect to per capita road transport CO_2 amount) could also stimulate *uncertainty* that one's city is doing "good enough".

6.2.1.2 Allowing users to enter with their motivations/priorities.

The D1.1 report highlighted that people who were not concerned about CO_2 information should be allowed to enter through their own motivations/priorities. This can be seen in a number of places:

- The Co-Benefits tool asks users to rank policy areas prior to seeing results. The co-benefit tabs are then organised with respect to that ranking.
- In both the Co-Benefits tool and the Scenarios tool, various indicators are available which the user can select.
- Factsheets were developed that highlight how different areas of concern/policy are related to transport.

- Within the Knowledge Platform, information is organised with respect to different motivations.

6.2.1.3 Social Networks

It is both useful and important for people to link to others as a source of information and support. The Knowledge Platform allows users to register, make contact with other users, and create groups. Further, it allows users to post to establish social networking such as Facebook, StumbleUpon, Buzz, Digg, Reddit, Delicious, and Twitter.

Through Forums, the users can also post questions/start discussions that could help highlight other users who are facing similar problems, or who might be able to recommend solutions.

6.2.1.4 Address low awareness of transport CO_2

A generally low awareness of transport CO_2 information was found in both the literature review D1.1 and in surveys conducted for D1.2. This was irrespective of a person's concern about the environment and daily travel mode.

As discussed in D3.2, estimates of per capita road transport CO_2 for nearly 150 cities were made and incorporated into the Co-Benefits tool. That tool also designed the information to improve understanding and motivation based on findings from D1.2.

Research conducted for D1.1 resulted in recommendations for carbon calculators and found examples of best practice in that field. Those best practice sites are loaded into the Knowledge Platform, however they are not brought to the attention of users and would require the user to browse or search for them.

6.2.1.5 Information through various media types

The Internet allows for communication in a number of different media types such as written, auditory, visual, and video. The Knowledge Platform allows for all of these mediums types to be loaded and includes these as categories that users should specify when loading new material.

6.2.1.6 Recommend locally relevant actions/information

The Co-Benefits tool includes a button that allows users to search "How can my city improve?" This button automatically considers the currently displayed indicator and better performing cities. Although dependent on user inputs, the tool highlights what relevant information exists on the Knowledge Platform.

6.2.1.7 Basic layout recommendations

The D1.1 report included some basic layout recommendations from reviewed literature on carbon calculators. The Co-Benefits tool followed these recommendations where relevant.

6.2.1.8 Link CO_2 to other areas

Findings presented in D1.1 suggest that most people are not sufficiently motivated by environmental concerns to change their behaviour. Further, interviews with transport planners found that linking CO_2 reductions with other policy objectives would be important in selling sustainable projects to decision makers.

The Co-Benefits tool Scenario tool include many indicators that cover a wide range of areas which are not directly "transport" indicators, but are linked. Factsheets were created to highlight the links between policy areas/aspects of daily life and transport. In the Knowledge Platform, information that is loaded can be linked (and should be) to various domains of knowledge beyond traditional transport considerations.

6.2.1.9 Trends

The Scenarios tool has the potential to highlight trends, but interaction with the database needs to be improved. Currently, it is difficult to find what indicators/data exists in the database (see D3.2).

6.2.1.10 Global dimension of GHG reduction

Information from around the globe has been entered into the Knowledge Platform and is/can be tagged by various geographical keywords to help with searching/filtering. The indicators used in Co-Benefits and Scenario tools are currently only available for Europe, but future development could expand this.

6.2.2 Possible, but Not Explicitly Incorporated

This section is distinct from the previous, as this section describes how a recommendation might be possible with the current platform, but is ambiguous to users.

6.2.2.1 Expert opinions

To increase trust in the information as well as helping people who are not as familiar with the knowledge area, experts could perform a number of functions. Examples include highlighting useful information or responding to questions. The Knowledge Platform distinguishes general users from “expert” users and allows expert users to suggest content to the Platform Management. However, all registered users can post questions and develop forums and there is no way to distinguish in that area who is considered to be an “expert”.

6.2.2.2 Local information on transport-linked knowledge/issues

It is possible for local information that is already available on the Internet to be loaded onto the platform and keywords tagged to such pages to help users find them, but there is nothing explicitly established such as a “local transport” button.

Like many of the gaps that exist between recommendations and implementation, this aspect is somewhat user dependent. Users can suggest useful pages to share with the community. However, it would seem possible to incorporate a search engine such as Google to use the user information (e.g. location) to automatically search out such information. The local users could then give feedback on how useful the page is and where room for improvement might exist.

6.2.2.3 Testimonials

It was recommended that testimonials be included so that a personal touch to information would be possible. The potential exists for these, but there is nothing explicit that highlights these to users. Again, it is user dependent to create or find such testimonials, but it is not clear how these would be highlighted to users.

6.2.2.4 Highlighting useful information

This recommendation was not explicitly incorporated, though it is possible if the Platform Managers wish. The Knowledge Platform allows for information to be loaded, and many sites with useful information on psychological factors, marketing, and other communication tools have been uploaded. However, the user must dig to find them and better techniques of highlighting them need to be developed and incorporated.

6.2.2.5 Filter information so that it is more relevant to the user

Different users will be interested in different parts of the Knowledge Platform. It was recommended that information be tagged so that users with low knowledge would be presented with more “introductory” information, whereas those who are experts could more easily find more detailed/advanced discussions.

The Knowledge Platform distinguishes between general users and “expert” users, but this not effect what information they see. It affects whether the information that they load can be recommended to the Platform Managers. This might limit the ability general users to share valuable knowledge and insights.

6.2.2.6 Make it easy to find solutions/answers.

Interviews with transport professionals (D1.2) suggested that information needs to be easy to find, perhaps even prescriptive for those who are new to sustainable transport solutions. Although “best” or “good” practice could be a solution to this, the current system requires the user to know in what direction to search for solutions.

6.2.2.7 Highlight solutions

Leading users towards actions that would help solve the problems is an essential part of change. The Co-Benefit tool developed a button that would bring up relevant information, but it is currently limited by a lack of properly tagged information.

Links exist to useful websites such as ELTIS and EPOMM’s MaxSem that highlight and recommend best/good practice solutions. However, the current system would require every page of those to be tagged to better integrate with the Knowledge Platform.

6.2.2.8 Highlight leaders

A *Leaders* section is included in the Knowledge Platform that highlights leaders for different policy considerations. However, there is no systematic way of identifying these leaders currently.

6.2.3 Section Summary

A number of recommendations from earlier work (D1.1, D1.2, D2.1) have emerged in the tools and Knowledge Platform produced for the project. Over ten distinct concepts have been clearly implemented, while another eight are feasible, though not explicitly incorporated. Many recommendations were not incorporated, but that was expected as the concepts and recommendations from the earlier work went beyond the potential of just this project’s life. The following chapter will summarize overall findings from the evaluation, which will then be followed by recommendations for future work that considers recommendations which did not manage to be included.

6.3 Examining the effect of the platform design on awareness of transport CO_2 and motivation or intention to lower transport CO_2 emissions

This objective of the evaluation was addressed by the grounding research (D1.2) and the last stage of external evaluation addressed in sections 5.3 and 5.4. The presentation of CO_2 information is based on research into the presentation of such information reported in D1.2. This new form of presentation should increase interpretability and motivation over the most common presentation format of only mass. Further, it was found that the automatic presentation of a better performing peer city increased the perception that one’s own city should reduce its transport CO_2 outputs. However, this last point was not empirically tested and can only be inferred from the responses in both the survey and the focus groups which were conducted.

7 Recommendations for Future Work

This chapter includes recommendations from the evaluation team for future work on the platform (including the Knowledge Platform, Co-Benefits tool, Scenario tool). There are two key sections: recommendations from external evaluators; recommendations from an internal review.

7.1 Main recommendations from external evaluations

This section is limited to key recommendations based on results from external evaluations. These recommendations focus on what exists and how it might be improved.

Research gap: what is the best "recommended level" to use to improve awareness/motivation to change to more sustainable behaviours?

Future Recommendations:

- Improve the layout/design of the site.
- Make it an Internet site, not a program to be launched off the desktop.
- Implement a "voting" system so that users can help identify the most useful/interesting pieces of information.
- Each function must have a proper introduction to its proposed uses and purpose.
- Tailor information better, identify information that is relevant to different segments (e.g. general interest, detailed information, etc.).
- Improve the trust of the data.
- Improve the "health" diagram in the Co-Benefits tool.
- Insure that more relevant information is returned for the "How can my city improve" button.
- Highlight that the site is dependent upon the community to input relevant information.
- Information could be better organised with consideration to the audience (e.g. an action for a city to reduce CO_2 is not necessarily relevant to an individual trying to reduce their outputs).
- Distinguish information as general/introductory and detailed/advanced (or some similar and appropriate distinction) to better guide people to appropriate information.
- Improve the search function (Google plug-in?).
- Make the content creation more intuitive.
- Create some standard templates for creating content so that content creators can easily create attractive pages.
- Highlight local initiatives, changes (positive and negative), how that user can get involved, what they could do to make a difference.

7.2 Main recommendations from internal evaluation

The previous section gave recommendations that are derived from analysis of external evaluations. This section gives suggestions that derive from recommendations in D1.1, D1.2, and D2.1 that have not been realised, but are still relevant (considering the direction and objectives of the project).

- Expand the available number of cities where transport CO_2 information is available.

- Continue validating transport CO_2 results (see D3.2).
- Improve links with related information.
- Automate the searching of related information for consideration by “expert” users and the Platform Management Group.
- Assist with the communication of climate change problems: highlight good/best practices in communication and create a “toolbox” that would guide people through the application of different techniques. Many good examples exist in D1.1 which could be expanded upon.
- Make clear links for CO_2 and other indicators obvious.
- Highlight where trends are going in the wrong direction and highlight where the same indicator is going in the desired direction.
- Direct people to exemplars of communicating links (e.g. housing and transport costs at http://htaindex.cnt.org). It is currently possible to link/load such pages, but explicitly pointing people to them is not well integrated.
- Utilise the user information to suggest content.
- Highlight social changes or norms that are in the desired direction. This relates to communication techniques that should be highlighted to content creators and practitioners who must communicate with the public or policy decisions makers.
- Improve the social interaction aspect.
- Professional social websites like Linked-In are currently not supported.
- The search for individuals function needs to be improved.
- Suggest similar users.
- Create a mobile device application.
- Incorporate pledges to change. Link this with social media.
- Explicitly integrate a stage-of-change information provision.
- For example, AWARENESS: offer different concerns about city/neighbourhood conditions (that relate to reductions in high energy travel). This is their motivation to change. Support this awareness with related information, personal testimonies, and emotional motivators. CONTEMPLATION: Suggest some options that the individual could chose to help make a positive change. Request a pledge with a date for activation/completion. Support this with covert or overt prompts. ACTION: Positively reward them for positive action. Get them to suggest ways that they could positively reward themselves for the change (watch out for rebound effects). COMMUNITY SUPPORT: Get them to support others in their efforts to change through testimonials.
- Create a sense of positive change. For example, progressive cities around the world are establishing cycle-share programs -> How can you help bring this to your city?
- Actions to make a change should be organised from “first step” (i.e. easy) through increasingly barrier-prone.
- Potential transport practitioner solutions should have an introduction, a “works best when…”, “useful for addressing…”, applied examples/case studies, and resources sections.
- Frame CO_2 differences as losses to highlight differences.
- Link to services that would allow users to find relevant local politicians.
- Improve the forum’s layout and how interaction is displayed.

8 Conclusions

Of the eight objectives set out in the Description of Work for CATCH, four were deemed to be met by this evaluation and four were possible, but were not deemed to be fully met. In most of those cases, a tool has been created that would allow for those objectives to be met, but the content to meet that objective must be developed by users. That latter point is possibly a circular cause and consequence, but *the platform must first be reliable and well designed in order to attract and retain users.* This issue is discussed more thoroughly in this report and D6.2 Validation.

Recommendations from earlier work (D1.1, D1.2, D2.1's Interim Report) have emerged in the tools *My City* and *Scenarios* as well as the *Knowledge Platform* produced for the project. *Over ten distinct concepts have been clearly implemented, while another eight are feasible, though not explicitly incorporated*. Many recommendations were not incorporated, but that was expected as the concepts and recommendations from the earlier work went beyond the potential of this project's life.

The final objective of the evaluation was addressed by the grounding research (D1.2) and the last stage of external evaluation addressed in sections 5.3 and 5.4. The presentation of CO_2 information is based on research into the presentation of such information reported in D1.2. *This new form of presentation should increase interpretability and motivation* over the most common presentation format of only mass. Further, it was found that the automatic presentation of a better performing peer city *increased the perception that one's own city should reduce its transport CO_2 outputs*. However, this last point was not empirically tested and can only be inferred from the responses in both the survey and the focus groups which were conducted.

The overall theme of the CATCH project (transport and climate change awareness) was clearer to transport practitioners than it was to the general public. The general public were aware that the project was about climate change, but did not mention transport in the survey that was conducted. For many users, significant technical problems existed, that in focus groups were reported to affect the user's response to the platform. As well, the layout and user-friendliness of the platform was felt to be out-dated, with users referring to the 1990s.

The main findings of the evaluation and validation work suggest that technical and user-friendly design must be improved for the platform. The organisation of the information should also be better suited to the different stakeholders with more general information for casual users and detailed information for practitioners or interested members of the public. Better highlighting of the most useful information for each stakeholder group would increase the user-friendliness of the platform. Expanding the content would improve the value of the platform, but currently replies on users generating content. Some automation of this process could improve content availability and reduce the dependency on users.

The My City tool was the most well received aspect of the platform with those who were able to use it finding it interesting, stimulating motivation to learn more, and well designed. Potential points of success for this product of the CATCH project are: followed guidance from earlier work; engaged with the grounding and design teams; developed initial concepts; went through an iterative process of seeking feedback from internal and external reviewers and then addressing problems. For further discussion on the My City tool development please see the Work Package 4 reports D4.1, D4.2, and D4.3.

In summary, the evaluation found that CATCH met its objectives either fully or created a product where it would be possible, but that improvements must be made to the platform's user-friendliness. Grounding work suggested how CO_2 might better be communicated, and much of this was taken up by the My City tool, and to a lesser extent in the Knowledge Platform. Findings from the grounding work and evaluation suggest that these techniques can highlight less desirable CO_2 amounts and motivate people to learn more.

Quite a number of future recommendations exist with respect to improvements to the existing platform, but also relate to recommendations from the grounding which were not incorporated. In particular, a means to identify the most useful information is required. Whether this is through a voting system, or integration with some existing tool such as Stumbleupon must be left to future work.

9 References

AVINERI, E. and WAYGOOD, E.O.D., 2010. *Behavioural Inception Report.* Carbon Aware Travel Choices (CATCH) [viewed 22 July 2010]. Available from: http://www.carbonaware.eu/fileadmin/user_upload/Deliverables/CATCH_DEL_DOC_D1.1_20Behavioural_20Inception_20Report_orginal_V1.pdf.

WAYGOOD, E.O.D. and AVINERI, E., 2010. *Research and Design Report.* Carbon Aware Travel Choices (CATCH) [viewed 13 Jan., 2011]. Available from: http://www.carbonaware.eu/fileadmin/user_upload/Deliverables/CATCH_DEL_DOC_D1.1_20Behavioural_20Inception_20Report_orginal_V1.pdf.

10 Appendix A: Stage 1 Survey and Focus Group Transcripts

10.1 Survey for Group 1

Thank you for completing this survey. The research completed here is for the European Union commissioned project Carbon Aware Travel CHoices (CATCH; www.carbonaware.eu).

This survey is to help the researchers improve the presentation of information for users. We, the researchers, ask that you answer all questions to the best of your abilities.

The information will be used for research and may be published in reports for the project and in academic journals. Your identity will not be asked, nor will the information gathered be used to try to identify you.

If you agree to include your survey in the research, please sign below:

SIGNED NAME: _____

DATE: __/ __/ __ (dd/mm/yy)

PRINTED NAME: _____

Imagine that results on per capita carbon dioxide (CO_2) from transport from a study of 26 European cities were published. The cities have been labelled using A to Z. Assume that you are a representative of a city and answer the following by checking (☑) the appropriate statement. Each question is independent, so please read each completely.

1. Your city is **M**. Your city's per capita CO_2 outputs from transport were 3.0 tonnes/year.

- ☐ You strongly feel that your city should reduce those CO_2 outputs.
- ☐ You somewhat feel that your city should reduce those CO_2 outputs.
- ☐ You feel that this is an acceptable level and the status quo can continue.
- ☐ You feel that this is low and that outputs could be increased.
- ☐ Not sure.

Please continue to the next page.

The same situation applies from the previous page.

2. Your city is still **M**. The average for the cities involved in the study was 2.7 tonnes/year. Your city's per capita CO_2 outputs from transport were 3.0 tonnes/year.

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

3. Your city is **B**. The average for the cities involved in the study was 2.7 tonnes/year. Your city's per capita CO_2 outputs from transport were 0.3 tonnes/year *higher* than the average.

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

4. Your city is **Z**. The average for the cities involved in the study was 2.7 tonnes/year. Your city's per capita CO_2 outputs from transport were 30% *higher* than the average.

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

Please continue to the next page

The same situation applies from the previous 2 pages.

5. Your city is **S**. The recommended per capita level of CO_2 is 2 tonnes/year. Your city's per capita CO_2 outputs from transport were 150% of the recommended level.

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

6. Your city is **F**. Your city's per capita CO_2 outputs from transport were 3.0 tonnes/year (=12 trees per capita to offset/balance the CO_2).

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

This map visually shows per capita CO2 emissions* by the categories shown below.

- < 1.5 tonnes/year
- 1.5 – 1.99 tonnes/ year
- 2 – 2.49 tonnes/year
- 2.5 – 2.99 tonnes/year
- > 2.99 tonnes/year

Imagine you are a representative of Paris.

- ❑ You strongly feel that your city should reduce CO_2 outputs.
- ❑ You somewhat feel that your city should reduce CO_2 outputs.
- ❑ You feel that this is an acceptable level.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

* These are not real amounts.

#

Knowledge Platform Filters

Interviews with practitioners suggest that locating relevant information on the Internet can be time consuming. To improve the acquisition of relevant information, we plan to include some filtering. Please rate the usefulness of these proposed filters:

(EX) Focus results relevant to me	Not useful 1 2 3 4 (5) Very useful
Focus results by continent	Not useful 1 2 3 4 5 Very useful
Focus results by country	Not useful 1 2 3 4 5 Very useful
Focus results by city population size	Not useful 1 2 3 4 5 Very useful
Focus results by other challenges (e.g. congestion, health, etc.)	Not useful 1 2 3 4 5 Very useful
Focus results by mode (e.g. tram, bicycle, etc.)	Not useful 1 2 3 4 5 Very useful
Focus results by target group (e.g. citizen, business/service, freight, etc.)	Not useful 1 2 3 4 5 Very useful
Focus results by capital required	Not useful 1 2 3 4 5 Very useful
Focus results by project scale (e.g. road, neighbourhood, city, regional, etc.)	Not useful 1 2 3 4 5 Very useful

2. We are also interested in suggestions for potential filters. Please let us know of any other filters that you feel would improve the search process:

City data presentation and comparisons

Interviews with practitioners suggest that comparisons between cities would be more relevant if certain characteristics were used to filter results. Please answer the following statements: "

I'm interested in comparing my city to other cities that...

(EX) Are like Disneyland	Strongly disagree 1 (2) 3 4 5 Strongly agree
Are of similar population size	Strongly disagree 1 2 3 4 5 Strongly agree
Are of the same country	Strongly disagree 1 2 3 4 5 Strongly agree
Have similar mode splits	Strongly disagree 1 2 3 4 5 Strongly agree
Have similar Gross Regional Product	Strongly disagree 1 2 3 4 5 Strongly agree
Are geographically close	Strongly disagree 1 2 3 4 5 Strongly agree
Are of the same continent	Strongly disagree 1 2 3 4 5 Strongly agree
Are of similar climate	Strongly disagree 1 2 3 4 5 Strongly agree

2. We are also interested in suggestions for potential filters. Please let us know of any other filters that you feel would make comparisons more relevant:

Other policy considerations

Research and interviews with practitioners suggest that aligning projects to reduce CO_2 emissions with other policy considerations will increase the likelihood of implementation. To help focus resources, please rate the usefulness of these policy considerations in influencing the decision making process:

(EX) Related to sewer systems	Not useful 1 2 (3) 4 5 Very useful
Related to time use (e.g. travel time)	Not useful 1 2 3 4 5 Very useful
Related to health (e.g. daily exercise, asthma, etc.)	Not useful 1 2 3 4 5 Very useful
Related to community (e.g. noise, local travel)	Not useful 1 2 3 4 5 Very useful
Related to city budget impacts	Not useful 1 2 3 4 5 Very useful
Related to users' (e.g. citizens, businesses) budget impacts	Not useful 1 2 3 4 5 Very useful
Related to safety (e.g. crashes, "eyes on the street")	Not useful 1 2 3 4 5 Very useful
Related to travel equity (e.g. impacts on vulnerable groups like children, elderly, low income)	Not useful 1 2 3 4 5 Very useful

2. We are also interested in suggestions for other policy considerations that transport choices would impact. Please let us know of any other filters that you feel would improve the search process:

General information

This section asks some general questions about you for statistical analysis. Your identity is not known, nor will it be sought. Please answer as accurately as possible, your answers may influence policy in transportation.

Work related:

a.) Your position title:_____

b.) Your primary role is to:

- ☐ Conduct analysis on plans
- ☐ Suggest/Recommend plans to a decision group
- ☐ Make decisions on what plans to implement.
- ☐ Other (Please give a brief description):

c.) The population size of the area you mainly work with: _____

About you:

a.) Your Age ____ b.) Male/Female

c.) Education: Normal ☐ University or higher ☐

Thank you for completing this survey. If you would be interested in further contributing to the CATCH project, please give us your contact details. These will NOT be kept with the responses you've provided in the above questionnaire.

Name: _____

E-mail: _____ ☐ Preferred contact

Telephone: _____ ☐ Preferred contact

10.2 Survey for Group 2

Thank you for completing this survey. The research completed here is for the European Union commissioned project Carbon Aware Travel CHoices (CATCH; www.carbonaware.eu).

This survey is to help the researchers improve the presentation of information for users. We, the researchers, ask that you answer all questions to the best of your abilities.

The information will be used for research and may be published in reports for the project and in academic journals. Your identity will not be asked, nor will the information gathered be used to try to identify you.

If you agree to include your survey in the research, please sign below:

SIGNED NAME: _____

DATE: __/ __/ __ (dd/mm/yy)

PRINTED NAME: _____

Imagine that results on per capita carbon dioxide (CO_2) from transport from a study of 26 European cities were published. The cities have been labelled using A to Z. Assume that you are a representative of a city and answer the following by checking (☑) the appropriate statement. Each question is independent, so please reach each completely.

1. Your city is **D**. Your city's per capita CO_2 outputs from transport were 3.5 tonnes/year.

- ☐ You strongly feel that your city should reduce those CO_2 outputs.
- ☐ You somewhat feel that your city should reduce those CO_2 outputs.
- ☐ You feel that this is an acceptable level and the status quo can continue.
- ☐ You feel that this is low and that outputs could be increased.
- ☐ Not sure.

Please continue to the next page.

The same situation applies from the previous page.

2. Your city is still **D**. The average for the cities involved in the study was 2.7 tonnes/year. Your city's per capita CO_2 outputs from transport were 3.0 tonnes/year.

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

3. Your city is **F**. The average for the cities involved in the study was 2.7 tonnes/year. Your city's per capita CO_2 outputs from transport were 0.8 tonnes/year *higher* than the average.

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

4. Your city is **S**. The average for the cities involved in the study was 2.7 tonnes/year. Your city's per capita CO_2 outputs from transport were 11% *higher* than the average.

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

Please continue to the next page.

The same situation applies from the previous 2 pages.

5. Your city is **Z**. Your city's per capita CO_2 outputs from transport were 175% of the recommended level (2 tonnes/year).

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

6. Your city is **B**. Your city's per capita CO_2 outputs from transport were 3.0 tonnes/year (= 10 trees per capita to offset/balance the CO_2).

- ❑ You strongly feel that your city should reduce those CO_2 outputs.
- ❑ You somewhat feel that your city should reduce those CO_2 outputs.
- ❑ You feel that this is an acceptable level and the status quo can continue.
- ❑ You feel that this is low and that outputs could be increased.
- ❑ Not sure.

This map visually shows per capita CO2 emissions* by the categories shown below.

- < 1.2 tonnes/year
- 1.2 – 1.49 tonnes/ year
- 1.5 – 1.79 tonnes/year
- 1.8 – 2.09 tonnes/year
- > 2.1 tonnes/year

Imagine you are a representative of Paris.

- ☐ You strongly feel that your city should reduce CO_2 outputs.
- ☐ You somewhat feel that your city should reduce CO_2 outputs.
- ☐ You feel that this is an acceptable level.
- ☐ You feel that this is low and that outputs could be increased.
- ☐ Not sure.

* These are not real amounts.

Image from: mapofeurope.com/europe/

Knowledge Platform Filters

Interviews with practitioners suggest that locating relevant information on the Internet can be time consuming. To improve the acquisition of relevant information, we plan to include some filtering. Please rate the usefulness of these proposed filters:

(EX) Focus results relevant to me	Not useful 1 2 3 4 (5) Very useful
Focus results by continent	Not useful 1 2 3 4 5 Very useful
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Focus results by city population size	Not useful 1 2 3 4 5 Very useful
Focus results by other challenges (e.g. congestion, health, etc.)	Not useful 1 2 3 4 5 Very useful
Focus results by mode (e.g. tram, bicycle, etc.)	Not useful 1 2 3 4 5 Very useful
Focus results by target group (e.g. citizen, business/service, freight, etc.)	Not useful 1 2 3 4 5 Very useful
Focus results by capital required	Not useful 1 2 3 4 5 Very useful
Focus results by project scale (e.g. road, neighbourhood, city, regional, etc.)	Not useful 1 2 3 4 5 Very useful

2. We are also interested in suggestions for potential filters. Please let us know of any other filters that you feel would improve the search process:

City data presentation and comparisons

Interviews with practitioners suggest that comparisons between cities would be more relevant if certain characteristics were used to filter results. Please answer the following statements: "

I'm interested in comparing my city to other cities that...

(EX) Are like Disneyland	Strongly disagree 1 (2) 3 4 5 Strongly agree
Are of similar population size	Strongly disagree 1 2 3 4 5 Strongly agree
Are of the same country	Strongly disagree 1 2 3 4 5 Strongly agree
Have similar mode splits	Strongly disagree 1 2 3 4 5 Strongly agree
Have similar Gross Regional Product	Strongly disagree 1 2 3 4 5 Strongly agree
Are geographically close	Strongly disagree 1 2 3 4 5 Strongly agree
Are of the same continent	Strongly disagree 1 2 3 4 5 Strongly agree
Are of similar climate	Strongly disagree 1 2 3 4 5 Strongly agree

2. We are also interested in suggestions for potential filters. Please let us know of any other filters that you feel would make comparisons more relevant:

Other policy considerations

Research and interviews with practitioners suggest that aligning projects to reduce CO_2 emissions with other policy considerations will increase the likelihood of implementation. To help focus resources, please rate the usefulness of these policy considerations in influencing the decision making process:

(EX) Related to sewer systems	Not useful 1 2 (3) 4 5 Very useful
Related to time use (e.g. travel time)	Not useful 1 2 3 4 5 Very useful
Related to health (e.g. daily exercise, asthma, etc.)	Not useful 1 2 3 4 5 Very useful
Related to community (e.g. noise, local travel)	Not useful 1 2 3 4 5 Very useful
Related to city budget impacts	Not useful 1 2 3 4 5 Very useful
Related to users' (e.g. citizens, businesses) budget impacts	Not useful 1 2 3 4 5 Very useful
Related to safety (e.g. crashes, "eyes on the street")	Not useful 1 2 3 4 5 Very useful
Related to travel equity (e.g. impacts on vulnerable groups like children, elderly, low income)	Not useful 1 2 3 4 5 Very useful

2. We are also interested in suggestions for other policy considerations that transport choices would impact. Please let us know of any other filters that you feel would improve the search process:

General information

This section asks some general questions about you for statistical analysis. Your identity is not known, nor will it be sought. Please answer as accurately as possible, your answers may influence policy in transportation.

Work related:

a.) Your position title:_____

b.) Your primary role is to:

- ☐ Conduct analysis on plans
- ☐ Suggest/Recommend plans to a decision group
- ☐ Make decisions on what plans to implement.
- ☐ Other (Please give a brief description):

c.) The population size of the area you mainly work with: _____

About you:

a.) Your Age ____ b.) Male/Female

c.) Education: Normal ☐ University or higher ☐

Thank you for completing this survey. If you would be interested in further contributing to the CATCH project, please give us your contact details. These will NOT be kept with the responses you've provided in the above questionnaire.

Name: _____

E-mail: _____ ☐ Preferred contact

Telephone: _____ ☐ Preferred contact

10.3 Focus Group Transcripts

This is a transcription of two focus groups held in The Hague, Netherlands, at 15 Nov., 2010, 17.00.

Facilitator A (FA) – Owen Waygood

Facilitator B (FB) – Erel Avineri

FA - As we mentioned in the presentation, there are a number of different ways to present information on CO_2. We would like to know how you responded to the questions that you have just filled out. The very first question only gave you the tonnes per capita. How many people would know roughly what that would be for their own city.

Man (pedestrian advocacy) – Don't have a clue.

FA – Yes, we often talk about these things, but we don't necessarily have much background knowledge in it.

Man (German/UK, sustainable transport research director) – My problem was that I do know. Therefore it's like, it should be, if we want to read 2 degrees, then it should only be for transport about 460kg/year, so therefore for me it's far too high.

Man (local transport representative) – 400 kg?

Man (German/UK) – 460kg

FA – Okay, so you have background knowledge that you were able to apply. Yes, previously we considered regular citizens, but now we have a more specialized group – in you – of transport, specifically sustainable transport, who might have enough knowledge in the area that only the wt itself is sufficient.

Man (UK, London) – There will always be people that say you have to produce CO_2, and there's people you say "I don't care", so you get their own framing, or norming.

FA – Yes, people may not even value the information enough to even put an effort into interpreting.

Man (US, ped) – In the US, there are a lot of people who are concerned, and then there are people that think that it is all a conspiracy by left-wing nuts, national science foundation. Then there are the right-wing radio hosts, who reinforce this doubt, and there are education concerns, people don't even understand why CO_2 would even make a difference.

Man (UK, ?) – The issue around CO_2 savings will be based around lifestyle change. Get people cycling, walking, modal shift, well that's understandable and you can explain the reasons why that's understandable. But then to start mixing the equation up with CO_2 savings, this kind of virtual thing... I can understand that if I cycle more, then maybe I'll be healthier, fitter, and maybe get there quicker, but when you start mixing in the CO_2 savings, I think you're taking in very simple decision that people have to make, you're mixing it in with a complicated scientific formula, potentially that's confusing. The benefits are to other people, I don't see the benefits personally. If I make the savings, I don't see the benefits to me. Erel mentioned this gas, that you can't see, that something was added...

FA – sulphur, they add sulphur so you can smell it.

Man (UK, ?) – If you had that with CO_2, the air stinks in some cities anyways, if that was connected with CO_2 somehow...

FB – When I presented this in Oxford, they suggested that perhaps we should take the exhaust pipe and have some kind of feedback loop.

FA – I think might create health and safety issues. Yes, those are some of the

Man (UK, ?) – There is a point, when you take a pregnancy test, you see a colour change.

FB – Yes, giving some kind of irritating thing that is linked with CO_2.

Man (UK, London) – baggage retrieval at Heathrow... (suggesting that this leads to carry-on luggage rather than check-in).

Man (UK, ?) – there's a danger as well. As soon as you start being quite prescriptive about how people should behave then your getting on the side of all the people that you mentioned (indicating US man).

Man (US) – Yes, the nanny state, you're taking away our rights and freedoms, your taking away our choices. That's how I like to frame it, that we're actually giving you choices. Then you can actually make a choice. Yes, because right now, maybe walking an cycling aren't good choices for your community, but wouldn't you like it if we improved things so that they were a choice? That we'd add more choices, so that if you wanted to, you could take one of them, as opposed to, we're going to force you to abandon your car.

Man (UK, ?) – there's the issue of perceived choice and real choice. If we go into supermarkets, we usually spend money on what we usually buy, our brand choice is usually going to be same, maybe there will be one or two variations on a theme, but usually it's the same, we spend the same, and get the same kind of goods. In the supermarket, there is a large range of choices, we believe we have choice, but ultimately your mind will always centre on a certain few. If you present choices for people, if you do it in such a way, that they always make the right choice, but they know there are a range of activities, that they could potentially make, then you could probably capture that decision making, the way you want to capture that.

Man (US) – But, you need people that understand social marketing, so that people feel that these other choices are good choices. People that I respect or admire, make these choices, the same way that they drink the brand of soda that I drink. And you can get into some of the more expensive personal marketing like what's done by people like Werner Brog.

FB – yes, we certainly have these parallels in the consumer market. And they are quite clever at doing things so that you don't feel that you have been manipulated towards specific choices. I think its also a matter of ethical or moral issue, whether you are expected to nudge people, to work against what they would naturally choose, or if you're helping make a better choice, but that they don't get the wrong idea, that you're forcing them to a choice.

Man (German/UK) – I think the problem with that, when it comes to the choice of transport modes, we have just a certain group of people that are actually multi-modal and open. Most of the people, or at least some of part of society, actually have a certain routine, and no matter the information that you provide them, they don't change. I have a car in front of my door, and I'm using that, I'm even not questioning that if it is even rational. I think we can forget about this group, because we can frame it however we like it, that's what they do. I think the more interesting group are the multi-modal, those who are open to this information.

FA – yes, that's an excellent point, we talked about established habits and seeking out information we talked about in the previous report. I want to get back to the survey... Number 2, we gave the average of those cities and the 3 tonnes. Given that average, how does that average help you, or does it help you, make a decision, and motivate you?

Man (UK, London) – I think if you provide a reference point like that, I looked at the first one (only mass), and thought, yeah, we should definitely reduce that. But then, when I was given the average, then I thought, oh, we're not that far off, I only somewhat now feel something should change. If the average energy was put on your bill, oh, I use more than the average so I should reduce, and then if I use less, I think I can use more. So it's quite, tricky to do.

Man (German/UK) – and it doesn't really help you with, is this really good? So this is the average, but is this actually sustainable? Is this something that we could avoid the 2 degrees global warming?

FA – Do any of the other members have comments?

Man (US) – My experience of advocacy groups in the US, we rank cities, any city that does worse than the average, it gets their attention. No one wants to be Mississippi – which always seems to be number 50. People in Alabama always say, thank goodness for Mississippi, as they are always number 49. If you did worse than the average, if I did worse than the average, then I'm concerned, but if I'm about average, or better, well then, we're doing okay.

FA – any other reactions on that question?... Moving on to number 3... If you were told that it's 0.3 tonnes *higher*, does that have any different impact on how you interpreted it?

Woman (Israel) – this is only 10% of the average, so 10%, I can live with that.

Man (UK, London) – it's just taken it out of the calculation. Is 10% in the rankings well off?

FA – This is 30% higher. The cities change, which is why it says 30% as opposed to the previous one which would be 10%. So when it's presented as a percent higher?

Man (UK, London) – my experience with percent, is that people struggle to work out what the percent is.

FA – What do you feel, as a practitioner, how would you deal with it?

Man (UK, London) – citizens, anybody, it might be an inditement of maths in the UK, but if you sent 10% reduction, people will struggle to articulate that. Ohh, 10% savings, and then they get to the till and discover it's £2, they haven't actually equated that normal figure. In London, as the Boroughs, when we go to citizens, we use real numbers so that they get a feel for it.

FA – You use absolute numbers because in your experience they are clearer.

Man (UK, London) – Yeah

(people nodding)

FA – How is it in China?

Man (China) – Yes, in China ranking is quite important, if you're above average, then you get all the attention.

FA – So is that the case that it doesn't matter how much it is, it's where you fall in the rankings?

Man (China) – The difference is probably that, the attitude towards people, do you let them know the choice or do you simply tell them what to do. What is more efficient? For China, it's a different style.

FA – ON the ranking, does that respond to funding? In China?

Man (China) – no. Just selling the city.

FA – is that an important part of trying to attract businesses or citizens?

Man (UK, London) – in the UK, it seems the other way around. You get money if you're at the bottom. The bottom 2%, if you're there, you get more money. It makes it easier to get money if you're crap. Nobody funds the average, they fund below it.

FA – Next question. Here we gave reference to a recommended level.

Man (UK ?) – For all of these questions, there's another question, how connected you feel to the city. Are you really interested in what the city is doing? Would you have a greater awareness or interest if it was about your community? Broken it down into a smaller area, so that it's about the area that the people you're talking to are from. The city, even if I was a city bureaucrat, what could the people who are being made aware, what could they do? At the moment, it's like a charity giver, there's a box being shaken, and I give my two pounds, I can

go home and relax, I've done my bit for charity. But I haven't. It's when these street charity groups give you the opportunity to sign up, that's where an impact could be made. Maybe there's a follow-up call and you actually commit to doing something. At this point, you might be making a lot of people aware of some of these issues, but whether you make them feel able to do something about it. The two need to be linked.

FA – Yes, with the CATCH platform, we are trying to find the best way to present the information that people would be motivated to look at that information on what they could do. ... Very last one, we tell you the number of trees needed to absorb that CO_2.

Man (UK, London) – 12 trees, didn't seem much.

FA – Do you have 12 trees around your home?

FB – it's 12 trees per capita.

Man (UK, London) – well there are big forests out there, I don't mind planting more. Plant them in the Amazon, help the deforestation.

FA – did it help you concretize the information?

Man (German/UK) – I felt, trees... environmental, tree-hugger, well, that's fine. But it's, I'm not sure that it's the best picture to in fact represent CO_2. It does have a certain symbol, but I'm not sure that it's the right one. 21st century, there might be something better. I feel like it belongs in the 18th C or something.

FB – Might there be a cultural attachment?

Man (china) – 12 it's not that much, but when you consider the population, it's becoming big.

FA – So, maybe it's necessary to show the UK, and show that there wouldn't be any room for people if it was populated completely with trees.

Man (China) - Yes, 12 trees x 1.3 billion...

FA – Yes, we had the same concern, that it wasn't given a sense of place. But for whatever reason, in previous work, the tree was quite positive. What about trees in Denmark?

Woman (Denmark) – Yes, in Denmark, sometimes we use trees to relate with CO_2, just to have something to measure it in, but there's no strong attachment. Also, if you'd given me these questions yesterday, as opposed to now, I probably would have answered differently, because in the presentation you told us about these things.

Man (US) – It may have biased our results.

FB – well, we are not trying to keep these things secret. So we should analyze how you would respond, knowing about such things.

Man (US) – It would probably be different answers if you just gave it to someone cold.

FB – We anticipate that many CATCH users will be informed users.

FA – Very last question, the visual presentation of the EU.... This is your city, this is how you compare.

Woman (Denmark) – for me this works the best, I can see who I want to compare myself with. There is a bit of an association to ranking.

Man (US) – It's interesting, would we feel that, London, Madrid, Rome, we (representing Paris in the example) are doing the same, so why should we worry. These other cities, are doing a whole bunch better, but are we considering those? If so, we might be motivated to improve.

FA – Yes, who do they feel they are compared with?

Man (German/UK) – Yes, I looked at how just the capitals are doing. And, as Paris, we are on that similar size and importance, then if they are the same, it doesn't matter if some small city in the south of Germany is doing better.

FA – Yes, that was something we asked specifically in the following pages. I think that's where we'll have to finish.

11 Appendix B: Initial Impressions Survey

Please rate these features with a scale of 1 to 5 with 1 as low/bad and 5 high/good

	Would you likely look at this part?	It is visually organised	The purpose is clear	How to use it is clear	Would you trust the information?	Would you return to this function?	Would you recommend this aspect?
Co-benefit tools							
Factsheets							
Co-benefits tool							
Interaction							
Forum							
Post a question							
Contact us							
Events							
Knowledge							
Good practice							
Other (future development)							
Scenario tool							

From what you've seen, in your opinion, what is the purpose of the CATCH website?

How important is transport CO_2 to your work?

Not at all 1 2 3 4 5 Extremely

How did you initially hear about CATCH?

About you

Age 20-29 30-39 40-49 50-59 60-69 70-79 80 or above

Gender Female Male

Work title

Education Normal University Graduate degree

Would you consider yourself to be an expert in a field related to information on this site?

No Yes --> If so, what specifically?

How regularly do you work with green house gas (GHG) information like CO_2?

Never 1 2 3 4 5 Always

12 Appendix C: Topic Guide for Final Evaluation Focus Groups

For focus groups a topic guide is used to focus the questions and direction of the conversation by the moderator.

12.1 Topic Guide

Based on McGuire's Processes Mediating Communication Impact (McGuire, 1984), there are up to five relevant areas to this project:

1) Exposure to the communication
    a. Example question: How did the users find out about the platform?
2) Attending to it
    a. Example question: How long did the individual use the platform? How regularly might they use it in the future?
3) Liking, interest in it
    a. Example question: Was the platform interesting? Did they like/dislike it?
4) Comprehending it (learning what)
    a. Example question: What is the purpose of the platform? What were some take-away messages?
5) Skill acquisition (learning how)
    a. Example question: Did you learn something that would help make changes?

The above questions from here on in will be referred to as *McGuire's questions*.

In addition to McGuire's questions, a couple of additional questions will be asked where relevant:

1) Did you have any positive or negative emotional responses to the feature?
2) How could this feature improve?
3) Would you recommend this feature to someone? Who? Why?

The above questions (hereon referred to as *question set*) are then applied to the platform and major features that it contains:

i. Overall platform
ii. Editor's pick
iii. Liveable Cities
iv. Co-benefit Tools
v. Leaders
vi. Events
vii. Extras

The question set will be adjusted as appropriate. For example, for the feature "Editor's pick":

1) How did you notice the Editor's Pick?
2) Did you read the content of the Editor's Pick? How much of it?
3) Was the content of interest before you read it (i.e. were you interested in the topic that it discussed previously)? Was the content written well enough to stand alone (i.e. if you were not particularly interested in the topic, did you read on?)
4) Do you think that you understood the content? Can you give an example of something that you learned from it?

5)Did the Editor's page lead you on to another feature of the platform?

6)Did you have any positive or negative emotional responses to the feature?

7)How could this feature improve?

8)Would you recommend this feature to someone (e.g. a new user)? Who? Why?

In addition, questions such as "if you didn't read the page, why not?" should be asked if relevant.

12.2 References

MCGUIRE, W.J., 1984. Public Communication as a Strategy for Inducing Health-Promotion Behavioral Change. *Preventive Medicine*, vol. 13, pp. 299-319 DOI 10.1016/0091-7435(84)90086-0.

13 APPENDIX D: WP1 Design Concepts and Recommendations

One requirement of evaluation was to consider how, or whether, design concepts and recommendations from WP1 were evident in the CATCH platform and tools. The design concepts and recommendations from WP1 are reproduced here to make the links clearer.

13.1 Recommendations from D1.1

Recommendations on how findings from grounding research could be applied were developed with respect to each chapter.

13.1.1 D1.1 Chapter 1

- Framing
  - Avoid framing which suggests some loss from the current situation. For example, the use of “reduce your travel by car” is a loss to the individual of their freedom of travel from the current situation. For example, “This project will improve the conditions for walking – something nearly everyone can enjoy!” As opposed to, “This project will restrict car movement, therefore improving the walking environment.”
  - Use framing that is negative when referring to something to avoid. For example, use a different term other than climate change. “Global disaster” suggests something to avoid.

- Future discounting
  - The impacts of climate change are often discussed in terms of the future and are therefore significantly discounted. The impacts must be made more relevant, this may be highlighting health impacts such asthma or obesity.
  - Another tactic would be get people to think of the type of neighbourhood they would like to live in and how those improvements relate to increased walking and cycling.
  - However, future discounting can be used to help and will be discussed further along.

- Perceived resilience
  - Make the connections of impacts to the individuals more relevant. For example, if their area is projected to have some stability with respect to their regional climate, then how disturbances in other areas affect them should be highlighted. Point out where food comes from or that nearby areas will suffer changes that may result in an increase of refugees. Each area will differ, but it must be made more salient.

- Analytic versus Affective
  - People respond to their feelings quickly. Advertisements take advantage of this through images and music with appropriate associations. The use of affective tools in combination with analytic information will likely increase uptake.

- Women and Men
  - Women prefer social information (recommendations). Have a question an expert aspect.

- Women also perceive threats more than men and so the balance between effective and overwhelming messages will likely differ.
- Men prefer visual information such as maps.
- Information should include both social and visual information so that no matter a person's learning and interaction preferences, there will be relevant mediums.

- World Views
  - People have different world views (how they act and interpret the world around them). For individuals who are more socially oriented information on how a project helps improve equality and benefits for all citizens will receive more support. For individuals who are pro-self, projects should be framed in the benefits to that individual, possibly with wording that suggests "others" will be making the changes that benefit them.

- Baseline bias
  - People may not perceive the changes that are occurring around them. This is where historic information or representations of the changes would be useful. Depending on where the individual is coming from (e.g. parent, motorist, etc.) different information may be relevant. For example,
    - For a parent, it may be important to highlight how cars have taken the streets away from children and how a reduction in use and some landscape changes could give them back.
    - For a motorist, it may be important to highlight how higher use of public transit in the past allowed for better traffic flow and how projects that increase the competiveness of public transit would improve flow.

13.1.2 D1.1 Chapter 2

- Uncertainty
  - Create doubt that the current situation is the best. Pick up on the negatives and compare to alternatives, but not necessarily on a trip-to-trip basis as a walking 5 miles versus driving will not likely highlight the benefits of development such as transit-oriented development. Comparisons between cities that show how overall trip times would reduce may be more effective. For example:
    - Traffic jam due to competing nature of car driving versus the unrestricted movement of bus rapid transit (BRT), dedicated lanes, rail, or non-motorized modes lower congestion problems.
    - Stressful/tired drivers compared with person napping or reading on public transit.
    - Stressful/tired drivers and link with crashes compared with low instances in public transit of crashes.
    - Chauffeuring children versus safe walking for children within the local area and outside it on public transport.
    - How sure are you that things aren't getting worse? Would you risk things getting worse rather than support changes that will make it easy for all citizens to travel without their car?

- Long Term Changes
  - Self monitoring through an ipod application. For example, CO_2 produced and how that works on an aggregate level. If better than average, praise and

support steps towards more substantial goals – but steps, not average to carbon neutral.

- Greener options found and sent to phone.

- Major purchases
  - Highlight combined costs of home and life-cycle costs of travel. A program has begun to do this in the United States (**http://htaindex.cnt.org**) called "True Affordability and Location Efficiency".
  - City/government spending on transport (public transit, infrastructure) of various cities and the respective household costs for transport and housing in those cities.

13.1.3 D1.1 Chapter 3

Three general reaction types

- Denial
  - As deniers will often ignore information that goes against their choice, it is important to reach them through other avenues. As mentioned in the "Attitude" example, a car driver may be more interested in reducing congestion than reducing CO_2, but the two can work together. People also have different "hats", they may simultaneously be a long-haul truck driver, parent, home owner, Sunday footballer, amongst other things. Each of those aspects will have different concerns, and allowing them to "enter into the discussion" through various avenues can increase the chance of their support and involvement.
    - As a long-haul truck driver, they may be interested in reducing congestion to improve their efficiency.
    - As a parent it may be improving pedestrian safety for their children.
    - As a home owner (urban) they may want to decrease traffic impacts on their neighbourhood. As a home owner (ex-urban) it may a concern over rising fuel costs leading to increased costs of access and potential de-valuation of their home. Links to information on the connection between home location and transport costs may influence a future decision on where to live.
    - As a Sunday footballer it could be improving public transit to reduce the size of the parking lots so as to increase space available for play.

- Token behaviour
  - Through selecting a few behaviours that they already do, they should be praised and encouraged to make further improvements. Highlight that transport is one of the main sources of CO_2 and that even if they can't change, it's important to help others change. They would have the option to see what changes they could make or how they could help others reduce CO_2 output. Under the changes that they could make should be the ability to sort by cost, time, and impact. Again, take advantage of future discounting by allowing support or changes to be in the future. The important part will be to get some sort of commitment. If it's support for others, then an on-line petition may be appropriate. If it's a personal change, then a voluntarily made goal should be used. In combination with this, the person should be encouraged to join some

form of social network that supports such change. See the section on social networks for more information.

- Desired behaviour change
  - Highlight their successes, get testimonials that encourage others, have them highlight what helped them achieve these changes. Things that help make a change should be highlighted and people who successfully make the changes should be able to vote on what helped them. The things that help people more to achieve those changes would be ranked so that someone considering the change can see how others have accomplished that task, and also that it's possible. Giving a sense that others have done it will also create a sense of "normal", and the influence of social norms may increase.

- Social Norms
  - It is important to highlight that these changes are not "alternative". These changes are what people are doing. Phrases like, "more and more people are" gives a sense that the action is something popular, that they should consider it so as not be a laggard. Avoid the use of "green", as it implies that it is not the "normal" behaviour, but some alternative behaviour not in keeping with how most people act. If possible, show how similar people are doing that action.

- Social Networks
  - Allow users to register.
  - Similar to social networking sites such as Facebook, allow the users to invite others from their mailing list.
  - Form networks on topics and allow users to join and create their own. Some maintenance should occur to limit duplication.
  - When an individual does some action, whether it's a sign an on-line petition, commit to a behaviour change, or successfully make a behaviour change, the site should allow them to invite or challenge other known members.
  - A website that uses this well for environmental behaviour is **makemesustainable.com.**
  - Points, or rewards to indicate progress. Again, avoid the use of "green", as this implies that it's not normal. Perhaps something along the lines of bronze, silver, gold stars for the impact.
  - The user should be able to integrate into Facebook, My Space, or other such networking sites. The default should highlight some successful actions that they are doing (starting from signing petitions, through to successfully completed actions), display how many stars or points, and some sort of slogan for the site. For the slogan, it could be their choice, or it could be set as something (for example: I'm helping to improve my neighbourhood and city.

13.1.4 D1.1 Chapter 4

- Direct Feedback
  - Include iphone/ipod applications. If possible, should automatically monitor movement, determine mode and give feedback on CO_2 used, and suggest

alternatives. On a lower scale, it would allow them to enter trips via a map and enter mode.

- Showing/hiding the financial cost of using a mobile phone is a user option as it impacts that individual only, but CO_2 impacts all people, so the site could promote and show support for some form of mandatory public display of CO_2 output or efficiency of mode. The information is currently available for vehicles when purchasing, but it could be required that such information remain on display, being edited through maintenance and such.

- Commitment
  - Choice – commit to an action now or in the future. Action should be displayed on user's page, should have a date for completion, if they miss their date, encourage those linked to them to support the change.

- Financial cost
  - Show the transport costs for households in different neighbourhoods, cities.
  - Highlight the role of public transit investment and less NEED to use a car that leads to lower car usage and ownership irrespective of income levels.
  - Difference in transport and transport related (e.g. taxes) costs for city and individuals.

- Pro-social
  - If an individual is pro-social, then how a project will benefit all, increasing equality, and other social benefits should be highlighted. As people avoid costs more than they seek gains, what losses are avoided could be highlighted. For example, considering the likelihood of higher fuel costs in the future, project X will increase the ability of all citizens to accomplish necessary tasks using less fuel.

- Pro-self
  - For pro-self individuals, how a project allows them to avoid losses or benefits them should be highlight. For example, the cost of fuel will likely rise in the future, project X will lower the impact on your travel needs.

- Psychological factors in mode choice
  - Hard-core drivers (those who see no problems and have no desire to change) are not the majority in the countries studied (see D1.1, Avineri and Waygood, 2010), so it may be possible to create major change without directly engaging them.
  - Emphasize benefits of reducing car use in aggregate, how neighbourhoods and the city would improve.
  - Instruct them how they can help the process through petitions, contacting politicians, etc. Advise on small changes would include:
    - Walking school buses

- Just being outside
- Information on local shops and items available at them.
- Local public transport information
- Local social contacts, places to interact with people, events
- Ask for feedback, help improve things! Don't just mutter and complain.

- Tax
  - For citizen focused shops, the number of customers needed to support and how large a catchment area is necessary to reach that should relate to the tax paid as it impacts infrastructure needs and resource consumption. For example, a smallish local shop may only need 50 to 100 people to support it. Depending on the density of the area, those customers may live within 100-500m away. The tax required would be in lower than a large shop that would require many more customers who would need to travel greater distances to reach it.

- Stage of Change
  - 1st stage: Low awareness – need information to increase awareness and affect attitude. They should be encouraged to make small changes such as signing petitions in support of projects rather than being asked to change their behaviour.
  - 2nd stage: Some awareness, moving towards intention – commitment should be used, exposure to examples of success, easy steps, individual-specific motivation, public display of intentions.
  - 3rd stage: Intention towards action – prompts, advice, support, public display of accomplished actions.
  - 4th stage: Action towards promotion – communication with others, leadership, official recognition (from site, neighbourhood, city), public display of leadership level (door signs, events, neighbourhood parties supported by city).

13.1.5 D1.1 Chapter 6

- Prompts
  - Combining commitment and prompts, stickers for vehicles that say "5 miles less!", "10 miles less!" etc.
  - Email or send short text messages thanking and praising them for actions that they've done.

- Norms
  - The number of people supporting change, once it has passed a certain threshold. However, key question is, "what is that threshold?"
  - Publicize when most people do a desired action on site. For example, a number 1 symbol indicating popularity among site users.
  - If a certain desire exists publicize it and entice the user to join the discussion through a simple question. For example, perhaps most people would like more local amenities or support increased community engagement. The question could simply be, "do you?" And then lead to a list with the heading "I support it by:" The list could be:

- Shopping locally
- Participating in local events
- Taking a stroll in my neighbourhood
- Saying hello to people on the street even if I don't know them.
- Suggest more! Your ideas.

- Pictures and testimonials from people of all walks of life to improve association for the users.
- Building on the above list, there could be pictures of people saying "it's easy – even just walking around helps improve my neighbourhood – and I burn a few calories too!"
- "More and more people are" doing some action. For example, "more and more people are increasing their trips without a car. Are you?"
  - Yes -> Great! What do you do without a car?
    - List of example trips.
  - Want to, but... -> Great, let's try to help you.
    - Where do you live?
    - Family size and ages
    - And then link them with relevant help (information, social networks)
  - No, not interested -> OK. Could you help others by telling us why?
    - List of reasons. Should be short to imply that there are few. They would have the option of "other". Depending on their choice, the site could ask if they are interested in helping to fix that barrier. It would potentially lead them to information related to that. For example, if the barrier was the cost of using public transport, then information household and transport costs, city-neighbourhood costs for different types of development, etc.

- Motivation
  - People aren't the same and will respond to different motivations.
  - Improving neighbourhood, city
  - Saving money
  - Saving time
  - Meeting people, socializing
  - Exercise
  - "Playing"
  - Quiet time alone

- Reciprocation
  - Free stuff that is locally relevant. For example:

- Tissues during the cold/flu season.
- Scarfs when it's cold.
- Umbrellas when it's rainy
- Toys that encourage socializing or at least require more than one individual or use outside.
- "Face oil sheets" when it's hot.
- Hand-held fans when it's hot.

- Consistency
  - Help the individual users make connections between desired neighbourhood and non-helpful behaviour.
  - Noise – link with driving.
  - Community connections – not shopping locally, not "getting out" in local area.
  - Recycling - but not reducing driving
  - Children – chauffeur everywhere, live where the children can't be independent, can't get a friend's home alone.

- Authority
  - Experts from transport, sociology, psychology, health, urban planners, etc. Give video testimonials on potential improvements.
  - Should be in their professional setting for some of the interview, show problem they are discussing a bit, and show solutions (especially if they exist in other cities already – not "pie in the sky" ideas).

- Liking
  - Commonality – "people like me"
  - Show people from all walks of life enjoying benefits of greater local travel. Also show negative alternative to avoid.
  - Friendly nature of site, pictures of people smiling while enjoying changes.

- Scarcity
  - People want what's hard to get or is for a limited time.
  - Promotions with limited time – "don't miss this opportunity"
  - Demand is high, but city can't afford to change all neighbourhoods now. Show support and help your neighbourhood enjoy these improvements by being selected.
  - First X number of people to event get a free Y (umbrella, etc.)

- Default

- After a person has followed a path, default should be some action.
- For example, on noise, once the person has learned a bit about causes, could move on to petition. Non-default action would be to skip that step.

- Significant others
  - In combination with social networks, encourage users to challenge friends and families. Set up friendly competitions that can be voluntarily joined.

13.1.6 D1.1 Chapter 7

Chapter 7 discussed the emerging field of behavioural economics and the application of "choice architecture". Relevant techniques such as creating a desirable "default" behaviour (e.g. the default behaviour is to use transit rather than a car), using the technique of "loss aversion" (e.g. by driving to A, you'll lose X Euros in parking fees), establishing desirable behaviour as the "right thing to do" through social nudges, and how "significant others" may the most effective way to reach someone.

13.1.7 D1.1 Chapter 9

13.1.7.1 Design Recommendations based on the review of carbon calculators

- Methods of calculation should be transparent for those users interested.
- Should have a simple, easy-to-use introductory calculator with the option to register and monitor.
- Feedback on CO_2 production must be put in equivalencies (such as number of trees to sequester CO_2 produced, Earths, number of hours a car is continuously running)
- Feedback should be compared to others (locally, regionally, nationally, globally, national goals) combined with a judgement (good/bad).
- Advice must be offered on how to adjust behaviour, and should be individual specific.
- Advice should be locally relevant.
- Advice should show potential impact, cost, and savings (see www.lowimpactliving.com)
- Advice should be organised from "easily accomplished" to more major changes and sortable according to impact, cost, and savings.
- Advice should be "actions" where the user can pledge a date and indicate when accomplished (for an example see www.makemesustainable.com) with appropriate praising (positive feedback).
- Modes: many overlook mass transit, or do not separate out modes (bus, tram, subway, diesel train, electric train); only one site included taxi (didn't have size, fuel source)
- Option of time scale (day, week, month, year)
- Option of unit (with preference to energy source quantity)
- Local average relevant to household size and income offered to ease initial information burden.
- Option to input home location, work (and number of days), frequent destinations (and frequency) for automatic distance calculations
- Flight calculations should follow Atmosfair site (www.atmosfair.de) which allows city's name to be entered and allows transfers.
- Long-haul train travel should follow similar input patterns to flights with station names being offered once a city or region name is entered.

13.1.7.2 Design Recommendations based from Coulter et al. (2008)[11]

- Illustrative and fun graphics
- Sparse and simple text
- Bright, consistent colour scheme
- Clear layout
- Everyday language
- Simple yet personalised information requirements
- Meaningful and understandable results
- Personal and realistic follow-on action
- Available but discrete calculation information
- Succinct process
- Accuracy and reliability of results was not a main concern

13.1.8 Practitioner specific recommendations

- Lack of awareness in decision makers? -> resources on impacts, how other cities are improving, esp. competitors
- Lack of motivation in decision makers? -> learning to sell to their personal motivations (Pro-social, pro-self, etc.)
- Want more ideas on projects?
- First project? -> greater level of detail in “walk through”, highlight projects that are more easily accomplished and help lead into projects with greater impacts.
- Done a few, but looking for more. -> ability to skip stages of the “walk through”, allow them to select projects they’ve done and suggest follow-on projects.
- Accomplished many, but want to do more. -> similar to above. Prompt them to offer advice on past projects.

13.1.8.1 Projects should have a title, then the option to see various parts such as:

- Introduction
- Works best when...
- Useful for addressing...
- Applied examples/case studies
- Resources

13.1.8.2 Support

- Individual users should have the option when signing up to receive (default) or not to receive information from the city. If they accept, then the practitioners/planners could send short messages asking to show support for a project to help convince the decision makers that the public is behind them.

[11] Coulter et al. (2008) was the only report identified that dealt specifically with design recommendations for carbon calculators and thus they are acknowledged.

13.1.8.3 Reactions

- Decision makers are individuals too. If interest is on decreasing congestion, then sell to those points. Interests can vary, but learning from leading cities on quality of life measures should apply to most.

13.1.8.4 Social Norms

- Show the number of cities that are doing/have done similar projects -> give impression that they may be left behind if not doing such actions.
- Ranking, league tables. Should be related to their stage-of-change and population size to increase relevance.

13.1.8.5 Social Networks

- Important for practitioners/planners as well. Build on existing ones.

13.1.8.6 Direct Feedback

- Have tools available on request for planners/practitioners to use with the decision makers. Relate information on energy use, CO_2 produced, and costs (with how that relates to population's income levels).

13.1.8.7 Financial costs

- Compare cities on their spending for infrastructure, transport, transport-related, and citizen costs with respect to PT investment.

13.1.8.8 Psychological factors

- Practitioners/planners should be aware that customers are not all the same. Pro-social may already be inclined to ride and support PT. Depending on how many already do, they could be "low hanging-fruit" to increase ridership. However, pro-self may be less inclined and appropriate adverts and incentives should be used that speak to their focus. On the site, examples should be given of how the same projects can be sold to those different groups.

13.1.8.9 Tax

- Site should contain information on how city tax systems encourage development that reduces the number of car trips and especially the distance travelled by car.

13.1.8.10 Help planners use the tools of influence

- E.g. identify whether decision maker is pro-self or pro-social. Have guidance on how to present the same project, but in a way that appeals to those people. Include examples of using loss avoidance and future discounting to their advantage.

13.1.8.11 Prompts

- Site should include examples of prompts for different projects that can be used at the individual, neighbourhood, and city level and as use increases, suggested effectiveness of them.

13.1.8.12 Authority

- Leading city authorities could give testimonials.

13.1.8.13 Scarcity

- Include competition for inclusion in projects that help reduce the CO_2 produced.

13.2 D1.2 Design concepts and recommendations

Recommendations related specifically to each inquiry are first presented (Table 13-1) followed by more general recommendations based on consideration of all the findings in the D1.2 report (D1.2, Waygood and Avineri, 2010).

Table 13-1 Recommendation objectives and source from this report.

Section	Objective	Recommendation	Source
2.6	Improve CO_2 understanding	Carbon budget concept or tree equivalents	Survey; Focus group discussion
2.4.3	Improve CO_2 understanding	Provide per passenger information.	Survey
2.6	Improve motivation to change personal behaviour	Tree equivalents or carbon budget concept	Survey; Focus group discussion
3.3	Increase the perceived difference between travel scenarios.	Present CO_2 information as a loss (second mode is X more or "worse" than first)	Survey
5.3	Motivate citizens to change neighbourhood/city	Tie transport changes to strong communities, human interaction, and supporting/expanding local amenities (e.g. quality of life factors)	Focus group discussion
6.10	Help practitioners implement	Support networking by city/institution size and challenges	Interviews
6.10	Help practitioners implement	Support sharing of experiences and ideas: e.g. webinars, question and answer with experts, live discussions	Interviews

6.10	Help practitioners implement	Link CO_2 impacts to other challenges: e.g. congestion, crashes, health, finances	Interviews
6.10	Help practitioners implement	Provide information for alternative modes that work in current transport analysis system: e.g. UK system favours “value of time”	Interviews

13.2.1 Recommendation Example Applications

This section gives examples of how recommendations from the Behavioural Inception Report (D1.1, Avineri and Waygood, 2010) and this report could be applied. It is not meant to depict how CATCH will ultimately look or work, but to improve application of the concepts by giving concrete examples. The examples given will be based around the thought that the website could have two main entry points, one for citizens and the other for transport practitioners.

13.2.1.1 Citizen Portal

As described in the Behavioural Inception Report (BIR; Avineri and Waygood, 2010) citizens could be minimally categorised as deniers, tokenists, or adopters with respect to climate change. This basic division will likely relate to their motivation to change with respect to CO_2 information. As highlighted in the survey, focus groups, and interviews discussed in D1.2, people who have already made changes to reduce their CO_2 impacts are more motivated by such information, but that to reach a wider audience it will likely be necessary to highlight other benefits, or co-benefits, associated with changes.

Considering that, the user would enter the site as a citizen and choose a concern with their neighbourhood or city to investigate (Figure 13-1). Following a selection of one of the concerns, or motivations, the site would move to a second selection related to the first, but with more detail.

Figure 13-1 Example of citizen's motivation choices.

Following a selection of one of the concerns, or motivations, the site would move to a second selection related to the first, but with more detail (Figure 13-1). There would be a list of potential interest points, but would also allow the user to suggest other points. Those points could be added as “user recommendations” and could be followed up on if a sufficient number of users express interest.

Figure 13-2 Examples of a second selection stage for local amenities.

The next selection point could be on potential solutions to that selected issue (Figure 13-3). The citizen could follow further reading on what relates to problems with access or they could look at potential solutions.

Figure 13-3 Example of access to local shops selection.

Under “more about problems”, the user could read and see visual representations of the influences on the issue, in this case access to local amenities. Both the written section and visual one would include information related to CO_2 from transport.

Under “more about solutions”, the options should have some indication of impacts (Figure 13-3). Default information would be the relevant interest (e.g. access in the example here) and CO_2. The user could then select additional information depending on their interest. The site would also allow the user to sort the potential solutions by each of the measures (e.g. what’s the best for improving access? What’s the best for reducing CO_2?). The user should also have the option to suggest solution ideas for consideration by the CATCH community.

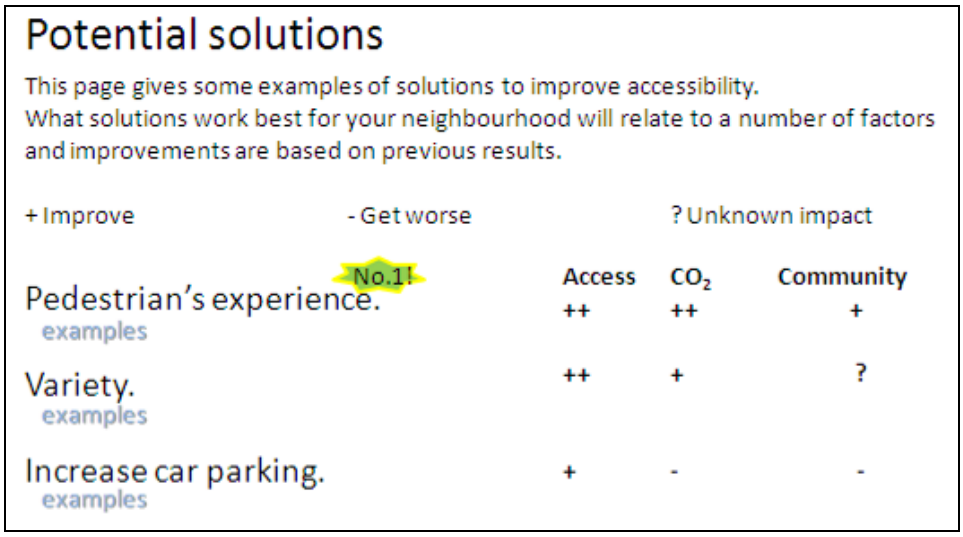


Figure 13-4 Examples of potential solutions for improving access to local amenities. (The potential impacts given here are merely examples).

A few points in Figure 13-4 should be further explained. The "No. 1" could highlight the expert recommended solution, giving authority to the project. Another value could relate to the user community's selections. That information on the users' choice would give policy decision makers an idea of what types of projects would be most accepted by the public as well as suggesting a social norm.

The "examples" in blue beneath each solution would lead to pages highlighting representative cities such as the ones shown in Figure 13-5. In that example, the title "Expand pedestrian realm" was used rather than "Restrict vehicle access" as the latter is worded as a loss and people are more likely to react negatively to it. As the site expands and improves, examples from more culturally, geographically, and population relevant should be given. Where possible, information such as before and after measures should be given. In the example given, the number of visitors per day, the modal use of public transit and non-motorised modes, and the overall CO_2 impact rating is given.

Figure 13-5 Illustration of examples given for improving pedestrians' experience.

The user is also given the option to “vote” for the solution by clicking on “like it” (Figure 13-5). The user has a sense of control and also sees the co-benefits to each choice. Ideally those highlighted co-benefits would be related to the user’s interests, the general user population’s interests, and recommended measures by experts. As the user has self-selected the solution, they have a greater sense of ownership and will likely view the co-benefits more favourably as they support that individual’s choice.

After clicking on “like it” the site could prompt the user with “*learn more?*”, “*help bring it your city*”, or “*What can I do?*” options (Figure 13-6). The first option, “*learn more?*”, would guide the individual to more in-depth information on the solution. That information could be an external site. The second option, “*help bring it to your city*”, could enable the user to easily contact decision makers to voice support, connect them with local groups, join an interest group already set-up or suggest that they start an interest group on the site.

Figure 13-6 Example of possible further actions by user.

It should also have a “*What can I do?*” selection that would suggest actions that the user could take (Figure 13-7). Those actions should be sortable by measures such as cost, time, and impact. The user could indicate whether they already perform those measures or make pledges to do those which they are interested in. The pledge should allow for different levels of commitment such as “start now!”, “start by (date)”, or “the near future”. Next to those pledges, an indication of how “popular” that choice is should be given along with the potential improvements both to the interest point and CO_2 impacts.

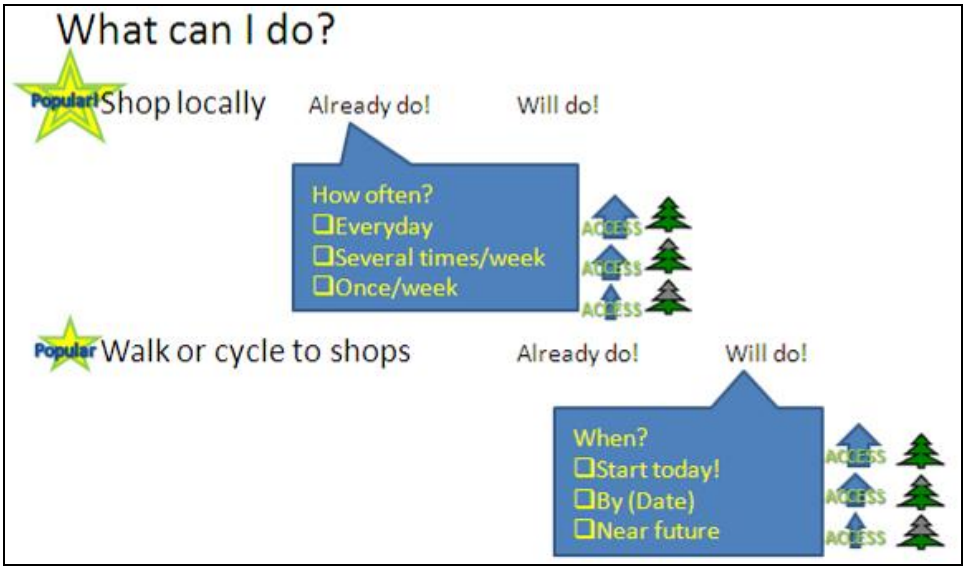


Figure 13-7 Example of pledges by user.

Making a pledge should increase the likelihood of a change occurring, with increasing likelihood by degree of commitment. As well, by making a pledge the individual starts themselves off on a direction of being consistent to that pledge. Ideally that pledge should be publically presented. Giving an indication of the popularity of the action will increase the sense that others approve and are already working to reduce their impacts. That is a form of social support and could have a social norming effect.

Another option on the topic page (Figure 13-1) could show the popularity of the different choices with respect to the user's location. Highlighting the most popular choice will likely have the tendency to increase the popularity of that choice with respect to the others. However, it may help give a sense that others are interested in those topics, giving confidence to the user.

Further to those examples, the site should allow for social support and interaction. Whether the site builds its own social networking site or suggests established ones such as makemesustainable.com, the site should allow for integration with popular sites such as facebook.com. That integration should display the individual's level of participation. This could be through symbols representing pledges to change and their "ranking" with respect to sustainable travel. This social display of participation should increase the likelihood that pledges to change are completed and also increase the visibility of the site potentially implying a social norm. The icon should increase the likelihood that the pledge will be completed because the individual will want to be "consistent" in their behaviour and it should act as prompt, reminding the individual of the pledge.

The example given here is not complete and work would be required on each of the threads that the user could follow. However, what is included:

a) Increasing carbon awareness by linking it to the problems and solutions sections.

b) Allowing user to follow their motivations for change.

c) Highlighting co-benefits.

d) Enabling the user to further investigate the motivation or problem they've chosen.

e) Improving trust by giving concrete examples of the improvements.

f) Allowing the user some sense of control by having them chose the topic.

g) Visual aspect should improve understanding of potentially new information.

h) Increasing social support to change.

i) Increasing likelihood of pledges to change being completed.

j) Increasing the visibility of the project and potentially contributing to a social norm aspect.

13.2.1.2 Transport Practitioner

Transport practitioners will approach the site with different needs than citizens. However, similar to citizens, practitioners do want information on co-benefits. However, their greatest interests may not be the same as citizens. Their interests will likely be related to what is valued within their work environment (e.g. congestion, capital and maintenance costs, etc.). That information will need to be more detailed than for average citizens for it to be useful to the practitioners.

Along with more detailed information, the information should also be relevant to their situation. That will relate to the size of their city, their current infrastructure, the attitudes towards modes, and problems they are facing. To help practitioners, information that is most relevant to their situation should be highlighted. Therefore, user profiles will be necessary.

The interviewed practitioners also highlighted the desire to network with others in similar situations. Through the profiles, the site could recommend both projects and people. Linking the practitioners who are starting out with “leaders” or “mentors” could also improve the success of projects.

Face-to-face discussions were important and valued by practitioners. CATCH may fundamentally be Internet based, but a feature that allows users to join groups and supports greater discussion through appropriate tools should be useful.

When highlighting co-benefits to the decision makers, a tool that visually shows changes and links to relevant cities should help (Figure 13-8). Further, using wording that highlights gains and losses could further influence choices (e.g. cost versus savings). Expanding the measures away from traditional ones such as construction costs or flow of traffic could help decision makers make more holistic choices.

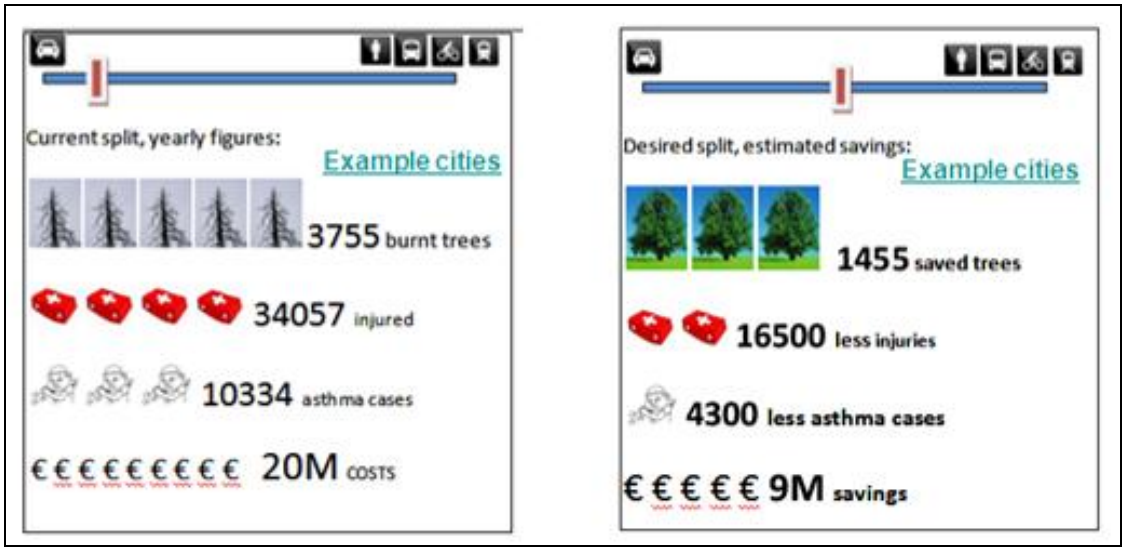


Figure 13-8 Example of co-benefits at city level (based off work by Systematica).

Similar to the citizen’s example, the cities that represent that mix of modal shares should be highlighted (e.g. the “example cities” link in Figure 13-8). Links should provide information related to valued indicators (e.g. crashes, capital, average travel times) and recommended ones such as CO_2 information and quality-of-life measures such as health. Where possible information on projects completed by those cities, evaluation systems for transport plans, and contact information should be provided.

13.2.1.3 Knowledge Platform

Identifying the problem

1.1. Best practice on identifying the problem:

1.1.1. Identify barriers to change: example of Fostering Sustainable Behaviour website (http://www.cbsm.com/pages/guide/barriers).

1.1.2. Objective/Technical measures.

Finding relevant schemes: sorting

1.2. Co-Benefits (want to reduce CO_2 , but also want to improve X)
1.3. Context (e.g. facility, local neighbourhood, city, region + population size)
1.3.1. Mobility Management (not infrastructure changes) MaxExplorer (http://www.epomm.org/index.phtml?ID=2176&id=2188)
1.4. Authoritative
1.4.1. What schemes are recommended/approved by authoritative websites such as government transport agencies?
1.5. Practitioner recommended
1.5.1. What schemes are the users (practitioners) picking as favourites?
1.6. New Ideas
1.6.1. What schemes have been suggested, but haven't been rated by the users?

Rating schemes (user/expert rated)

1.7. Funding requirements
1.7.1. Funding sources
1.8. Time to implement
1.9. Scalable? Or what size of area/population is the project relevant to?
1.10. What problems can it address?
1.11. Process recommendation
1.12. Local partner contacts relevant to project
1.12.1. PT operators
1.12.2. Urban form designers
1.12.3. Transport designers
Community groups, leaders
1.12.4. Businesses
1.13. Impact
1.13.1. User opinion
1.13.2. Empirical (where available)
1.14. Culturally relevant?
1.15. Climate relevant (e.g. what may work in a hot, dry place isn't necessarily relevant to a cool, wet place)?
1.16. Implemented? Examples
1.16.1. Case study write-up
1.16.2. Contacts
1.16.3. FAQ
1.17. Want to see a presentation?
Voting to see one
1.17.1. Video of presentation if available

Communicating: How to engage with

1.18. With decision makers
1.18.1. League tables – how does my city rate?
1.18.2. Impacts and considerations: www.civifootprint.org
1.19. With the public

1.19.1. Persuasion: http://www.cbsm.com/pages/guide/communication

1.19.2. Campaigns:
http://www.epomm.org/index.phtml?Main_ID=2174&ID1=2179&id=2202

1.19.3. Connections with daily actions:
http://sustainability.publicradio.org/consumerconsequences/

1.20. With businesses

1.21. Between disciplines

1.21.1. Land use planning:
http://www.epomm.org/index.phtml?Main_ID=2174&ID1=2180&id=2216

14 APPENDIX E: WP2 Design Guidance

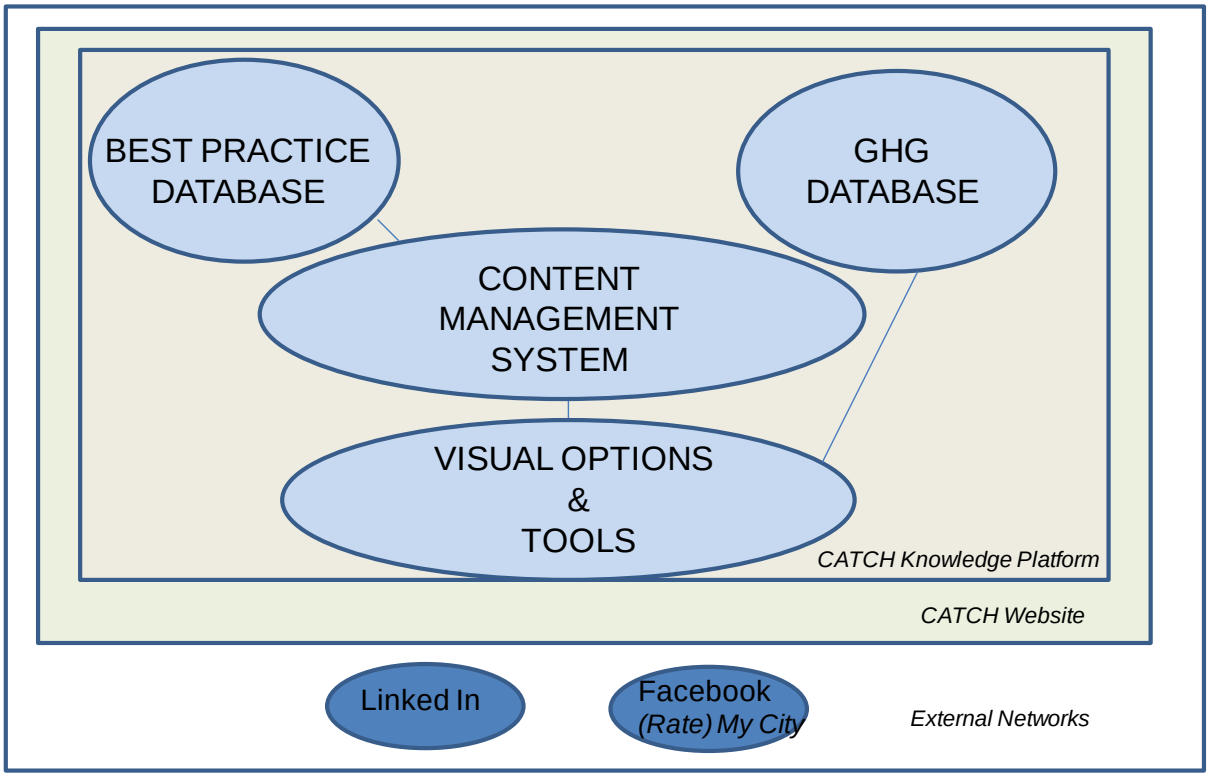


Figure 14-1 CATCH conceptual framework (based on D2.1 Interim Report).

14.1 D: Transfer of findings from WP1 to design guidance in WP2

A request was made by WP2 leaders (MRCMH) to WP1 leaders (UWE) to create a list of "needs" for the platform, explaining why, and, where possible, ideas on how those needs might materialise as functions or tools. Table 14-1. and Table 14-2 show what recommendations were made.

Table 14-1 WP2 Design guidance for general public users.

The platform should do this	BECAUSE	TOOLS
Must attract interest on *improving* the city	Few people will be motivated by CO_2 concerns	Transport Links 101 - connections between transport decisions and various aspects of neighbourhood and city life.
		Voting on issues about the city - and linking issue with Transport Links 101
Must link proposed changes with other impacts	Changes to transport affect many aspects of life.	Transport Links 101 - connections between transport decisions and various aspects of neighbourhood and city life.

		Sliding tool by different categories; e.g. Road space per person, mass transit coverage
Must inform people and address "common knowledge" myths	People's ideas of transport are outdated and short-sighted.	Transport Links 101 - connections between transport decisions and various aspects of neighbourhood and city life.
		Common misconceptions ("myth busting") - specifically address cost, time, accessibility vs mobility
Must give people a sense of actual contribution.	People need to feel that their time was well spent.	Log comments
		Get local practitioners to respond to comments
		Voting on comments, policies, projects, case studies, etc.
		Register planned attendance to local meetings
		Register interest in specific solution types (e.g. Cycling, rail transport, pedestrian, etc.) and get notified when new information is posted.
		E-mail decision makers
		Badge - allow users to post a "badge" on some public social networking site showing they contributed.
		Invite friends
Must give people a sense that someone is listening	People need to feel that their time was well spent.	Get local practitioners to respond to comments
Must link long term goals with short-term decisions	People have difficulty understanding the wider impacts of personal choices.	Transport Links 101 - connections between transport decisions and various aspects of neighbourhood and city life.
		Extrapolate tool ("What if I...") tool lets people see how making changes to daily travel can have a big impact over the year.

		Extrapolate tool ("What if everyone...") tool lets people see how changes in city transport would affect different measures
Must be accessible and well-organized	Many people will have low knowledge in numerous areas.	Transport Links 101 - connections between transport decisions and various aspects of neighbourhood and city life.
		Transport Links Advanced - once general knowledge is achieved, let users read on more complex aspects
Must develop a presentation style of CO_2 that means something to people	Most people do not know how to interpret CO_2 information, so ignore it.	CO_2 equivalents - perhaps numerous variations, let user decide. All options must be clear
Must not solely focus on CO_2 aspect if it is not one of the individuals primary concerns	Few people are motivated by CO_2 concerns and will want to know about their concerns.	
Must include CO_2 information	Purpose of project is to improve awareness, linking other concerns to CO_2 will improve that.	
Must get expert opinions on links	Expert opinions will stand up to criticism better.	What the Experts say - short articles by experts on the links between transport and areas of interest. Address specific areas.
		Testimonials/short videos - it takes less effort to watch a 5 min video as to read 5 minutes; and if done well, more interesting.
Rankings of concerns must have some follow-up	People want to learn more about the links to their concerns.	Transport Links 101
		Solutions - what can be done to address these problems
Holistic responses to concerns should be included	People value information related to something they are already interested more. People	Solutions - what can be done to address these problems

Make information locally relevant	People value "relevant" information, which is often considered to be more locally based. It is easier to dismiss information that is too general or only felt relevant to some other place.	Filter information so that it is at lowest (most fine) level, but allow options to look at wider area too.
Have a vote on "do you want to help improve your neighbourhood/city?"	People should more likely investigate their concern and potential solutions. The simple statement of wanting to help should increase the likelihood of actually completing an action	
Have some image to post on social networking sites	It will act as reminder of contribution, prompt repeated visits, potentially prompt further action	Badge should indicate level of involvement.
Give potential solutions (with holistic impacts) relevant to concerns	People want to learn more about the how to impact their concerns.	Solutions - what can be done to address these problems
Link people with similar concerns	Social information is valued. Also important to feel that "others" have the same concerns.	People with similar concerns - highlights other users with similar concerns
		Invite friends
Have discussion points where practitioners give feedback	People want to feel that their concerns are heard and being considered. Practitioners can also act to point out information that would address concerns.	
Must give examples of places "where it's done better"	People want to know if things are done better elsewhere and what they are doing to make it that way.	Best practices - national and international examples of best practices
		A day in the life - highlight individual lives in best practice locations (personalise it)
Include multi-media	Images and video can express more than words; people have different learning preferences	

Table 14-2 Design recommendations from WP1 for transport professionals.

The platform should do this	BECAUSE
Link to best practices (filter information)	Practitioners want to know what the "approved" methods are.
Link to most popular solutions (filter information)	Practitioners want to know what the "possible" solutions are. Also, more popular solutions increase the likelihood of finding someone to help with the development.
Give straight-forward instructions of the development and application of solutions	Practitioners want practical information.
Link practitioners with practitioners facing similar problems	Social support, problem solving, and information sharing
Make it easy to search for solutions on particular topics	Practitioners want something that reduces search time by highlighting the most relevant material
Use opinions and knowledge of practitioner community (filter)	Practitioners value what others have supported.
Filter solutions by relevancy (e.g. City size, problem, current mode split)	Practitioners value information that is felt to be more relevant to their situation
Make networking and knowledge sharing easy	Practitioners value information from others in the field
Include a discussion forum on problems and solutions	Practitioners have problems that may not be addressed yet in the site and other practitioners may have the answers.
Filter solutions by country	Some solutions may be culturally specific

Filter solutions that are "approved" by authorities	New solutions may be difficult to get approval without the "clout" of establishments such as national transport agencies.
Allow users to tag information	Practitioners can contribute to community by helping with filtering by tagging.
Include multi-media	Images and video can express more than words
Input of new information	Knowledge is constantly expanding

14.2 WP2 Interpretation of guidance from grounding

This grounding work has shown that in order to motivate change there are a number of guiding principles:

- Carbon reduction messages in mobility must focus on other (linked) issues of value and not just mobility (e.g. quality of life, local amenity) *because* those without interest in the topic or “deniers” of global warming will not seek out information;
- Carbon reduction messages in mobility must be represented as a relevant aggregate (e.g. the impact on the local city) *because* many do not see the bigger picture in carbon reduction (they feel that their changes will have little impact);
- Carbon reduction messages must help those with an interest in change to understand the appropriate type and level of change, as well as the importance of mobility within overall carbon production *because* “tokenists” will usually make very small and inappropriate changes;
- Carbon reduction messages are best presented as testimonials from those individuals/authorities which are felt to face the same challenges and have the same characteristics *because* this information is felt to be more relevant thus facilitating better knowledge transfer and assimilation;
- Carbon reduction messages on mobility must tie policy benefits in mobility to other non-transport benefits (e.g. health, economic development, social inclusion) *because* this is a more holistic approach and fosters wider support..
- Consider *how* information is presented (e.g. loss framing, anchoring effect) *because* this will affect interpretation, motivation, and choice.

14.3 Technical team interpretation

A workshop was held between partners of WP5 (Q-Sphere), WP3 (UNIPA), and WP2 (MRCMH) to translate recommendations from WP1 to design guidance.

Table 14-3 Linking CATCH Objectives to Options – Public

Objective	Form	Tool Description – long list
Enhance and increase awareness of environmental impacts of mobility and potential improvements	Active	· Travel impacts: input -> CO_2 impacts; profile; targeted choice (within and between mode); potential direct trip planning advice (journey planners) *such tools exist* · Testimonials (from other public) to aid in knowledge sharing about lower car use in locale. · Causes of CO_2 – causes of death – Semantics/framing; *tool idea:* apply behavioural economics to presentation of information (output to user relevant). · Impacts of making a change; *tool idea:* What if...: willing to give up for a day...this would mean ... prompt and return (link to discussions) (norms) - commitment in public (e.g. facebook, [LINK TO LOCAL POLICIES]
Enable travellers to make timely and informed climate friendly travel choices	Passive	· Links to travel planners/critique carbon calculation (general and/or profile and point) · Causes of CO_2 – specific; make knowledge transparent and accessible for those interested; *tool idea*: knowledge management system · Links to destination based trips (e.g. home shopping, impacts of buying local pizza) – *tool idea*: examples of day-to-day choices and their impacts (e.g. shop locally by foot/bicycle vs driving to major supermarket). · Testimonials – trusting friends and key people
Empower public transport (PT) operators, managers, mobility stakeholders to rapidly and accurately incorporate environmental operations and challenges in planning and innovation	Active	· Quoting and Voting on options (raw examples), and also stratified (not just interest groups) – *tool idea:* SIGN A PETITION · Trade-off tool – presenting within city spending
Identify/forecast change in climate friendly behaviour resulting from introduction of financial measures /incentives targeting GHG reduction	Passive	· Financial Budgets and Mobility; individual, household budgets and city budgets/spending on transport · Increase awareness of policies and impacts – needs context of implementation
Link the KP to fiscal measures (taxes, charges, carbon trading) to ensure combo encourages behavioural change	Active	· Financial Budgets and Mobility; individual, household budgets and city budgets/spending on transport · Increase awareness of policies and impacts – needs context of implementation
Ensure new mechanisms exploited integrating global dimension GHG reduction	Active	· Awareness raising (so do not vote on something they don't know) · Research and policies – ideas gallery (KK)
Enhance transparency and public understanding of government and corporate	Passive	· (via City) – policy justification – why are we doing this?

change policies and increase trust		

Table 14-4 Linking CATCH Objectives to Options - Professionals

Objective	Form	Tool Description – long list
Enhance and increase awareness of environmental impacts of mobility and potential improvements	Active	· Policies and how they work – menu/FAQ re: funding, implementation · Networks – linking leaders in implementation; linking with people in similar role and cities with similar challenges. · Mapping – your city, environment and accessibility, affordability, economic prosperity. (NB. Hard to do dynamically for each – use example cities) · Introducing new concepts, e.g. environmental justice; knowledge platform to link to useful information sites such as TDM encyclopaedia (http://www.vtpi.org/tdm/) · City index
Enable travellers to make timely and informed climate friendly travel choices	Passive	· Design guidance and best practice (dos and don'ts) · Profiling data to help design...?? · Making data available for private developers – open source
Empower PT operators, managers and mobility stakeholders to rapidly and accurately incorporate environmental operations and challenges in planning and innovation	Active	· Ideas and exemplars · Applications/successful – e.g. applications for ERDF · Networks – leaders etc · Voting from their city – explosion of myths (e.g. the disconnect between decision makers and average citizen wants). · Index and ranking (non scientific) – my city. Emotional connection (pictures)
Identify/forecast change in climate friendly behaviour resulting form intro of financial measures/incentives targeting GHG reduction	Passive	· Impacts review of examples (case studies) · Testimonials – other planners...? Solutions providers
Link the KP to fiscal measures (taxes, charges, carbon trading) to ensure combination encourages behavioural change	Active	· Links to technical reports
Ensure new mechanisms exploited integrating global dimension of GHG reduction	Active	· WP8 – key international themes · Engagement tool for public for city/NGOs
Enhance transparency and public understanding of government and corporate change policies and increase trust	Passive	· Guidance from WP1 on how to communicate · Build trust – Management Board

15 Appendix F: Detailed results of final evaluation

This section reports the complete comments from the final evaluation with transport professionals reported in chapter 4 of this report. As in that chapter, this appendix is separated into responses for the part I (section 4.1) and II (section 4.2) of the final evaluation.

15.1 Part I: Transport Professionals

15.1.1 General Message

Users were asked, “In your opinion, what is the CATCH platform about?” to check whether the purpose of CATCH was clear. The responses were categorised as “accurate” if they generally captured the sense of increasing transport CO_2 emissions awareness or helping to reduce transport CO_2 emissions. If the response related to CO_2 emissions but not to transport, it was categorised as “CO_2 related”. All other comments were categorised as “other”.

Accurate description of CATCH’s purpose

User Type	Comments
TP	Collating information on low-carbon travel. However the platform seems to collate everything from formal literature/news to blogs and comments
TP	Information about CO_2 and how to reduce CO_2
TP	The platform is focused on improving user knowledge about sustainable behaviours in its daily life
TP	Something to do with motivating CO_2 reduction, but I'm not sure who for.
TP	Creating a centralized information portal/data bank for all relevant info related to sustainability.
TP	Bringing together lots of information about carbon reduction for Cities.
TP	help to inform on climate change and CO_2 reduction
TP	Information resource to inspire reducing CO_2 emmisions from transport
GU	Its a place where people can obtain information about how other cities in the world tackle the issue of trying to reduce carbon emissions. You can also find out useful statistics about your own city.
GU	education regarding reduction of CO_2
GU	In is a site where you can find information about pollution and mobility in cities

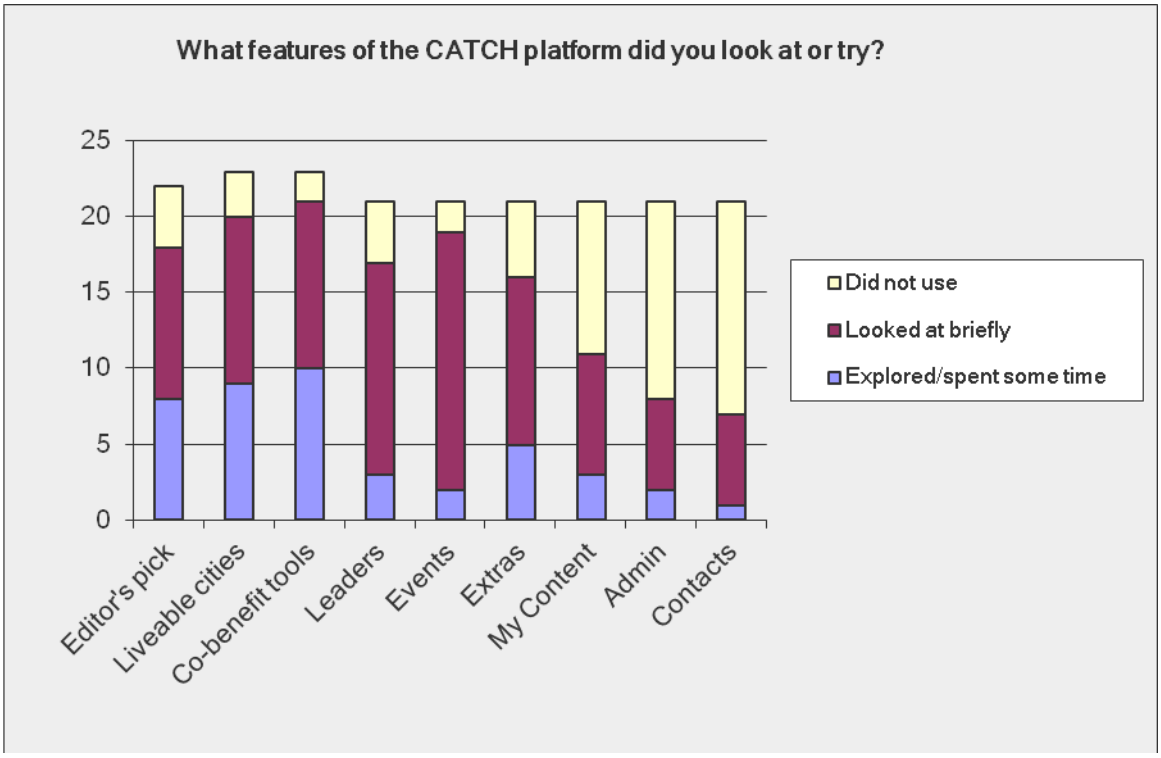
CO_2 related comments

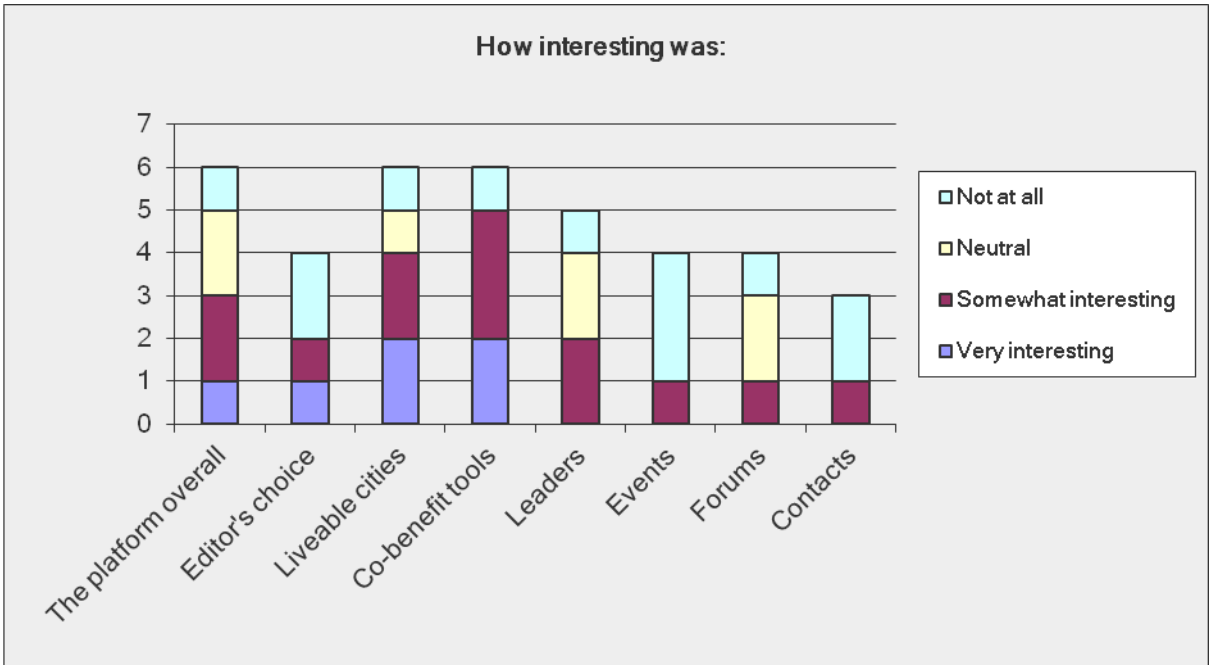
User Type	Comments
	a tool to compare cities' performances in terms of sustainable development (especially travel-related)
	About how to reduce the CO_2 emisions
	reducing CO_2 emissions re how we live.

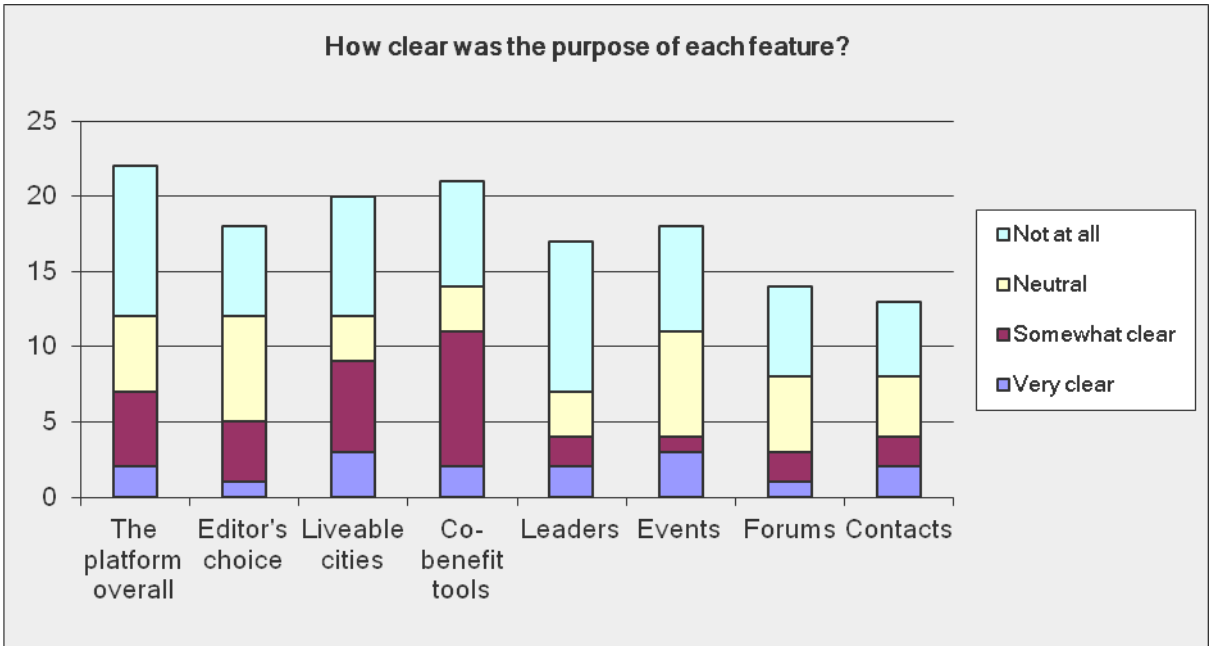
Other comments

User Type	Comments
GU	I think is not a useful platform, it is not obvious how work in it, the content is not structured, the possibilities on find documents is not clear..... and there are no interesting contents on it and I think is only a document web repository; in which it is difficult to find something really usefulness. In my opinion is better Google search in a browser to find more useful information related with climate change.
GU	I don't know. I couldn't open any of the links, news articles, or see any of the features. When I tried I always got a java "failed to create" something. The only thing I was able to open was some picture, with a line of text beneath

15.1.1.1 What functions or features were used, were interesting, and had a clear purpose?







15.1.1.2 What functions or features were liked?

The users were directly asked on open ended question on what features or functions they particularly liked.

My City

	The source of data included that can be helpful to practitioners and researchers
	Co-benefit tools
	not only CO_2 emission calculator
	co benefit tool
	The my city tool and the leaders folder is also somewhat interesting

Content

	The source of data included that can be helpful to practitioners and researchers
	the amount of available data

	That it brings together useful information in one place
	The Platform brings together a lot of information into one single resource. This information just needs to be made more accessible.
	article

Purpose

	It seems to have an interesting background but is not accessible at all
	The most I like about the CATCH platform is its goal of reducing greenhouse gases by means of small personal changes such as using public transport.
	The purpose of the platform.

Other

	Nothing
	Nothing at all
	Nothing. At this stage it doesn't work. I even had problems installing it. I got through only on the second attempt.

15.1.2 My City Tool Responses

This section contains the specific comments that users made about the My City tool that were summarised in the main report.

15.1.2.1 Things They Liked

Of the fifteen people who used the My City tool, thirteen had positive comments about aspects that they liked that included the information (data), comparing with other cities, and the design of the tool.

Information

TP	A lot of information that could be useful if this is well organized and easy to find
TP	There is a lot of information built into the tool which gives an interesting wider view of carbon reduction
TP	new approach to organize datasets on climate change
TP	I do feel strong links with my city, I am a part of it.
GU	There was a good choice of cities. Liked how you can create your agenda at the start. Starts to make you think about what is important in terms of trying to reduce carbon emissions in your area.

Comparing with other cities

TP	The meter on the bottom that tells you how favourable or unfavourable is each my city's indicator compared to other cities
TP	Vaguely interesting to compare cities
GU	Comparison among cities and the ranking of top 5 cities

Design

TP	Attractive and clear lay out
TP	The My city tool has a quite good user-friendly interface
TP	The look and feel aspect, and the easy way to navigate on it, mucho more compare with the rest of the platform

15.1.2.2 How would you improve the tool?

Purpose

TP	Clarity of purpose, plus it was very slow to load and move from page to page
TP	Not sure. Who is it for?
TP	I think a clear indication of its purpose, what motivated it as a tool. Why is it important to compare two cities?

Information organisation

TP	Too much information together and not well organized makes you loose interest
TP	reduce options to a selected list, help localize comparison city (maybe nation initials)

Other

TP	The tool needs to run a little faster. Also, at times I selected one indicator from the drop down list, but the tool actually displayed an entirely different indicator.
GU	to have more data available from the cities selected for comparison

GU	how to find it
GU	The layout currently looks a bit like a database. Perhaps using more attractive icons to click on for information might prove more appealing.

15.1.3 Improving the Platform

Technical problems

	I can't tell, I didn't have the chance to browse all contents due to system errors
	It should all be changed: The application is too slow, so it makes you loose time and interest
	MAKING IT ACTUALLY WORK. Please note that all responses related to the platform and platform content are based on the fact that I could not access any of the content. I was able to log into the platform and see the title of the content in each folder, but accessing any individual item requested a further log in and the username/password provided (this is my 2nd username/password) did not work for that.
	The design and technical issues with loading etc.
	It is important to be compatible with browser like explorer;
	because the tool was slow to load at times, I think people would assume pages were blank or would move on before waiting for them to
	Can you redo it entirely? If not. It needs major work on the code. It isn't working, at least for me. I'm using the latest version of Firefox and the OS is the MS Vista.
	Well, the most important thing would be to make the platform work, which it doesn't (at least when I tried to use it)
GU	There were quite a few areas I could not access. I got a message coming up saying 'SAFARI must be installed to use a SWT.WEBKIT-style browser. That was disappointing.
GU	As far as I know I do not know why the program is written as a Java Program. The fact that you have to install and run a program with an invalid security certificate that generates security warnings does not make sense. I expected the platform to be a website with a Content Management System (CMS) that would allow the platform administrators to add, edit or remove content as required. The majority of people would expect to go onto the web and type a URL to the website rather than launch something installed on their machine. I have hardly been able to make any of the functionality work. Most of the time I have just received a strange message. A few other points: - The home page does not look professional with all of the distorted images.

	- I could not add any dates of birth of the form 'dd/mm/yyyy' during my attempt at registration. - The ticker tape at the bottom of the screen appears to be hyperlinks but nothing happens when you select them (this is rather irritating) - All error messages are prefixed with 'Q-Sphere' which does not make sense. It is my opinion that the tool is nowhere near a standard appropriate for deployment.
	I couldn't install CATCH on my Mac. Once that I installed it on my PC only the co-benefit tool worked. I couldn't open any other content (error message "failed to create etc...")
	It is difficult to provide feedback on the basis that I could not access the content.
	Bad. Doesn't work and doesn't look very promising, Needs a complete turnover, technical and style wise.
	I found the platform not easy to navigate, specially the 'my content' folder. The platform in general is slow, also in browsing contents and folders
	If the application is faster and is more organized
	Making it work. Then I could assess its true value
	-Faster - Easier to access the exact information I'm looking for
	That it would actually work.
	The low resolution of the images on the homepage (Editor's pick) give it a bit of an unprofessional feel.

Usability/Design/Layout

	It should all be changed: The application should be more user friendly so you can choose things from a menu, and also it needs a guide
	I think that the site all needs to be changed so that it looks more modern and professional. At the moment it looks very amateurish which puts me off using the site.
	A more intuitive interface as some contents are difficult to find

	The system is not easy or obvious to understand & use. I think most people would come on, struggle to understand what was in the system (i.e. all the information & the tool) and wouldn't take time to investigate.
	Can you redo it entirely? The visual part of the platform needs major overhaul. It looks old, outdated, poorly designed, the fonts are small, and so on.
	More intuitive interface
	Changes to layout
	It is very important to include really usefulness contents on Low carbon cities; and to get a easier layout... but as I said it is more important to know what are the main reason you are looking for.... to get a useful tool
	I don't think the bottom bar showing the recently approved documents should be included. The City Tool looks professional but the general design of the platform seems outdated
	Something on the page for screens such as the 'editors choice' screen.
GU	I found the strapline on the bottom very irritating.
GU	more user friendly
	- The list of actions at the bottom of the screen saying 'waygood_pmg Document "Good" has been rejected' does not make any sense. - Scrollbars are coloured in a strange way which does not make them obvious to use (easier to explain in person than in this textbox).
	I don’t like the platform in its current form. It is not very user friendly and does not entice me to look at things which I am sure are interesting. It is very dull.
	It is a good idea, but needs and more attractive delivery
	I slightly like the platform although it is little attractive for non-expert users
	Needs a complete turnover, technical and style wise.
	If the application is faster and is more organized, I might use it more.
	Needs a more modern and user friendly platform.

	Needs a better layout and improved usability.
	Needs a professional
	A global change, in which you know what are you looking for. I mean if the content is only web pages... I do not understand why not use a google search. If you wish to find documents related with specific questions, then use a repository information tool and an in-document search management tool. It is not clear what is the main objective of the platform.
GU	A far more user-friendly interface and statements clearly stating the advantages of using the platform.
GU	easier

	User guide on the homepage instead of hidden in the Extras.
	better organization of contents to help users
	Clear indications at each stage of what the purpose of each section is. Links and ensuing documents sometimes seem random and unlinked.
	Based on the items listed, for example, under popular news, there appears to be too much content to be really useful
	The ‘popular news’ section had all kinds of interesting titles for the news items, but the ones I tried directed me to boring general homepages, where I couldn’t directly find the news items themselves (e.g. Transport technology and coffee, or Bicing).
	It is very important to include really usefulness contents on Low carbon cities; and to get a easier layout... but as I said it is more important to know what are the main reason you are looking for.... to get a useful tool
	change order in content; the co-benefit tool should be the principal tool, everything else is like an apps
	It should give you easier information in first moment and then if you want more information to you ask form it. In my opinion too much information in people not interested in this topic does not attract them

	The rolling news at the bottom of the page got on my nerves a bit.
	Nothing at all (would make me use it more)
	A brief but clear introductory presentation/video about what the platform actually has to offer to its users.
	To see information about what my city council is doing so as to have a more environmentally friendly mobility in the city

15.2 Part II: General Public

15.2.1 General Comments

This section reports the complete comments summarised in the report.

15.2.1.1 General Message

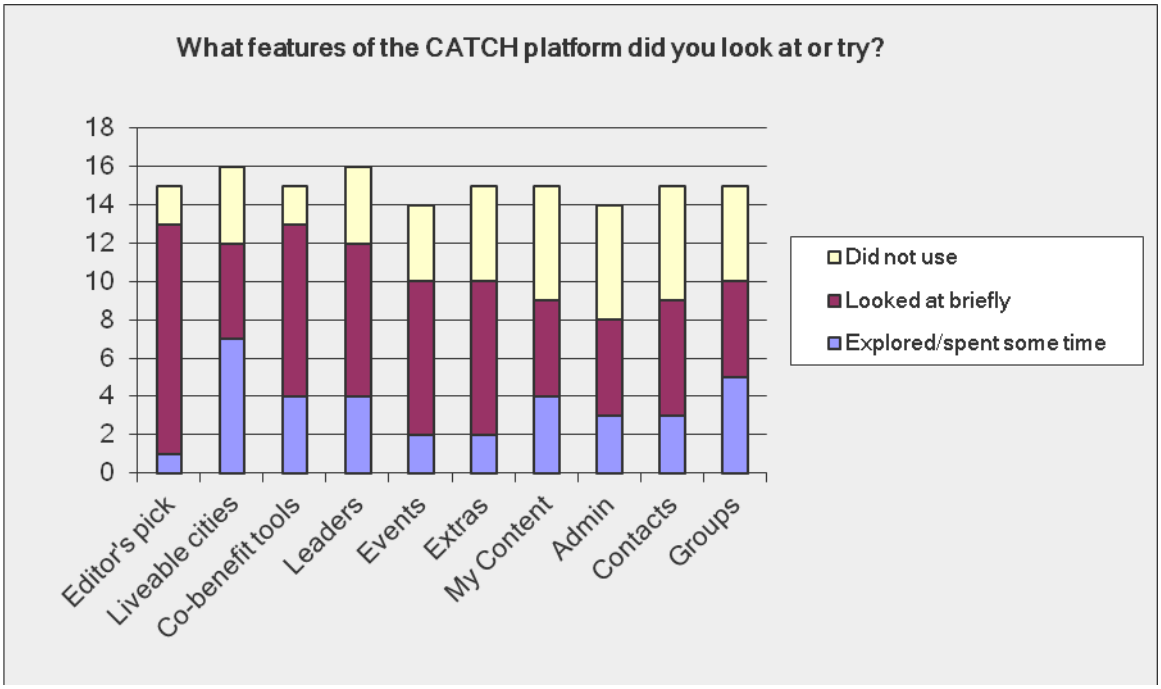
Users were asked, “In your opinion, what is the CATCH platform about?” to check whether the purpose of CATCH was clear. No comments included both CO_2 emissions and transport, though all understood that it was related to climate change in some respect.

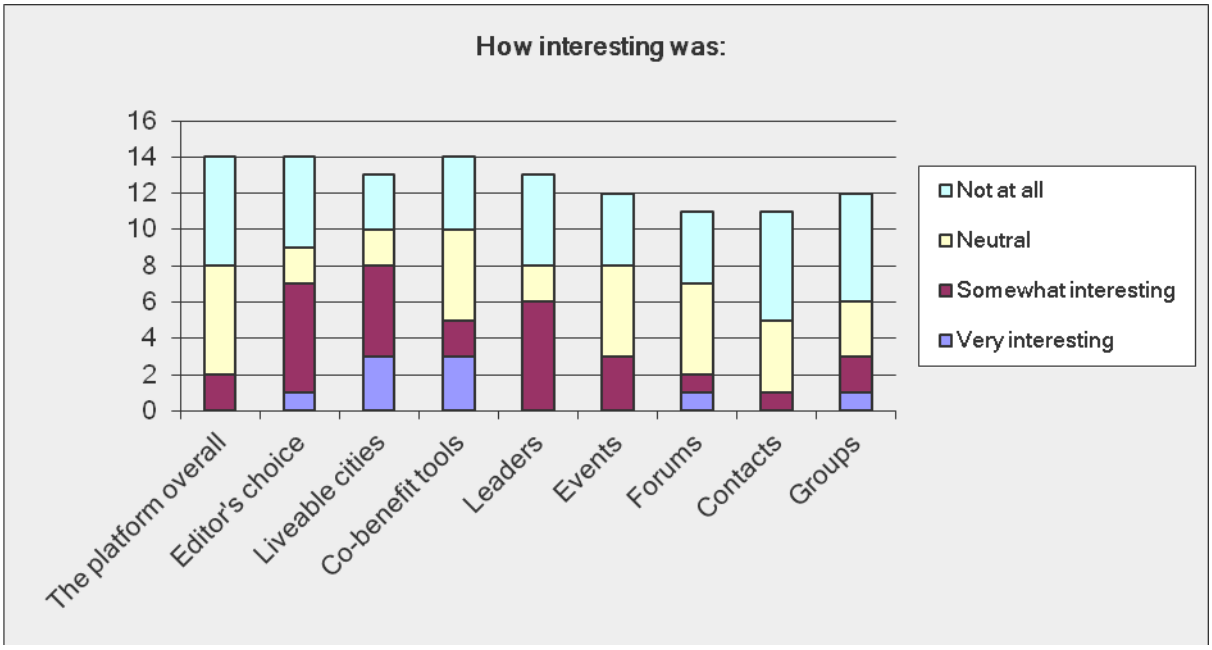
Comments on what the CATCH platform was about.

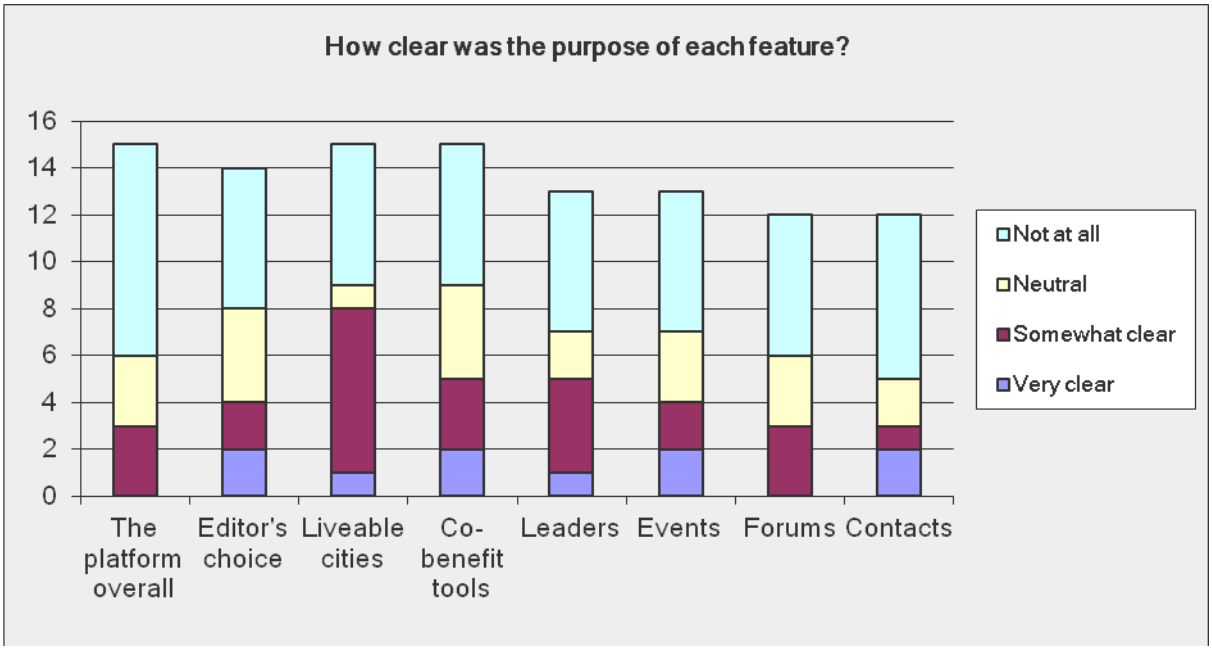
Giving information to people about reducing carbon emissions
Carbon and the environment
It is about reducing CO_2 emissions and increasing knowledge and improving behaviour around that. I was expecting it to address behaviour change more specifically but it seems to be stronger on the knowledge/awareness aspect.
Effects on climate change, both personal and community based Information
I genuinely have no idea!! It’s about global warming, carbon etc. but I do not see how it serves a purpose to the average go. It should be brought down to a lower level where someone can see how the way THEY do things affect the cities cf, and alternatives they could do instead. A web forum would be much better than the groups/ documents/ PM system on here and I think people would be more likely to use that!
Sharing information on carbon emissions in a bid to reduce them
Giving information to people about reducing carbon emissions
Carbon and the environment

Trying to get people to reduce carbon emissions
CO_2 reduction.
HOW TO REDUCE CARBON EMISSIONS
How to reduce one's impact on the environment.
The environment and carbon emissions
CO_2 emissions
Global warming
Global warming
Sharing information in a bid to reduce emissions
Ways in which we can reduce our carbon footprint, and share ideas with others interested in doing the same. Also read about the latest articles relating to climate change and CO_2 emissions.
reducing the CO_2 level and making people more aware of how they can help.

15.2.1.2 What functions or features were used, were interesting, and had a clear purpose?







15.2.1.3 What functions or features were liked?

The users were directly asked on open ended question on what features or functions they particularly liked.

15.2.2 My City Tool Responses

This section contains the specific comments that users made about the My City tool that were summarised in the main report.

15.2.2.1 Things They Liked

Interaction & Information

Interactivity is good.
Sharing of webpages, documents etc
Other people sharing document, links, webpages etc
Information

My City

My City
Comparative data
Having the opportunity to find out more about my City
Information about local area is good.

Other

Good concept.
It appears to be everything required in one place

Nothing

It was a nice shade of green?
I didn't like it at all. It's awful.
Nothing
I didn't like it at all.

Nothing
Can't really think of anything
Nothing

15.2.2.2 How would you improve the tool?

Navigation

I found it difficult to navigate with ambiguous title links,
I don't like the left hand side bar. It's not very user friendly or visually appealing and seems to repeat functions on the main page. Suggest including functions that are only accessibly to registered users on main site and either greying them out or somehow making it obvious that they are accessible upon registration. I spent a long time trying to find them and then realised I needed to register. However, the registration process did not work for me.
the menu system is confusing, I had no idea where to find anything, I had no idea what any of the stuff I could find meant, the interface was clunky and looked like it was designed in 1992. There should be a home button top left. Menus should be simpler.
making it more directional and easier
Improve the aesthetics and make it easier to navigate
It needs to be simpler to use, with an easier navigational layout (much like a webpage - with a back button or a home button) also a home screen could be good with links/explanations about the content of the platform. The structure maybe needs looking at - I found it very difficult to use.
Also, most of the time I could not see anything that would allow me to go back one step.

Audience consideration

Needs more thought about who the audience is and what the site is trying to achieve specifically. It is very theoretical and academic so potentially useful to policy makers but what about to Joe Bloggs?
but I do not see how it serves a purpose to the average Joe. It should be brought down to a lower level where someone can see how the way THEY do things affect the cities cf, and alternatives they could do instead. A web forum would be much better than the groups/ documents/ PM system on here and I think people would be more likely to use that!
I found it completely confusing, I'm afraid.

making it more directional and easier
It also needs to be more clear, and have simpler terms if it is to appeal to the wider public - some of the sections need to be described a bit simpler and in a bit more depth.
It all seems to be coming from an academic point of view and therefore not very "retail" friendly

Layout

don't like the left hand side bar. It's not very user friendly or visually appealing and seems to repeat functions on the main page. Suggest including functions that are only accessibly to registered users on main site and either greying them out or somehow making it obvious that they are accessible upon registration.
Look and feel should be sleeker.
Better aesthetics/layout
Improve the aesthetics and make it easier to navigate
It needs to be more simple to use, with an easier navigational layout (much like a webpage - with a back button or a home button) also a home screen could be good with links/explanations about the content of the platform.

Speed

Everything was slow, nothing loaded, and at one point I got stuck in the document search bit, so I just gave up on the whole thing,.
More efficient/faster
Many of the pages would not respond. Notice read 'Failed to create crriis.dj.nativeswing.swtmpl.components.core.NativeWebBrowser (followed by a number) I could not even get to the Users Guide which would surely have been helpful. I tried going through my default browser Mozilla Firefox and then Internet Explorer with same results. Very frustrating.

Wording

The link titles meant nothing to me and seemed to have no relation to the links attached.
It also needs to be more clear, and have simpler terms if it is to appeal to the wider public - some of

the sections need to be described a bit simpler and in a bit more depth.

Graphics

Improve the aesthetics and make it easier to navigate
Not enough graphics, pictures or interactive links to hold the interest of someone not really interested in reducing carbon emissions who I would have thought are just the people you want to engage.

Other

It is a very boring platform. It needs more interactivity…This site is only interesting to people already interested in climate change.

15.2.2.3 Using the platform more

The participants were asked “What would make you more likely to use the CATCH platform?”

Navigation/user design

More straight forward link titles.
Easier to use
easier to navigate
less confusing link titles, easier to navigate
Simpler and more user-friendly
Easier to use
Simplicity
If it were more responsive eg all the pages I clicked on came up!
more efficient

Layout

A better layout,
Easier to the eye

More aesthetically pleasing
More visuals
IF THE LAYOUT WAS DIFFERERENT
Simpler
better aesthetics,
Personally, I am a visual learner, I take in information when it is in colours,

Information

clearer research showing a link between carbon emissions and climate change addressing the reasons people such as my myself don't believe that carbon emission is the cause of global climate change.
I was expecting it to be more practical rather than academic and theoretical.
Simpler
Authorities for data

Interactivity

It needs to be much more interactive and something like regular competitions to draw people back to the site who wouldn't usually use it.
More interactivity, competitions
Personally, I am a visual learner, I take in information when it is in colours, and in activity form, so more activities (much like the city page with the lists)

Other

More attuned to my everyday life
Being able to open up the content of my city on my computer
If it were more responsive eg all the pages I clicked on came up!

If it was web based, rather than download, also if all the above was changed! Also, I had no idea what all the graphs meant and how they were relevant to me!

15.2.2.4 Not using the platform

The participants were asked, “If you are not likely to use the CATCH platform, why not?” Seven said that they did not need a product like this; eight said that they did not want a product like this. Five people gave these additional comments:

- I don't believe that carbon emissions cause climate change and nothing on this platform has convinced me it does
- Did not like the product
- I have no use for a product like this currently, but would consider it if the need presented itself.
- would use it occasionally