MOBI PROMOTING SMART MOBILITY TO EMPLOYEES

Final Deliverable 4.5
Evaluation Comparison

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1 Introduction

The MOBI project ('ProMOting Smart MoBIlity to Employees') will encourage employers and their employees to use energy efficient and sustainable transport modes for their commute and business travel journeys. Companies in various countries are participants within the From5To4 game; the selection and comparison of these companies is an important aspect to include in the study and implementation.

Work package 4 "Mobility Game Board" will assess and evaluate the project's outcomes and levels of energy savings. This is done to provide feedback to the local sites on their achievements, but also to use the evaluation results to strengthen the evidence of the success of the MOBI concept for other participants.

The plan includes four specific instruments: an initial questionnaire to employees; a template for description of Baseline conditions; a final questionnaire to players and a data template to include in the 'Feedback to local sites' foreseen within WP3.

1.1 Goals of T4.5

Task 4.5 of this Work Package is "Evaluation comparison". This aims to benchmark the participating companies by a number of indicators. The benchmark study will provide a clear and complete methodology to compare participating companies.

1.2 The Research Team

The research will be carried out by the Department of Regional, Port and Transport Economics (RHV BV) of Erasmus University Rotterdam. The research will be lead by G. Mingardo and M. Streng (both members of RHV BV) and will make use of two students of the MSc Urban Port and Transport Economics of the Erasmus University Rotterdam.

1.3 Planning and Budget

The evaluation comparison will take place during the entire duration of the MOBI project. RHV BV will have regular contact with DTV to discuss the progress and issues concerning the evaluation comparison. The costs, related to this part of the research are **€8,000 (Excl. VAT)**. This amount includes all administrative costs, costs related to the preparation and carrying out of the benchmark study and costs for presentation of the results in the Netherlands. The amount does not include the cost for presentation outside the Netherlands. The final report will be an electronic summary report (a PowerPoint presentation) of the benchmark study.

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2 Evaluation comparison approach

First step in this approach is to prove that the game results in a certain change among employees and vice versa that this change can be addressed to the From5to4 game. In order to do this the Erasmus University under supervision of Giuliano Mingardo carried out a (master thesis) study to prove this.

REDUCING CAR USE WITH GAMIFICATION: THE CASE OF FROM5TO4 MOBILITY GAME

MASTER THESIS

Author: Anton Klyuev (384858)
Supervisor: Giuliano Mingardo
Study program: Urban, Port and Transport Economics
Rotterdam, 22/08/2014

On the next pages the abstract underlines the effectiveness of the method, the whole report (120p) is available on request.

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Abstract

The subject of this paper is the From5To4 mobility game developed in the Netherlands and aimed at reducing car use. The main goals of the research are to find out whether serious games can be used to promote and stimulate modal shift among adult and to determine the personal factors which increase the likelihood of such interventions' success. This paper provides a review of the available academic literature on the topics of car use motives, car use reduction interventions and serious games which helps to figure out the reasons underlying car use and how these reasons can be affected by different car use reduction interventions. Furthermore, an analysis of the data obtained from the developers of the From5To4 game is conducted in order to determine its efficacy and the mechanisms which create a car use reduction effect. The results of the research indicate that car use reduction through gamification is indeed possible and that From5To4 game is an example of a game which makes people reduce car use and try out other, more sustainable modes of transport. Moreover, some limitations of such games have also been discovered and these limitations need to be considered by the game designers aiming at creating a modal shift with their games.

Keywords: gamification, serious games, travel demand management, car use reduction, behavioral change.

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3 Benchmark tool

Next to the approach an Excel is available for ex post, ex ante and benchmark comparison based on the following fields:

Modal split Baseline (T=0)	
Car	50%
Carpool	1%
Public Transport	20%
Motor	2%
Scooter	2%
Bike	20%
Walking	5%
Modal split Game (T=1)	
Car	40%
Carpool	2%
Public Transport	25%
Motor	2%
Scooter	2%
Bike	24%
Walking	5%

Number employees	1000
Average distance home-work car	25
Average distance home-work carpool	25
Average distance home-work public transport	20
Average distance home-work motor	20
Average distance home-work scooter	15
Average distance home-work bike	10
Average distance home-work walking	2
Number workingdays per week T0	5
Number working days per week T1	5
Car occunacy carpool	2
Gas price per liter	1,5
Usage gass in liter per km	0,1
CO2 in ton per km	0,00017
Price per ton CO2	50
Traveltime T0 in min	30
Traveltime T1 in min	35
Average salary per minute (hour/60)	0,417

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Ratio car visit/parking place	1
Parking hire 1 else 0	1
Costs per parking place hire	500
Parking build 1 else 0	0
Costs per parking place built	1500
Average number calories per km active	250

This can be executed before a meeting or during meeting with company to discuss parameters.

After this the following information is available:

Gass	
Number employees	1000
Car	0,5
Carpool	0,01
Average distance home-work car	25
Average distance home-work carpool	25
Car occunacy carpool	2
Number workingdays per week T0	5
Total auto km T0	63125
Number employees	1000
Car	0,4
Carpool	0,02
Average distance home-work car	25
Average distance home-work carpool	25
Car occunacy carpool	2
Number working days per week T1	5
Total car km T1	51250
Δ in km	11875
Usage gass in liter per km	0,1
Δ in liters	1187,5
Gas price per liter	1,5
	€
Δ in €	1.781,25

Gass	
Number employees	1000
Car	0,5

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Carpool	0,01
Average distance home-work car	25
Average distance home-work carpool	25
Car occunacy carpool	2
Number workingdays per week T0	5
Total auto km T0	63125
Number employees	1000
Car	0,4
Carpool	0,02
Average distance home-work car	25
Average distance home-work carpool	25
Car occunacy carpool	2
Number working days per week T1	5
Total car km T1	51250
Δ in km	11875
Usage gass in liter per km	0,1
Δ in liters	1187,5
Gas price per liter	1,5
	€
Δ in €	1.781,25

Time	
Traveltime T0 in min	30
Traveltime T1 in min	35
Δ reistijd	-5
Average salary per minute (hour/60)	0,41666667
Δ in € pp	-2,0833333
Number employees	1000
Δ in € total	-€ 2.083,33

Parking	
Number employees	1000
Car	0,5
Carpool	0,01

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Car occunacy carpool	2
Number workingdays per week T0	5
Total car visit T0 pd	505
Ratio car visit/parking place	1
Number parking places needed T0 per day	505
Number employees	1000
Car	0,4
Carpool	0,02
Car occupancy carpool	2
Number working days per week T1	5
Total car visit T1	410
Ratio car visit/parking place	1
Number parking places needed T1	410
Δ in number places	95
Costs per parking place hire	500
Parking hire 1 else 0	1
Parking build 1 else 0	0
Costs per parking place built	1500
Δ in €	€ 47.500,00

Health	
Number employees	1000
Bike	0,2
Walking	0,05
Average distance home-work bike	10
Average distance home-work walking	2
Number workingdays per week T0	5
Total active km T0	10500
Number employees	1000
Bike	0,24
Walking	0,05
Average distance home-work bike	10
Average distance home-work walking	2
Number working days per week T1	5

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Total active km T1	12500
Δ km actief	2000
Average number calories per km active	250
Δ calories active	500000

The Excel is available for all partners to use:

- Before consulting companies to get rough idea of the possible savings;
- During consulting companies to fill in together the parameters and ambition for the project;
- After playing the game to calculate the concrete benefits
- Compare with other companies the results.

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