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Lappeenranta **University of Technology**

SCHOOL OF BUSINESS & MANAGEMENT
Strategy, Innovation and Sustainability Programme

MASTER'S THESIS

**CAN THE PARTICIPATION OF A CITIZEN ACT AS AN AGENT FOR
BEHAVIORAL CHANGE?
PERCEPTIONS FROM THE TRANSPORTATION INDUSTRY**

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ABSTRACT

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In 2012 Finland joined a global “Open Government Partnership” program to enhance work towards citizen participation. One key element of sustainable development is the participation of citizens on development, which is also in the core of democracy. However, collective action problem (free riding) known in democratically lead countries has had its negative affect on public interest to participate on development. This thesis aims to study could the participation of citizens on transportation planning act as behavioural change driver. Study draws a picture of transportation industry and government representatives’ perception. Democratic decision-making tool “*participating*” is discussed and various societal marketing studies affecting citizen-consumer’s behaviour are introduced.

Sustainability marketing actions are to increase the awareness and allow all stakeholders engaging in discussions. Societal marketing studies psychology behind consumer’s behavioral change. These theories and studies form the theoretical framework for the study. The empirical part of the research was conducted using a cross-national online questionnaire. It collected mostly quantitative data from 42 respondents. Respondents represent European Union, North America and Oceania where the governance is based on democracy.

The results indicate how participating citizens to decision making is a desirable method to create behavioural change. Statistically significant differences were found in some opinions between the genders. For males the financial and females, the social incentives create behavioural change. Results indicate the need for equal amount of men and women in decision-making roles. Thesis provides a practical starting point for futures participatory actions.

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TABLE OF CONTENTS

1	INTRODUCTION	8
1.1	Background of the study	8
1.2	Research gap and the scope of the thesis	10
1.3	Research questions.....	12
1.4	Research strategy and structure of the thesis.....	15
2	THEORETICAL BACKGROUNDS OF THE STUDY	18
2.1	Citizen participation management	18
2.1.1	Citizen participating in literature	18
2.1.2	Collective action problem: Free-riding.....	22
2.2	About Sustainable Transportation.....	24
2.2.1	Defining sustainable transportation	24
2.2.2	Perspectives on sustainable transportation	26
2.2.3	Mobility management.....	30
2.3	Sustainability marketing and consumer behaviour.....	31
2.3.1	Sustainability marketing myopia	34
2.3.2	Societal Marketing in macro and micro economical context	35
2.3.3	Theories on planned behaviour and self-determination.....	40
2.3.4	Role Theory and transportation consumer behaviour.....	44
2.4	An overview of theoretical framework	50
3	METHODOLOGY	54
3.1	Research Approach.....	54
3.2	Study group	56
3.3	Collection of data	57
3.4	Cross-national online questionnaire.....	57
4	ANALYSIS AND FINDINGS	64
4.1.1	Descriptive analysis	65
4.1.2	Trust.....	69
4.1.3	Opinion	73
4.1.4	Motivation and Incentive	79
4.2	Validity and Reliability.....	83
5	DISCUSSION AND CONCLUSIONS.....	85
5.1	Discussion of key findings	85
5.2	Theoretical and practical contributions.....	93
5.3	Limitations and future research	94
	REFERENCES.....	96

LIST OF FIGURES

FIGURE 1 SUST. TRANSPORTATION IN TRADE-OFF APPROACH.....	29
FIGURE 2 SUSTAINABILITY MARKETING FRAME	33
FIGURE 3 SOCIETAL CLASSIFICATION OF PRODUCTS	37
FIGURE 4 THEORY OF PLANNED BEHAVIOR	41
FIGURE 5 INNATE BASIC PSYCHOLOGICAL NEEDS.....	43
FIGURE 6 SOCIAL ROLES IN ROLE THEORY	46
FIGURE 7 STUDY APPROACH IN SUST. MARKETING SCHEME.....	52
FIGURE 8 EMPIRICAL PART OF THE STUDY.....	55
FIGURE 9 GENERATION DISTRIBUTION.....	66
FIGURE 10 DISTRIBUTION BASED ON EMPLOYMENT	67
FIGURE 11 OVERALL IMPORTANCE ON PARTICIPATING	71
FIGURE 12 GENDER RELATED DIFFERENCES ON PERCEPTIONS	76
FIGURE 13 DISSIMILARITIES BETWEEN GENERATIONS.....	77
FIGURE 14 LOWER SERVICE PRICING AS CHANGE DRIVER	81
FIGURE 15 THE DIFFERENCES ON REGIONS OF DRIVERS	82

LIST OF TABLES

TABLE 1. RESEARCH QUESTIONS, GOAL AND METHODS	14
TABLE 2. DEFINING SUSTAINABLE TRANSPORTATION	25
TABLE 3. ENVIRONMENTAL IMPACTS OF ROAD TRANSPORT	27
TABLE 4. SOCIETAL MARKETING STUDIES	38
TABLE 5. DATA REQUIREMENTS TABLE	59
TABLE 6 THE DISTRIBUTION OF GENDERS BETWEEN REGIONS	66
TABLE 7 GENERATION AND EMPLOYMENT TYPE DISTRIBUTION	68
TABLE 8 GENDER AND EMPLOYMENT TYPE DISTRIBUTION	68
TABLE 9 DESCRIPTIVE TABLE OF TRUST FACTORS	70
TABLE 10 SPEARMANS RHO CORRELATION MATRIX	72
TABLE 11 KPI VALUES ON PARTICIPATING CITIZENS	74
TABLE 13 WILCOXON SIGNED-RANK TEST	75
TABLE 14 THE IMPORTANCE OF GIVEN VALUES TO CITIZEN	79
TABLE 15 THE BEHAVIORAL CHANGE MOTIVATIONAL DRIVERS	80

LIST OF ABBREVIATIONS

4Cs	Sustainability Marketing Mix
CAP	Collective Action Problem
CR	Corporate Responsibility
ET	Exchange theory
PEB	Pro-environmental behavior
PT	Public Transportation
RT	Role Theory
SCD	Societal classification of products
SD	Sustainable Development
SDT	Self-Determination Theory
SM	Sustainability Marketing
ST	Sustainable Transportation
TPB	Theory of Planned Behavior

1 INTRODUCTION

1.1 Background of the study

This thesis is a multidisciplinary research in passenger transportation context investigating whether and how can participating citizens (a political decision-making tool) drive consumers' behavioural change. This is conducted by studying the opinion of transportation industry professionals and decision makers.

Human population is projected to grow to approximately nine billion by 2050 (Belz & Peattie, 2012). In addition, numerous people in developing countries have increasing potential to consume like people in developed countries. Due to growing demand on mobility modern societies are facing pressure on roads, railways, air and sea on passenger and freight transportation. Meanwhile, world has become aware of problems around modern consumption behaviour and the need to meet our living environments carrying capacity.

Year 2012 Finland joined a global program called Open Government Partnership. The program was developed to enhance continuous work towards active citizen participation and open government. One of two main commitments Finland made was improving *public participation* along with public service delivery (OGP 2012). In Finland's case the cross-cutting theme 'citizens participation' was partly due to citizens' alienation from the political decision making and the need to improve quality of public services. This sustainability marketing related study investigates the opportunity of utilizing participating as a collaborative method creating behavioural change.

As it was in the 80's and 90's with telecommunications industry, the transportation industry's current technical development is fast. Wide range of research is conducted from societal marketing to technological solutions to city planning and service solutions. For instance, the "mobility-as-a-service" - concept erupted after Helsinki City Planning Department ordered a research on future of people mobility in urban areas. This resulted to "Mobility as a Service - A proposal for Action for the Public

Administration, Case Helsinki” (Heikkilä, 2014). Study aimed on elimination or at least abatement of private car ownership in city area. Another research ordered by Finnish Transport Agency “Road Transport Automation Road Map and Action Plan 2016-2020” (Lumiaho & Malin, 2016) relates to road transport automation. Above mentioned technological and service innovations forward the technological development of sustainable transportation. In addition, understanding how we could affect the citizens consuming behaviour this thesis aims to provide more flesh in to the equation.

One contemporary and quite rapidly expansive topic in global discussion is mobility, moving both passengers and freight. Discussion circles around digitalization and technological change. Although traditional transportation industry has evolved relatively slowly the technological change is currently fast. Problems related to urbanisation, high private car ownership rates with people transportation caused traffic contingency and environmental (soil, water and air) pollution are acknowledged all over the world. Particularly these issues are considered severe in large metropolises, hence private and public sectors are investing on research in order to create abrupt change on sustainability issues of people and freight mobility.

Some limitations on societal and sustainability marketing programs have been noticed mainly where they have failed to create long term behavioural change (Kilbourne, 2004; Parsons & McLaran, 2009). Without a holistic user picture, societal understanding and collaboration between all stakeholders it is difficult for governments, corporations and industrial technology providers meaningfully lead the future development of sustainable transportation (Parsons & McLaran, 2009).

The main goal of this thesis is to understand could transportation behaviour be changed by engaging citizens in decision making. Could the act of participating and collaborating with decision makers enhance more sustainable transportation choices? This thesis aims to map perceptions of transportation industry professionals and governmental decision makers on how the citizen consumers could play their part on sustainable transportation development.

Perceptions on whether or not the method of participating citizens can be used as suitable behavioural change agent are conducted from transportation industry professionals and decision maker's opinions. By using democratic countries decision makers' need to enhance responsible consuming this thesis introduces a viewing point to observe participatory methods. Perceptions, later called opinions, are collected through online survey. The key points of interest (KPI's) where policy makers need citizens to participate are discussed. These are compared to citizen's interests. The core consumer values and motivational factors creating behavioural change are investigated from the societal marketing point of view.

1.2 Research gap and the scope of the thesis

Common issues arise when studies on participating citizens and conducting societal marketing programs on sustainability are reviewed. Communication with citizen consumers is often found rather difficult and influencing their behaviour is possible only with limitations (e.g. long term behavioural change has been difficult to create) (Parsons & Maclaran 2009; Schiller et. al. 2010; Belz & Peattie 2012). This study focuses on participating citizens on sustainable transportation (ST) development and enhancing behavioural change simultaneously. Could the forums where citizen contribution is needed also provide a place for encouraging the long term behavioural change?

At first thesis includes a literature review on political studies indicating problems around engaging citizens on to decision making processes. These problems are closely related to the research problem: e.g. if participating is not important to the citizens trying to change behaviour in these forums loses its meaning. The collective action problem in chapter 2 explains what kind of behaviour democratic decision making can create when participating is not mandatory. Suggestions on what could be done to improve the situation are discussed.

Also, chapter 2 explains the declining citizen satisfaction in democratically lead

countries. Even if the citizen satisfaction is thought to improve by offering possibilities on participating (Yankelovich, 2001; Innes & Booher, 2004; Wang, 2001; Nye et.al., 1997) according to Involve (2015, p.25) citizens lack faith on their involvement making a difference. Lack of participating is viewed to understand where citizen's attitudes are arising and explain why above-mentioned problems have created room for improvement. The era of digitalization with transforming decision-making process is discussed to point the future direction on participating citizens. Majority of people are using digital technologies and services at all times and places.

Introduction to sustainable transportation (ST) in chapter 2.2 is conducted through its main principles. This is discussed in order to understand the ST concept and context used in this thesis. Also, the ST consumer related problems are discussed. The socio-economic problems affecting on consumer's decision making need to be understood: if it is impossible for citizens to access ST (even if they would prefer doing so) there are larger societal problems that need to be addressed. The consuming does not necessarily change by educating the participants. This discussion has its importance on understanding the consumers, their living environment and their viewing points. When creating strategies for behavioural change the question is also about locating the obstacles. These obstacles, or problems in citizens living environment can be quite complex as the chapter 2.2 highlights.

It is common practice to use studies of sociology and human behaviour in sustainability marketing stream since in SM customers are seen as people with whom something is done together. Chapter 2.3 discusses setting positive incentives to enhance sustainable behavior, however this has been found difficult (Belz and Peattie, 2012). The marketing stream which uses social studies is called social marketing. In the same chapter the theories of behavioural change (including theories on planned behaviour and roles) are discussed to thoroughly understand the citizen and utilise the social science studies helping to resolve research problem. Behavioural change drivers are discussed as they are strongly linked to choosing sustainable instead of the traditional transportation method (e.g. whether to cycle or to use a car). The problem

on *how to maintain* the ST consuming as it was found from social marketing programs that long-term behavioural change towards sustainable consuming has been relatively difficult to create.

This study is based on societal and transportation industry development needs. The topic is rising from contemporary discussion around transportation industry. First, this study maps the perceptions of transportation industry professionals and decision makers on participatory methods' usability as a behavioural change agent. Secondly, the key points of interests of both stakeholder groups are studied. Last, core consumer values and motivational factors are being tested. This is done in order to create perceptions on what could initiate the wanted behavioural change.

Collected data is both quantitative and qualitative. Quantitative categorical data was collected with cross-national online questionnaire with closed and few open-ended questions. Qualitative data was collected by using questionnaire software's open-ended question function. The survey was sent to 200 selected transportation industry professionals and employees of governmental agencies. 42 responses returned on the given time with response rate being 21%. The study group consists of transportation industry professionals and governmental decision makers. Respondents are gathered based on their expertise. Insights sourced from experts create reliable and firm understanding on what is taking place in practice. Citizen-consumers without relevant background in the transportation industry or decision-making process were not invited to participate. Standpoints of stakeholders, commercial world participants and governmental institutions are gathered so that holistic and realistic perception can be formed and study has relevancy and informational value for further research.

1.3 Research questions

How to change consuming behaviour is widely studied in marketing and social sciences. Also, political scientists have searched for answers to the question "what is the ideal point for citizens" for over a century (Poole & Rosenthal, 1991). But due to

this questions complexity researchers have later resorted to behavioural measures (Gerring 2012, 383). Research questions (table 1) are formed based on socio-political and sustainability marketing issues in the context of sustainable transportation. The questions are reflecting current problems on participating citizens in democratic decision-making processes and the challenges on influencing citizen-consumer's sustainable behavioural patterns.

Main research question asks: "*Can participating citizens change their transportation consuming behaviour?*" The assumption is that participating could indeed act as a behavioural change agent. The study with four sub questions is designed around it. Study aims to find the answer by measuring the level of acceptance and perceptions of government and transportation industry professionals on participating citizens in planning of sustainable transportation and using participatory methods as behavioural change agent.

Second step is to study the respondent's opinion on *where* citizens should be participated. Sub-question 1.2 is formed: "where policy makers need citizens participating in?" Also, the two groups (citizens and decision makers) mutual interests are being investigated. Sub-question 1.3 is asking: "are policy maker's interests colliding with citizen's interests?" These two questions are mapping the key point of interests first from decision maker point of view, then comparing where the needs are closest to citizen's interests. KPI's colliding point can provide apposite location for participatory method being used as a behavioural change agent.

To find out what attracts citizen-consumers e.g. what motivational factors are influencing their behaviour sub-question 1.4 is formed: "How to attract consumers participating in decision making?" Sustainability marketing scheme highlights the core values in order to understand consumer's decision making. Sub-question 1.5 continues "Which consumer values affect transportation consuming behaviour?" These two questions are aimed to provide understanding on with what consumer values citizens are more likely to participate and what motivational factors are most beneficial.

Table 1. Research questions, goal and methods

Questions:	Goal:	Data & Method:
RQ1. Can participating citizens change their transportation consuming behaviour?	To find out government representatives and transportation industry professionals opinion on participating citizens planning sustainable transportation and the possible effect on changing their transportation consuming behaviour.	Data gathered from specifically selected study group with online questionnaire. Scope to find transportation industry professionals opinion and insights of the phenomena.
SQ1.2. Where policy makers want citizens participating in?	Map the key focus areas of participation and discuss where government needs citizen contribution and find where the two parties KPIs' collide to map location for testing the theory.	Further scope to understand if findings admit of a further longitudinal observational study on democratic participation method as a behavioural change agent.
SQ1.3. Are policy maker's interests colliding with citizens interests?		
SQ1.4. How to attract consumers participating in decision making?	Understand how and with what motivational factors "participating" as a method has potential in the future as behavioural change agent.	
SQ1.5. What values affect transportation consuming behaviour?		

This thesis provides further knowledge of the level and variance of agreement among transportation industry professionals and decision makers whether participating methods of citizen-consumers has potential as behavioural change agent or not. Using set of constructed questions for precise data gathering respondent's perception (an opinion) on the research problem is collected. The respondent's perception, 'opinion' is clustered to three units using study of Raparelli et.al. (2017) as a benchmark for

clustering opinion related units. These constructs are used to gather the questionnaire items under units of: trust, opinion and motivation. These units are discussed further in the chapter 3.

This thesis studies where it would be beneficial to promote sustainability and studies colliding points of stakeholder's interests. The scope of the thesis is to figure out is there enough professional trust and acceptance on the affects, *where* should participation take place and *what* incentives should be used. Transportation industry professionals and decision maker's perceptions provide a basis for further study and practical implications for those who are interested of participatory methods.

Causality effect of the thesis is to find drivers on sustainable development through harnessing daily functions (such as participation) for the development. The minimal causation of this thesis relies on the factor *participating* as a cause of an outcome on citizens consuming behaviour. Change in participation methods as it has been conducted will generate change in citizen-consumers' consuming behaviour which is relative to what citizens consuming behaviour would otherwise be, given certain background conditions (*ceteris paribus* assumptions) and scope definitions (the population of the interference) (Tacq 1997, Gerring 2012, 199). Next chapter explains the research strategy and structure.

1.4 Research strategy and structure of the thesis

The study approach is deductive narrowing the multidisciplinary theoretical framework in to research questions introduced in previous chapter. Thesis consists of literature review studying the contemporary issues and knowledge around the key concepts. The research problem is opened through the theory explored. After assessing the content literature review was later evaluated as a whole by following the list of key questions by Saunders et.al. (1997). Definition and perspectives of sustainable transportation are collected and introduced in order to provide understanding on what ST means in the context of this research. Sustainability marketing provides the

practical sphere and an umbrella for further research since sustainability marketers are the key on utilizing new approaches on changing consuming behaviour.

Study uses sustainability marketing (SM) scheme to show the marketing focus and context of the problem. First, study gathers understanding of the relevant socio-economic problems. Problems of the democratic decision-making (participating citizens) are introduced briefly, environmental impacts of road transport are discussed with relevant societal problems in the transportation context. Digitalization is also briefly introduced as a contemporary participating method. This rapid technological shift can be seen throughout the industries and modern governance.

Definitions of sustainable transportation and studies are discussed to create understanding on what the sustainability related situation is in road transportation and what is the role of citizen's in this. Understanding citizen-consumers through behavioural change studies and theories are added under the main umbrella. By using core consumer values and motivational factors as incentives the behavioural change is meaningfully discussed under the sustainability marketing scheme. Emphasis in empirical part of the research is on understanding the phenomena as en bloc, reflect and crosscheck the relevant literature and form transportation industry professionals and decision maker's common perception and point out the relevant differences on views between each other.

The used research method is an online survey, a cross-national questionnaire. It was used in order to gather data easily from three democratic regions. Questionnaire was sent personally to study group members by using Webropol software. All interpretations of quantitative data are performed by using SPSS statistical analysis software as analytical testing tool. Qualitative data is labelled and compared to previous research. In analysis the scope is on perceiving the study groups limitations by understanding subjective perspective on the research problem. The holistic vantage point provides foundation for generalising the results but with certain sociological limitations, which are taken into account.

In empirical part of the study in depth explanation of the research design and online questionnaires scope are discussed. Explanations of the clustered questions which used to gather information of transportation industry and decision maker's perceptions on using participating method as a behavioural change agent are provided. Study methods and statistical analysis tests are also explained and conducted. Results are explained in chapters based on question clusters and the reliability and validity criteria used are explained. The final part of the thesis consists of discussion of the key findings and theoretical and practical implications with future research proposal.

2 THEORETICAL BACKGROUNDS OF THE STUDY

The foundation of the literature review is in political science, environmental psychology along with organizational and behavioural science studies. It takes reader through the framework of collaborating with citizen-consumers on sustainable transportation development.

Complexity of the phenomena requires combining multiple fields of study and this review takes those into account. Sustainable consuming concept is explained with problems faced in past projects. Studies about consumer behaviour and promoting sustainable consuming have tried understanding why advertising campaigns have shown little long-term progress. The issue on influencing sustainable consuming behaviour is discussed using societal marketing studies. Literature review is narrowed from the theoretical frame to question could sustainable transportation be enhanced by using participating citizens as behavioural change agent. Enhancing citizen's interest on sustainability is discussed through role theory mainly focusing on how to influence on those.

2.1 Citizen participation management

2.1.1 Participating citizens

The definition of participating citizens as a democratic decision-making tool is important. Citizen participation as an act occurs when citizens and public officials have participation needs and when certain participation mechanisms exist (Feltey et.al., 1998). Citizen participation is traditionally defined as decision making and service production process in which citizens take part in decision making in the institutions, programs and environments that affect their life (Florin & Wandersman, 2000; Langton, 1978; van Deth, 2016). As it is part of democratic decision making the role of participating is relatively stable.

Participating citizens has intention to develop society and exchange knowledge. When

citizens learn new ideas and realize others views are also legitimate they can work through issues and create shared meanings as well as the possibility of joint action (Yankelovich, 2001; Innes & Booher, 2004). In health promotion, often in social marketing, discourse around participation enjoys special status and has traditionally seen as key principle (McQueen 2007).

The traditional participation mechanisms and ways of participating have varied from citizen forums, community meetings, public hearings, community outreaches, citizen advisory groups, individual citizen representation, surveys, focus groups, referenda, public hearings, public opinion surveys, panels and forums and so on. (Rowe & Frever, 2000; Wiedemann & Femers, 1993; van Deth, 2016) Modern participatory methods are developed from various academic disciplines (e.g. using conflict resolution, marketing, public relations and social research in Open Space events and Citizens Panels) (Schiller 2010; Involve 2005).

In the definition of participating citizens key is to understand the input citizens are requested to provide on public decision-making (Schiller, 2010; Involve, 2005; van Deth, 2016). There will most likely be only restricted amount of people who participate comprehensively and majority can participate in on-off events (Innes & Booher, 2004; Coglianese, 2006). Many participating tools and techniques (e.g. town meetings, citizen panels, workshops and focus groups etc.) involve extensive number of citizens (Lukensmeyer et. al., 2004; Susskind & Zion, 2002) and in combination with smaller groups which follow-up to produce workable proposals all groups can be successfully taken into account (Innes & Booher, 2004).

Discourse around participation methods is often assuming that involvement is an end in itself, rather than a means to an end (Wiedemann & Femers, 1993). Not all participation methods are equally effective or necessary. Smith (1983) has evaluated participating methods thoroughly based on their effectiveness and knowing the effectiveness of various methods on certain case is important part of implementing the right one in to practice. Rowe & Frever (2000) and Involve (2005) point out that methods relative usefulness is difficult to ascertain because systematic comparisons between them are quite rare. Source of information has to have occasion to be justified

case-specifically as in the case of transportation planning.

Keeping Citizens Satisfied

Participating citizens is relevant part of democracy. Governments are keen on engaging citizens on decision making concerning subjects related their lives to maintain citizen satisfaction and societal stability (Collins & Kim, 2009; Wang, 2001; Nye et.al., 1997). The common procedure is dialogue between government and the citizens. Firstly, citizen satisfaction is being improved by offering information and engaging citizens in authentic dialogue where all are equally empowered and informed. Secondly, citizens are heard respectfully and made to work on a task of interest (Yankelovich, 2001; Innes & Booher, 2004; Wang, 2001; Nye et.al., 1997). McQueen et.al. (2007) points out that it is essential to participate citizens to health promotion discourse in order to influence on future development. Same idea follows with all other decision making.

As mentioned above, government's decision to participate citizens should not be based on monetary incentives. Wang (2001) states it clearly: "*improved fiscal conditions as a return on participation should not be expected*". Wang (2001) studied participating citizens on US public sector and his conclusion was that there is no significant relationship between participating and government's improved capacities in taxation, debt and budget appropriations. He states that enhanced public participation does not lead to public willingness to pay for public services; hence, no economic benefit on public finances should not advocate the process (Wang 2001).

But participating has not been a straightforward path to guaranteed citizen satisfaction. Study on how participating affects citizen satisfaction (in US) result was that the overall citizen satisfaction had actually declined regardless of participating made possible (Nye et. al., 1997). Comparative research by Theocharis (2014) (of young Europeans) came to same conclusion: citizens not only feel disempowered, but also have increasingly serious doubts that traditional engagement with formal politics can solve their problems. One point is that the required democratic participation methods have not remedied the situation and may have actually aggravated it (Innes & Booher, 2004). According to Nye et. al. (1997) citizens believed government is unresponsive

to their concerns or is just responsive to special interests that fund increasingly expensive campaigns.

Feelings of powerlessness felt by citizens are increasingly common. Studies are showing increasingly high levels of distrust towards politics, politicians and political parties especially among younger citizens (Hay 2007). Involve (2005), which was established 2003 for research between new forms of public participation and existing democratic institutions, study about participation (Involve 2015, p.25) discusses on how “people are not apathetic and care about issues, but lack faith on the existing participatory structures ensuring their involvement making a difference”. This means there is there is a need to discuss new ways to participate and engage citizens.

E-participation

Future approach to improve citizen satisfaction has been engaging people by participating them online. E-participation is prerequisite of e-democracy and refers to ICT-supported participation in processes of administration, decision and policymaking, service delivery, information provision, consultation and deliberation (Baltic Institute of Finland, 2017.) The term e-participation means use of information and communication technologies to widen and enhance participation by enabling and reinforcing citizens’ interaction with elected representatives and policy makers (Alarabiat, 2017; Macintosh & Whyte, 2008; Sæbø et.al., 2008.) Public e-participation proposes collaborative touch with multi-dimensional model when communication, learning and action are joined together and where the polity, interests and citizens co-evolve (Involve, 2015; Innes & Booher, 2004).

E-participating was presumed to be imbibed easily by the citizens but implementation has proven to be quite demanding (Coglianese, 2006; Conroy & Evans-Cowley, 2006). Whilst the idea of utilizing social media to advance government led e-participation initiatives has proliferated significantly in recent years, mostly such initiatives do not meet the intended expectations, as the majority of them fail to attract wider citizens’ audience (Alarabiat et.al., 2017; Coglianese, 2006; Involve, 2015).

Conroy & Evans-Cowley (2006) study concerning e-government mechanisms found online participation to be often one-way information gathering, not two-way interaction with the decision makers as participating was meant to be (Thomas & Streib, 2003; Conroy & Evans-Cowley, 2006). Reasons for this problem varied from municipal given one-way information, skill-set or financial deficiencies to community size (Conroy & Evans-Cowley 2006). Study conducted by Theocharis (2014) recommends the systematic development of measures for *digitally networked participation*. Theocharis (2014) proposes e-participation where participation can be understood as a digital media-based action that is carried out by individual citizens with the intent to activate their social networks in order to raise awareness about or exert social and political pressure for the solution of, a social or political problem. Sharing the decision-making proposal with networks makes it more important.

However, findings of Coglianese (2006) indicate also some significant cognitive and motivational barriers what it comes to citizens participating. When citizen is making a decision *whether to participate or not* overcoming the well-known collective action problem, CAP, becomes the most relevant barrier (Coglianese, 2006; Rydin & Pennington, 2000).

2.1.2 Collective action problem: Free-riding

The public choice theory (PCT) applies economical science tools and methods to governmental and political sector and to the public economy (Rydin & Pennington, 2000; Buchanan & Tollison, 1972). This theory attempts to relate the behaviour of single individuals in the society, for example them making decisions as voters (Rydin & Pennington 2000). Public choice theory offers an understanding of the political sectors institutional interactions and its basic units, e.g. as choosing and behaving as persons rather than larger units such as political parties (Rydin & Pennington, 2000).

As mentioned above, the collective action problem (CAP) founded from the PCT is one of the relevant theories explaining citizen's behaviour. More importantly: why citizens might choose not to participate on decision making? CAP purports that citizen

knows lack of participation is unlikely to have any sufficient impact on the political process, and citizen who does not participate cannot be excluded from consumption of the common goods or participation in spite of the free-riding (Olson, 1965; Ford Runge, 1984; Rydin & Pennington, 2000). It is a negative situation, where multiple citizens would all benefit from a certain action, but due to cost (effort) individual cannot or will not solve it (Dowding, 2011). Individual sees the outcome of participation as unnoticeable and preferably free rides on using the benefits on the efforts of society around him without incurring the costs and feeling remorse (Coglianese, 2006; Olson, 1965; Ford Runge, 1984; Rydin & Pennington, 2000).

Free riding is more likely to take place in larger groups due to the primary difficulty of coordination. CAP predicts that willingness to participate will fall if others contribution behavior cannot be forecasted with certainty and mainly large groups tend to have this assurance problem. (Olson, 1965; Ford Runge, 1984) The exception compared to large group situations are naturally small groups. This is where the citizens know each other better and personal social context is present and also being punished of freeriding is more likely (Fischel, 1985; Dwyer & Hodge, 1996; Rydin & Pennington 2000; Weale, 1992). This means that social status and ties with smaller group members (in society: neighbors) are increasing participants' willingness to keep good relations with other participants and the surrounding society by encouraging higher level of engagement and effort. (Fischel, 1985; Weale, 1992; Dwyer & Hodge, 1996; Rydin & Pennington 2000). When planning participatory events this behavioral knowledge is important to keep in mind.

Other ways to enhance level of participating are also available. Institutions promoting fair-mindedness are also providing assurance on contributing to the public good and making participating more attractive than free riding (Ford Runge, 1984). Citizens' contribution can also be stimulated by offering personal selective incentives (specifically material on non-material benefits) provided only to those who co-operate (Dwyer & Hodge, 1996; Rydin & Pennington, 2000). In the former material case, it may be goods as a benefit of participation, and in the latter non-material case the possibility of meeting citizens with similar values and beliefs jointly with the

satisfaction of collaborating with collective effort (Dwyer & Hodge, 1996; Rydin & Pennington, 2000).

Humans change behaviour based on their needs and it is important to understand what drives the change, makes societies and citizens move to wanted direction. Discussion around this among management and strategy researchers has risen on recent years at the same time with smart city concept. According to Jung & Wu (2016) active citizen participation can hold public administrators accountable for performance and the perceived public performance is positively associated with citizen satisfaction. More importantly, the positive relationship between citizen participation and satisfaction is mediated by the perceived assessment of respondents on public performance of municipal services.

2.2 About Sustainable Transportation

In the next chapter sustainable transportation (ST) is explained and some variations of personal transportation are introduced. Also, options for sustainable transportation habits are suggested.

2.2.1 Defining sustainable transportation

Growing demand of personal and freight transportation around the world has had its price. Heavy road congestions, increased operational costs, large number of accidents and casualties, heavy energy consumption with environmental pollution are common and daily issues (Georgakis & Nwagboso, 2012). Road traffic, cars and trucks, hold large supporting industrial complex for manufacturing and maintenance but also requires infrastructure that usually changes the landscape and natural environment permanently (e.g. roads, highways, lights, service stations and fuel) (Belz & Peattie, 2012; Georgakis & Nwagboso, 2012). Private vehicles do assist people mobility but the emissions and accidents and depletion of non-renewable resources (oil) and pollution of air, water and land notwithstanding the long-term effects on earth and its ecosystems (Belz & Peattie, 2012).

To create a thorough definition of sustainable transportation (table 2), further scrutiny through the overall definition is needed. Sustainable transportation is delineated through the characteristics of sustainable development involving the environment, the economy, the spatial form of cities and personal behaviour and values (Schiller et.al 2010). More specifically the definition means transportation that is meeting the basic access and mobility needs in ways that do not degrade the environment, do not deplete the resource base upon which it is dependent, serves multiple economic and environmental goals and maximizes efficiency in overall resource utilization (Black 1996; OECD, 1996; Schiller 1999; European Council of Ministers of Transport, 2004; Kenworthy 2006; Schiller et. al. 2010).

Table 2. Defining Sustainable Transportation (ST) through literature

Author:	Definitions of sustainable transportation:
Schiller et.al. (2010)	“...ST aims at promoting better and healthier way of meeting individual and community needs while reducing the social and environmental impacts of current mobility practices. It attempts to achieve these through reducing resource inputs, waste outputs and minimizing transportations often deleterious effects on the public realm.”
Black (1996)	“...ST means satisfying current transport and mobility needs without compromising the ability of future generations to meet these needs.”
OECD (1996)	“...transportation that does not endanger public health or ecosystems and meets mobility needs consistent with (a) use of renewable resources at below their rates of regeneration and (b) use of non-renewable resources at below the rates of development of renewable substitutes.”
EU Council of Ministers of Transport (2004)	“...sustainable transportation is a system that...1. Allows the basic access and development needs of individuals, companies and society to be met safely and in a manner consistent with human and ecosystem health and promotes equity within and between successive generations. 2. Is affordable, operates fairly and efficiently, offers a choice of transport mode, supports a competitive economy, as well as balanced regional development 3. Limits emissions and waste within the planets ability to absorb them, uses renewable resources at or below their rates of generation, and uses non-renewable resources at or below the rates of

	development of renewable substitutes, while minimizing the impact on the use of land and the generation of noise.”
Georgakis & Nwagboso (2012)	“...characteristics hindering existing transportation system sustainability: high dependence of non-renewable resources as primary source of fuel, reliance of private cars, development of new infrastructure holding negative impact on land availability”
Banister (2008)	In the place context: “The city is the most sustainable urban form providing the location where (70-80%) most of the world’s population will live...”- “...the key parameters are over 25,000 (pref. over 50,000) population with medium densities over 40 persons per hectare...”- “...and preference given to developments in public transport accessible corridors and near to highly public transport accessible interchanges.”

Technological improvements reducing environmental detriment (e.g. improved fuel efficiency or systems that control traffic flows on highways) are not in the core of ST, inasmuch as it is defined as a societal process that depends upon planning, policy, economics and citizen involvement (Schiller et.al. 2010). From sustainable developments social point of view ST should also enhance people’s access to employment and basic needs (goods and services). This is something that should be done together with shortening traveling lengths plus reducing the overall need for transportation while improving the liveability and human qualities of urban environment. (Schiller 1999; Schiller et. al. 2010; Banister 2008; Kenworthy 2006)

2.2.2 Perspectives on sustainable road transportation and trade off approach

To understand why road transportation consuming habits as usual need to be changed the impacts on society and living environment are discussed in this chapter. Sustainable development of transportation is defined using its environmental, social and economic impacts. Chapter provides deeper understanding of the problems and discusses its multidimensional nature. This is highlighted with the trade-off approach.

Schiller et. al. (2010) conducted a comparison between transportation business as usual (BAU) and ST. The main characteristics of ST differ from BAU and gives more insights on what lies in the core of ST. ST emphasizes integrated planning by combining transportation with other relevant areas and emphasizes accessibility and quality, plurality and interconnections. ST also seeks to interrupt and reverse harmful trends, works backwards from preferred vision to planning and provision. It manages mobility as well as demand and incorporates full costs within planning and provision. (Schiller et.al. 2010)

The *impact* in the context of sustainable development is one of the key terms. By choosing ST people are trying to reduce harmful *impact* on the living environment (Schiller et.al. 2010). According to following studies (table 3) the majority of environmental impacts of road transportation are coming from excessive production of greenhouse gases (Linster, 1990; Schiller et.al. 2010; Georgakis & Nwagboso 2012).

Table 3. Environmental impacts of road transport (Linster 1990; Schiller et.al. 2010)

AIR	WATER RESOURCES	LAND RESOURCES
Air pollution (CO, HC, NO _x , particulates and fuel additives such as lead), photochemical smog. Acid rain. Global Pollution (CO ₂ , CFC) and warming.	Greater storm water runoff problems. Pollution of surface water and groundwater by surface runoff. Acidification of inland waters. Modification of water systems by road building.	Land taken for infrastructures, sub-urban sprawl (loss of urban land to pavement). Extraction of road building materials. Loss of productive rural land. Divided habitats (animal territories).
SOLID WASTE	NOISE	
Abandoned spoil tips and rubble from road works. Road vehicles withdrawn from service. Waste oil. Passenger littering (road sides).	Noise and vibration of cars, motorcycles and lorries in cities and along main roads. (Development costs and impact on creating less noisy tires and surface materials.)	

As part of sustainable development, the impacts of road transportation on the economy and society also need to be taken in to account. Negative impacts related to economy are depletion of petroleum as primary fuel source, congestions and infrastructure caused direct and indirect costs (waiting times, building and maintenance of sewers, water mains etc.) and increased health care costs (traumas, fatalities, accidents, pollution, obesity) (Black 2000; Schiller et.al. 2010). Social impacts are related to loss of public safety, anti-social behaviour due to boredom (especially in remote suburbs where opportunities are limited), enforced car-ownership in low income households, physical and mental health problems due to lack of physical activity and also road rage and loss on community in neighbourhoods (Schiller et al. 2010).

The growth of transportation needs and heavy congestions has led governments building more and wider roads. In addition of easing congestions this has promoted car ownership and increased the problem by increasing personal car ownership rates (Schiller et. al. 2010). Road enhancements have caused more personal driving, lengthened the daily road trips, caused more sprawl and energy and land consumption (Schiller et.al. 2010; Georgakis & Nwagboso 2012). According to Schiller et.al. (2010) consequences have also caused dispersion and more societal polarization and inequity of society. Dispersion can be found between the highly mobile and those who are denied the benefits of mobility (cheap housing outside growth areas but lack of transportation). Inequity causes crime, heavy congestions and speeds are danger to those in cars, also lack of physical activity creates health problems. Schiller et. al. (2010) also sees polarization causing societies turning less democratic politically which leads to less participation. Transportation related problems impact wide range of societal issues and developing functional ST with citizens is an option to create a difference.

ST focuses on the entirety of the sustainability-concept. A trade-off approach used in sustainable transportation scheme (figure 3) holds to understand all the three first pillars of sustainability (economical, environmental, social) and their effects on each other (Georgakis & Nwagboso 2012). By using the trade-off approach in sustainable

transportation strategies, the effects between two pillars have to each other are considered. E.g. societal inclusion vs. competitive economies. Goal is to positively impact on all of them without leaving any of the pillars taken into account or enhancing one on the cost of another (Georgakis & Nwagboso 2012).

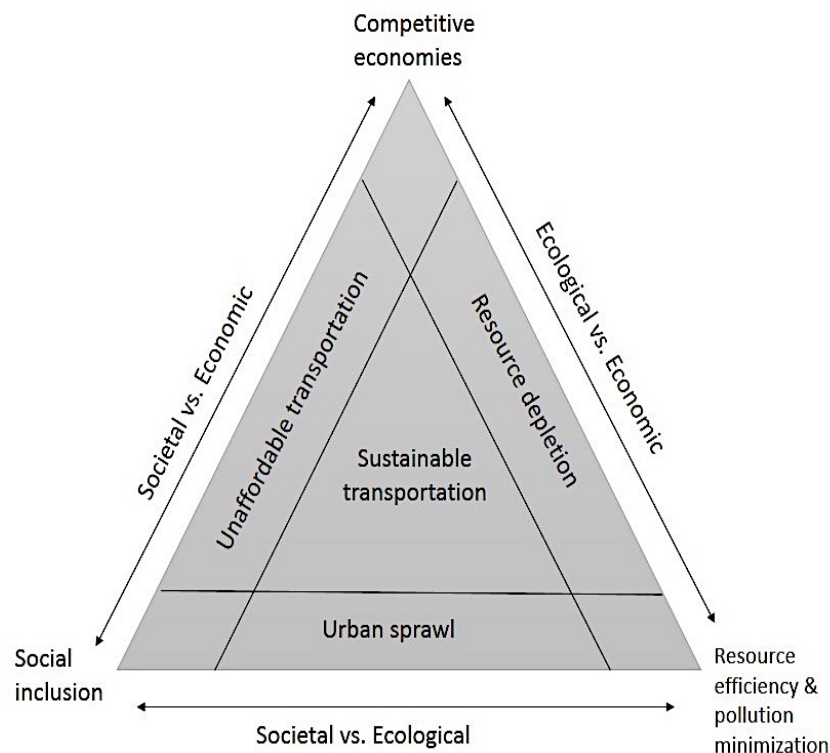


Figure 1 Sustainable transportation in trade-off approach (Georgakis & Nwagboso 2012)

For example, preventing social exclusion is not likely to become a reality without provision of effective, accessible and affordable public transportation. This has proven to be the case in situations where citizens cannot afford to use personal motor vehicles but also living in city centres, where public transportation is effective, is too expensive. These can be results of unemployment, congestion charging schemes or high road usage fees. (Georgakis & Nwagboso 2012)

Another study by Schiller et.al. (2010) discusses about the equity in relation to auto dependence and inequities related to household incomes and living areas. Wealthier

households or individuals living at city centres are closest to rich array of services and work opportunities, whereas low income households located to sub-urban areas with necessity to use costly private cars to access services and work are furthest due to low living costs (Schiller et. al. 2010). Dichotomy of society hurts vulnerable and often the poor parts of societies (e.g. disabled, elderly people and the young) who are also disadvantaged in car-dependent urban areas and under threat of being permanently excluded accessing various essential services and activities (Newman et.al. 1992).

Traditional road traffic and city planning has increased the disparity of societies. Social pillar, access to services and amenities is a key measure of the performance of urban transportation system. Providing these opportunities to all citizens without discrimination as to income, physical ability, housing location, mode of travel or any other factor functions is to be considered as the fundamental principle (Schaeffer and Schar 1975; Schiller et. al. 2010). But as presented above, the concept of sustainable transportation is about mitigating the negative impact on all sustainable development pillars. Challenges of creating working ST strategy are mainly born from car dependence and equity/inequity in transportation (Schiller et.al. 2010). Trade-off approach provides a tool for strategists. All three pillars and their counter affects must be taken into account when ST strategies are planned.

2.2.3 Mobility management as the futures societal planning model

Affecting consumer's behaviour is seen as a part of futures transportation management. The traditional transportation planning means managing the complexity with the transportation system, land usage planning among with traffic infrastructure and service supply (Motiva 2017). Pricing holds significant role on planning e.g. decisions made on whether users will have willingness to pay (Motiva 2017). The economic policy instruments (e.g. fuel and vehicle taxation, public transportation subvention, congestion and toll charge, parking fees and taxation of employee benefits) with laws and regulations also play significant role on traditional transportation planning means (Motiva 2017).

Analysis of Köhler et.al (2009) highlights the need to change consumers' behaviour while planning on transportation but addresses how hard in reality it can be to achieve. According to Köhlers et.al. (2009) analysis changes in lifestyle and consuming require pressure coming from the society and its governance. Mobility management focuses on solving these consuming related issues from societal point of view. Mobility management is relatively new concept and a technique focusing on developing and organizing sustainable transportation in collaboration with all stakeholders in the same network (Motiva 2017). In other words: this means stakeholder collaboration and participating on solving a common problem that is affecting everyone's life from social, economic and environmental point of view.

Motiva (2017) points out that occasionally problems with changing the consuming habits is not a sign of inadequate infrastructure or poor quality of services – often it is just a question of consumers not thinking about other ways of behaving. Information encouraging behavioural change can be offered in various ways: electronically, at public transportation (PT) stations, PT stops, magazines, PT service counters or mailed directly users homes. Or by participating citizens and offering behavioural change drivers directly. Participating stakeholders at right time and place is essential for the project success. For example, in open city planning the ST goals set by government are compared to goals set by society in collaboration with all stakeholders (Saarinen & Granberg 2009). The planning of ways and methods is part of creating functional participatory locations for citizens.

2.3 Sustainability marketing and consumer behaviour

This chapter discusses about relevant sustainability marketing concepts and theories for the study. The theories of planned behaviour (TPB), self-determination (SDT) and role (RT) are introduced in order to understand the citizen-consumer. Behavioural theories are discussed in the context of what is needed for behavioural change. Also, transportation related studies on how these theories have been implemented in practice are discussed.

As addressed in earlier chapters, citizen-consumers and their transportation needs are in the center of personal transportation planning. Understanding consumer's behavior is essential part of ST planning and project success. Sustainability marketing (SM) has evolved from traditional marketing and is described as sustainable development philosophy-based communication and actions with the products target audience (e.g. citizens) (Belz & Peattie 2012). Focus is on satisfying citizen-consumer needs with positioning to markets by communicating with stakeholders how the environmental, social and economic issues are addressed (Font & Villarino, 2015; Bridges and Wilhelm, 2008; Mitchell et al., 2010). Two main sections in the core of sustainability marketing are increasing the awareness (e.g. how environmental, social and economic issues are being taken care of) and allowing all stakeholders engage in discussion about the company/service provider and the actions as whole (Belz and Peattie, 2012; Villarino & Font, 2015). Participating citizens on planning sustainability schemes is one form of creating such discussion and also increasing the level of sustainability awareness.

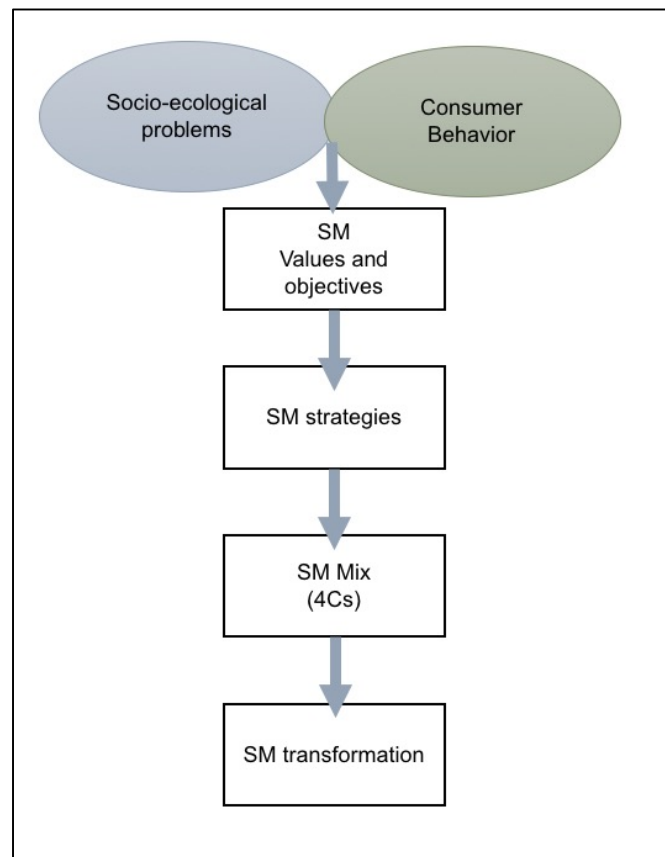


Figure 2 Sustainability Marketing frame (Belz & Peattie, 2012)

Managerial approach on sustainability marketing comprises six key elements which are also framing the concept (figure 4) (Peattie & Morley, 2008). Socio-ecological problems and consumer behavior acknowledge the issues and act as launching point for other marketing procedures. The shift from traditional marketing to SM requires different and innovative thinking in following areas: recognizing socio-ecological problems, understanding the consumer's behavior and role in the problem, rethinking the traditional marketing mix and using the transformational potential of marketing activities and relationships (Belz & Peattie, 2012). Relevant transportation related socio-ecological impacts were already further explained in the chapter 2.

SM outcomes foster public needs and the marketing has to be ecologically oriented, viable, ethical and relationship-based to be recognized as SM (Belz & Peattie, 2012,

18). Marketing outcomes are also relationship based which moves its core closer to relationship and communications management (Belz & Peattie, 2012). The sustainable marketing mix has also evolved from the traditional 4Ps to 4Cs which are: 1. customer solutions, 2. customer cost, 3. communication and 4. convenience. Sustainable marketing mix takes customer viewpoint rather than sellers and psychological methods are often utilized. (Defourney & Nyssens, 2006).

2.3.1 Sustainability marketing myopia

Sustainable marketing sees customers as stakeholders with something is done together instead of only offering goods and/or services (Belz & Peattie, 2012, 17). Nature of SM is communicative which is discussed in the previous chapter. However, it is not problem free and poorly managed SM can create great confusion within consumers.

McKenzie-Mohr's (2000b) study about effective programs fostering sustainable behavior concludes that even though psychology plays remarkable role on SM communications – quite little attention has been paid on providing that knowledge to those who actually design environmental programs. Understanding on how to communicate about sustainability effectively can also be relatively low among the marketing professionals. And the professionals of sustainable development are lacking marketing skills - which is also the key problems on promoting sustainable development (Belz and Peattie, 2012; Villarino & Font, 2015). This equation leads to a known marketing problem called “sustainability myopia” (Font & Villarino, 2015).

If received information or communication is not relevant for consumer's decision-making process, or the marketing messages are not focused on their personal needs consumers will be left confused and unwilling to consume (Levitt, 1984; Ottman et al., 2006; Rex and Baumann, 2007). And if products and/or services with expensive sustainability campaigns suffer from substandard product performance the consumer skepticism towards sustainability only seems to increase (Crane, 2000; Kreps & Monin, 2011). Poorly planned marketing design fails to set positive incentives for

sustainable behavior, both for producers and consumers and is prone to fail (Belz and Peattie, 2012).

The sustainable marketing scheme (figure 4) draws socio-economic problems and consumer behavior as the marketing actions starting point. Whilst societal marketing studies have focused on behavioral change programs. The societal marketing practices are commonly used to battle social problems (smoking, obesity) and changing behavior by promoting healthier living habits, but these actions can also be implemented in to environmental problems. SM scheme can be complemented with societal program studies to understand best practices and psychological viewing point on affecting consumer behavior. Societal marketing and few of its relevant studies are discussed in the next chapters.

2.3.2 Societal Marketing

Andreassen's (1994) classic definition describes societal marketing as "*the adaptation of commercial marketing technologies to programmes designed to influence the voluntary behaviour to target audiences to improve their personal welfare and that of the society of which they are a part*", hence the consumer is called a "target adopter" who voluntarily participates (Parsons & Maclaran, 2009; Belz & Peattie 2012).

Societal marketers are asking questions on "how the marketing actions should be carried out to meet the goals of the society" and "how to optimize societal benefits" in order to create long term solutions (Parsons & Maclaran, 2009; Belz & Peattie, 2012). In its core is finding answers to societal problems e.g. transportation making provided societal services and employment accessible to all in the society (Peattie & Morley 2008; Belz & Peattie 2012). This is where the citizen-consumer is needed to participate on planning and development. Societal marketing in its micro context focuses on consumers' needs and the impacts goods and/or services have (Peattie & Morley, 2008). In sustainability marketing scheme the societal marketing with its practical planning approach provide tools for planners.

Citizen-consumer's decision-making process in responsible consuming can possibly be affected by finding suitable values, price and incentives the citizen-consumer follows (Belz & Peattie, 2012; Parsons & Maclaran, 2009). The societal marketers need to understand and offer benefits the citizen-consumer values (e.g. economical or ideological) (Belz & Peattie, 2012). Also understanding the cost of consuming for citizen-consumers needs to be taken to account. How and how much they pay when they are involved in the behavioral change related marketing schemes? Are they giving up something? (Belz & Peattie, 2012). The change agent (i.e. organization, group etc.) who creates the offer and invites people to change consuming behavior needs also figure out the suitable incentives for participating and changing behavior, separately (Parsons & Maclaran, 2009, 167).

The societal classification of products (SCP-model) is societal marketing tool used to help planning on which products are worth moving forward on planning table. SCP also describes how businesses can develop strategic norms to reach goals they have set (Kotler 1992; Belz & Peattie 2012). SCP -model locates the services or goods inside a matrix where its long-run benefits and consumer satisfaction are weighed. Based on evaluation SCP-model user can create marketing strategies around desirable or salutary goods and eliminate the deficient and pleasing ones (figure 5) (Kotler, 1972; Belz & Peattie, 2012).

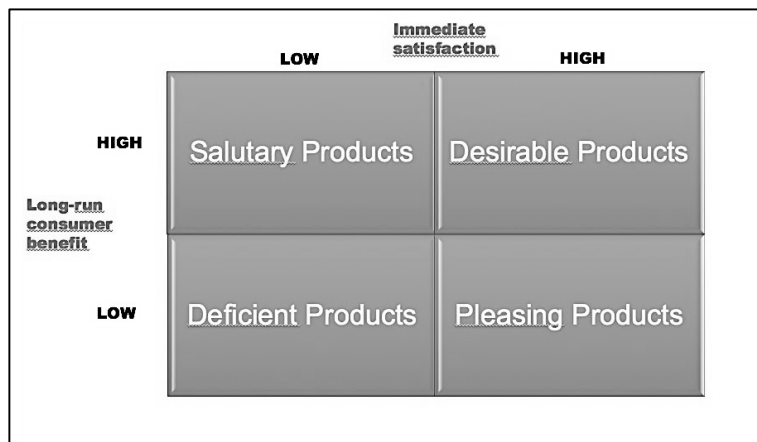


Figure 3 Societal classification of products (Kotler, 1972)

Problem within the SCP-model is to solve how to define the key interests of consumers and society (Wilson & Gilligan, 1997). What truly attracts and is appealing to them? Buying a salutary product like electric car or using car sharing (service) are both beneficial in the longer run, but do not necessarily provide immediate satisfaction like sports car purchase would do for some citizen-consumers (which is a pleasing product for immediate satisfaction). In the long run salutary and desirable products will benefit both; consumers and society (Belz & Peattie 2012) but finding how to create immediate satisfaction within those goods and services is to be solved by sustainability marketers.

Societal marketing scheme highlights the communication between public and private actors with the citizen-consumers and introduces a systematic planning process for behavioural change through participating all parties. (Grier & Bryant, 2005; Parsons & Maclaran, 2009, 169) However, one problem needs to be taken into account. Competition between societal and traditional marketing schemes can and sometimes do promote opposite causes: one marketing program is very pro-environment, other encourages for quick satisfaction. These messages are sometimes creating trust problems and has negative impact on the societal marketing practical implications. (Peattie & Peattie, 2003; Parsons & Maclaran, 2009)

Due to the complexity of sustainability marketing and human nature related problems those will not be solved by using single consuming behaviour change strategy. For example, in the past marketers who used just emotional appeals (such as fear or guilt) found in the end that consumers saw their marketing approach as manipulative (Solomon, 1989). Understanding public behaviour management tools based on voluntary and non-voluntary behavioural change incentives (e.g. financial or social incentives or law changes) will be much more noteworthy according to Rothchild (1999).

Finding the optimal crossing point for the societal, commercial and consumers needs is challenging but would lead to the desired long-term success (Belz & Peattie, 2012, 27; Wilson & Gilligan, 1997). In order to gather more understanding on the societal marketing aspect of this equation few contemporary studies are introduced below (table 4).

Table 4. Societal marketing studies on behavioral change

Author	Scope of research	Results from societal marketing point of view
Barr, S. & Prillwitz, J. (2012)	Present potential conflicts that may emerge between studying consumer's daily behaviour and short-breaks and holidays. Segmentation is often used as a basis for understanding behavioural change but does not often take into account multiple roles.	<p>“...raising important question on adopting single and spatial mobility styles approach for promoting behaviour change...”</p> <p>Citizens change roles based on the situation they are in. (Customer to professional etc.)</p>
Santos,G. et.al. (2010)	Finding evidence from literature on how public policy instruments could be used in combination to ensure that futures transportation methods are sustainable.	<p>“...information and education policies measures are necessary, but not sufficient for behavioural change... - ...Advertising and marketing may go a long way to change behaviour... – promoting a modal shift from personal towards public transportation may be more successful if targeted people are in the process of important life transitions...”</p>

McKenzie-Mohr, D. (2000b)	Present a societal marketing strategy and process by using early adopters (citizens) on promoting sustainable practices: community based societal marketing scheme that attempts to utilize societal pressure as behavioural change driver.	Case studies: "...the high number of householders who were already composting were leveraged participation in encouraging others..." - "...fostering the development of descriptive social norms (where composting is seen as appropriate behaviour) ..." "...householders who composted were asked to speak to their neighbours about composting and provide package that dispelled perceptions... - ...80 % were still found composting on follow-up" "...another case on community based SocM strategy to reduce water use... – two groups: direct visits to households or given information... - ...households that were visited decreased watering by 54%, information group 15%..."
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McKenzie-Mohr (2000b) uses case studies to draw psychological picture on the behavioural change issue by studying societal pressure created by others in the same community on changing citizen's behaviour. McKenzie-Mohr (2000b) says the importance is in leveraging the knowledge and engagement of the part of community that already has adopted sustainable consuming habits (the so called early adopters). In his study McKenzie-Mohr (2000b) used early adopters communicating (educating and promoting) with their communities and especially those who still maintained less sustainable consuming habits. Practice is called *community based direct communication* and was found to be an effective especially as a long-term change agent. It was highlighted that psychological approach is needed in order to understand communities behavioural change. (McKenzie-Mohr (2000b))

Santos (2010) study offers policy instruments combined with taxes and permits to ensure sustainable future. His study suggests that the role of societal marketing would be beneficial if the target citizens are simultaneously undergoing a change period in their life where behavioural change is due to happen anyway (e.g. such as having a child) (Santos, 2010). Implementing new behavioural models are easier to do through influencers but also the newcomers to a certain phase of life. In addition, Barr & Prillwitz (2012) point out the problem with traditional segmentation of consumers. They suggest segmentation should be conducted by exploring the roles citizen-

consumers undergo throughout their life since there seems to be multiple. Especially over time the citizen's roles are due to change (Barr & Prillwitz, 2012). Roles are discussed further in the chapter about role theory.

All used cases of societal marketing studies are highly psychology driven. Citizen-consumers can be affected through their community's early adopters (McKenzie-Mohr, 2000b) but also more traditional societal marketing campaigns are found beneficial in the transfer periods of life (Santos, 2010). The roles are due to change which means different consuming perspective for transportation needs (Barr & Prillwit, 2012). However, regardless the marketing pressure citizen-consumers are relatively free to choose their consuming habits. In order to understand how big role planned behaviour plays in affecting consuming habits theories around the planned human behaviour are discussed in next chapters.

2.3.3 Theories on planned behaviour and self-determination

Theory of Planned Behavior (TPB) is social-psychological concept and useful in studies that are focused on understanding how citizens think (Alarabiat, et.al., 2017). Its developer, Ajzen (1991), explains the theory: TPB predicts and tries to understand why a member of a society might act or perform certain way. This is done through three constructs (Ajzen, 1991; Alarabiat et.al., 2017). These constructs further lead to intention to behave in certain way and the implementation of intention, which is a plan of the individual in specific situation to behave as planned. Final part of the theory is the actual behavior. (Alarabiat et.al., 2017)

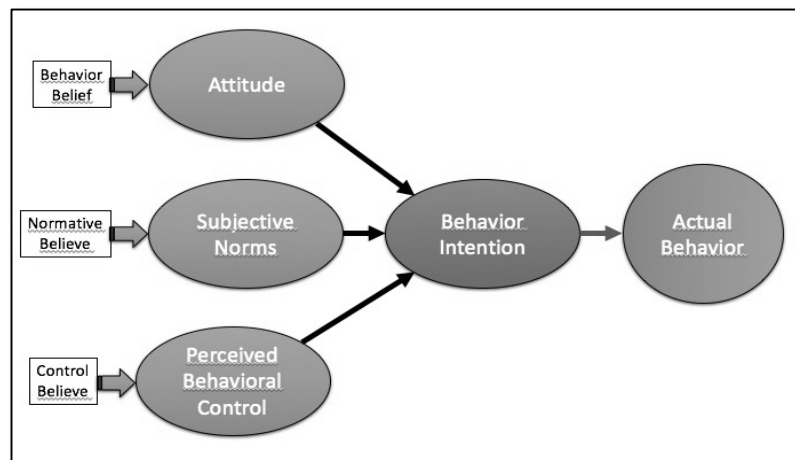


Figure 4 Theory of planned behavior (Alarabiat et.al.2017)

TBP suggests that person's intention to perform a certain behavior is a strong predictor of the actual behavior (Ajzen, 1991; Alarabiat, et.al., 2017). The intention is the degree that the person is willing to perform certain behaviors. This is determined by three constructs (figure 6). First construct is (1) attitude which is presuming the intention to change and rises from what the individual personally thinks. Second construct are the (2) subjective norms which means the others in individual's social circle and how do they think and third is (3) the perceived behavioral control individual personally has: does the individual have tools or means for the change of behavior. (Ajzen, 1991; DeBiasse, 2015).

TBP is a used tool in sustainable transportation programs. According to study conducted in Malaysia by Khoo & Ong (2015) theory of planned behavior (TPB) - model reveals that contributing factors towards public attitude and acceptance of sustainable transport include awareness, government actions, service availability, and willingness to pay. The influence of these factors varied significantly across different genders and educational groups in the study (Khoo & Ong 2015). A study by Zailani et.al. (2016) examined public transportation (PT) usage and the psychological predictors of the intention to choose PT. Zailani et.al. (2016) mapped three reasons to travel: work/study, shopping and leisure. Results indicate that attitude and perceived

behavioral control are significant predictors of the intention on using PT for various purposes (Zailani et.al. 2016). This would mean the less important role of the others in social circle impacting on citizen-consumer's behavior.

According to Leavell (2015) theory of planned behavior is mostly extrinsic focused (where influence to act in certain way is coming from the outside) therefore TBP explains exceptionally well all *goal-oriented behavior*. As mentioned in the societal classification of products chapter sustainable transportation options do not provide the quick satisfaction of consuming and setting the goal on the long-term satisfaction is still needed.

Self-determination theory (SDT) is based on understanding motivation and is investigating how people move themselves or others in their social circle to perform a certain act. Within recent years SDT has been utilized by marketing researchers to investigate the consumer's behavior from intrinsic point of view (Leavell 2015). The link between the two theories (TBP and SDT) is where the TPB has functional extrinsic focus, SDT is predominantly interested following the intrinsic motivational factors (Leavell, 2015).

According to Ryan & Deci (2000), who are the developers of the theory, humans can act proactively and engaged or they can stay passive and feel alienated. It is all result of social conditions: where the studied people operate and behavioral models are being developed (Ryan & Deci, 2000). Three psychological and relatively stable basic needs have been separated from SDT (figure 8). These lead to self-determination when they are filled regardless of individual's cultural backgrounds, gender or time. First basic need is (1) autonomy which means the personal endorsement and freedom individual has to perform a certain act. Second basic need is (2) competence which means the feelings of capability and mastering things individual finds important. Third need is (3) relatedness which means feelings of being cared and connected to others. (Ryan & Deci, 2000; Leavell, 2015) When these three factors are satisfied they together lead to

good mental health and motivation to act through satisfying person's self-motivation (Ryan & Deci, 2000).

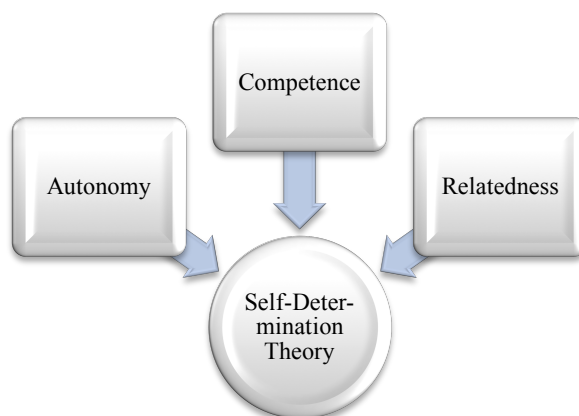


Figure 5 Innate basic psychological needs, SDT (Ryan & Deci 2000)

Aitken et. Al. (2016) studied pro-environmental behavior (PEB) in the context of SDT. Their study suggests SDT can be a powerful predictor on pro-environmental behavior. When transportation behavior was perceived to be easy, motivation type had no influence on behavior frequency. But when transportation was difficult to reach basic need, autonomous motivation factor, was found to be a significant mediator. (Aitken et. al. 2016) Increasing individuals' autonomous motivation toward the pro-environmental thinking, and sense of environmental competence supports participation in difficult PEB situations, potentially leading to a behavioral change and larger environmental benefit (Aitken et. Al. 2016). Study suggests that PEBs became more difficult, the level of self-determined motivation becomes a more powerful predictor of behavior participation (Aitken et. Al. 2016). In this case the lack of easy access to sustainable transportation leads to passive behavior and feelings of being alienated. But these theories aren't explaining why the same person can act various ways throughout the day using both either sustainable transportation or unsustainable

options. Understanding of the various societal roles is needed to explain why behavior can change depending on the situation.

2.3.4 Role Theory and transportation consumer behaviour

As already mentioned above in the earlier chapters about collective action problem (CAP) and societal marketing, humans hold different roles. Roles are held for example as citizens, customers, members of family and clients which greatly affect the decision making, intentions and behavior. This theory is explained shortly with few examples from previous chapters. The factors affecting decision making differ between the roles but according to Biddle (1986) there are some relatively stable patterns depending on the type of the role.

Role theory (RT) is commonly used as part of marketing and consumer research (Solomon et.al., 1984.) It is used to define characteristic behavioral patterns on various recognized roles (Biddle, 1986). It explains the roles by presuming that human individuals are members of various social positions and hold certain commonly accepted expectations for their own behavior and also the behavior of other humans. These expectations define the acceptable or unacceptable behavioral patterns. (Biddle, 1986)

In other words, roles are social positions affected by society's expectations. Kreps & Monin (2011) studied what is behind the expectations, public moralization and likability in the context of affecting human behavior. Their study explains the strong need humans seem have to be liked and accepted in their community but it also shows how strongly they want to keep their roles (Kreps & Monin, 2011). The need to meet own community's expectations explains the results of McKenzie-Mohr (2000b) study. As mentioned in chapter 2.3.2. about societal marketing McKenzie-Monin (2000b) found that if early adopters act as communicators inside their communities' they can create long-term behavioral change inside the communities (McKenzie-Mohr, 2000b). In addition, same phenomena were found from studies about the CAP problem

(chapter 2.1.2.). There societal free-riding problem was much lower among citizens who knew each other with personal social context and who were more likely being punished by their community of free-riding (Fischel, 1985; Dwyer & Hodge, 1996; Rydin & Pennington 2000; Weale, 1992). The social status and ties with smaller group members (e.g. neighbors) increases participants' willingness to keep good relations through higher level of engagement and effort. (Fischel, 1985; Weale, 1992; Dwyer & Hodge, 1996; Rydin & Pennington 2000)

Barr & Prillwitz (2012) suggest market segmentation should be conducted by exploring the roles citizen-consumers undergo. The roles differ and change especially over time and in professional – private settings (Solomon et. al., 1984; Barr & Prillwitz, 2012). For example, service encounters between customer and service providers representatives are role performances where each party has learned a set of behaviors that are appropriate in the situation. These pre-learned behavioral models will increase or decrease the probability of goal attainment. (Solomon et.al., 1984)

The theoretical approach in sociology emphasizes the nature of people as social actors who learn appropriate behavioral patterns from the positions they occupy in society (Biddle, 1986). The structural, cultural, social, gender related and bio-sociological roles are relatively stable even though they change based on the situation the person is placed in (figure 9) (Solomon et.al., 1984; Biddle, 1986).

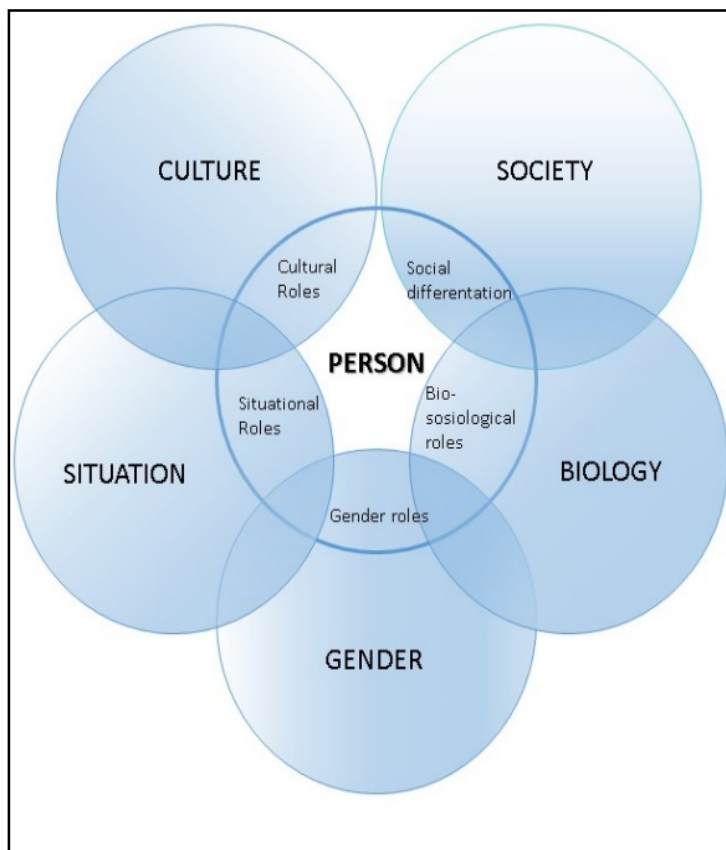


Figure 6 Social roles according to role theory (RT) (Biddle, 1986)

Same individual can hold multiple roles which sometimes leads to a common problem known as role conflict which can create confusion for citizen-consumers. Individuals company might value different matters than their personal values are. The problem with role theory has been where the role expectations are coming from (Biddle, 1986) and who values these. Answer is shortly: roles are based on commonly accepted social norms and evaluated by the surrounding community (the reference groups). (Solomon et. al., 1984; Biddle, 1986; Barr & Prillwitz, 2012)

2.3.5 Motivational factors

Exchange theory (ET) implies that marketers and behavioural change agents have to understand values the consumer has over goods and services (Belz & Peattie, 2012).

This entails understanding all stakeholder costs involved and incentives both for the change agent (i.e. organization, group etc.) and the consumers who are invited to change their behaviour (Belz & Peattie, 2012; Parsons & Maclaran, 2009, 167). As mentioned in chapter 2.1 about participating citizens, a member of society often receives a higher rapid payoff by acting in self-interest rather than acting for the public interest and understanding the costs and values they seek are important. In the theory of societal dilemmas, acting for greater public interest is referred to as *cooperation*, while acting in self-interest is referred to as *defection* (Fujii et.al. 2015). Understanding cooperation, defection and costs involved can explain behavioural patterns.

The meaning of cooperation and defection can be explained within the context of socio-economic problems in personal transportation. The unsustainable personal driving habits are called defection. These cause emissions (e.g. air pollution), high energy consumption, waste streams and traffic congestions which are threatening the whole society's welfare (Van Vugt et.al.1996; Gärling & Sandberg, 1997; Garvill, 1999; Fujii et. al 2015). Whereas cooperation, using sustainable transportation (e.g. the public transport, sustainable energy sources and transportation modes) reduces the negative impacts on the environment (Van Vugt et.al.1996; Gärling & Sandberg, 1997; Garvill, 1999; Fujii et. al 2015). The public interest on choosing cooperation instead of defection is studied by sociologists as well as sustainability marketers.

The built structures can well explain unsustainable behavior. Congestions for example: in addition of easing congestions building more and wider roads has increased the problem by increasing personal car ownership rates (Schiller et. al. 2010). Around the societal dilemma of private car ownership and personal driving Van Vugt et. al. (1996) studied two decades ago drivers' who choose to commute rather than use public transport. Van Vugt et. al. (1996) came to a conclusion that temporary structural changes (such as a freeway closures) is an important catalyst that triggers quick cooperation and behavioural change. Also, according to other studies on behavioural change sustainability is often spurred successfully through implementing structural changes by breaking the old routines (Matthies 2016, Withanage et.al.2016, Fujii et.al. 2015, Ouellette and Wood 1998).

Furthermore, from psychological perspective routines (learned behavioural models) are the greatest barrier for a person to change behaviour regardless the good intention he or she might have (Withanage et.al.2016). This phenomenon is also discussed in the societal marketing study of Santos et.al. (2010) where transitional phases of life (having a family, retiring) were seen as an effective situation to affect citizen-consumers consuming behaviour.

Modern days unsustainable consuming habits are the major reason for resource overuse and scientists have tried finding the optimal strategy (Vlek, 1996; Withanage et.al. 2016). According to psychologists' it requires *time* and *multiple steps* to influence on public for them to choose a pro-environmental traveling mode. (Dahlstrand & Biel, 1997; Fujii et.al., 2015; Klar et.al., 1992) Vlek (1996) argues the idea of one single strategy to increase public cooperation may be insufficient, but *combinations of sustainability strategies* would lead to the wanted solution. Hence, Withanage et. al. (2016) proposed two strategies: (1.) product or systems-based strategy or (2.) behavioural led intervention strategy, depending on the wanted outcome. The latter has two underlying causes that correspond to the intervention strategies: (a.) high-energy consuming habits and (b.) lack of awareness (Withanage et. al., 2016).

Intervention study by Matthies (2016) also confirmed the assumption of Vlek (1996) that motivational strategies alone were not sufficient enough to change behavioural routines. According to Matthies (2016) changes in self-reported habitualisation became noticeable after implementing the complete intervention package, meaning multiple strategies. In addition to motivational materials it also contained interventions that supported users in modifying their everyday behaviour (e.g. supportive communicative instruments such as prompts, power strips and self-commitment) (Matthies 2016).

In addition to what was mentioned earlier, social scientists are also broadly aware of “geographical distance problem” and its effects on responsible consuming (Barnett et. al., 2005). Responsible consuming can be conceptualised in terms of an opposition

between place and space and the geographical distance problem causes diminishing interest on consumer's mind to maintain sustainable behaviour if the beneficiary others are at the distance. (Barnett et. al., 2005) Geographical distance problem threatens both the causality of sustainable behaviour and maintaining responsible actions (Barnett et. al. 2005, 25). Therefore, it is suggested that societal marketing strategies need measurements for the stability of behavioural change over certain period of time (Barnett et. al., 2005). When consumer behaviour is due to be influenced by geographical distance problem it is easy for the behavioural patterns to return where it was before the change.

Motivation studies have mapped the reasons for freely choosing sustainable transportation models which also point out to short term and self-interest-based results. Van Vlugt et. al. (1996) found in their study that combinations of two considerations (travel time, variability and impact of cars on pollution) was more effective promoting public transportation than the sum of separate effects. Schaefers (2015) studied various motives of over 1000 users on access-based car sharing service. Pronounced environmental motive exerted a negative influence to use car-sharing but according to study monetary motives had strong positive influence on choosing the car-sharing. Lifestyle or customer community-based activities were not motivational nor likely to increase service use. Conclusion of Schaefers (2015) is when customers are able to save time, money and effort compared to car owners they are interested.

Sometimes citizen-consumers are not able to choose freely and behavioural change can be triggered by the external incentives affecting traveling while using transportation. Van Vugt et. al. (1996) study on motivational factors affecting commuting drivers' decision to commute shows two types of commuters: pro-social concerned (who prefer public transportation) and pro-self-concerned commuter. The study shows that temporary structural changes (such as a freeway closures) are an important catalyst that triggers cooperation and behavioural changes both on pro-social ja pro-self-commuters (Van Vugt et. al., 1996). Fujii et. al. (2001) proposes a strategy on to use the external incentives by making commuting drivers *first* aware of the effects of their behaviour, which can alone trigger a behavioural change. *Then*

various other strategies should be implemented to make commuting drivers imbibe a new habit of using public transport, for example through repeated practice or monetary incentives (Ronis et.al., 1989; Watson & Tharp, 1997; Gärling et.al., 2001).

Rothchild (1999) has also discussed on persuading voluntary change through education and the role of *non-voluntarism*, e.g. law or policy development with punishment. Latter is seen as a preferable strategy when consumer cannot understand the benefits of behavioral change and/or the costs to society (Rothchild, 1999). However, as it was already mentioned earlier in the chapter 2.3.1. about sustainability marketing, the problem with adding financial punishment or economic policy instruments (e.g. fuel and vehicle taxation, public transportation subvention, congestion and toll charge, parking fees and taxation of employee benefits) can create social inequality and actually deepen the sustainability related problems (Motiva 2017). Known societal problems are part of functional sustainable transportation strategy. The geographical distance problem can also be related to social status and create gaps inside communities (Barnett et. al. 2005).

Discussions and studies with citizens about their public transportation needs is essential. The value of participating citizens becomes apparent for those who are trying to solve societal problems. Changing the consumers' behavior is at the center of attention when constructing transition to sustainable transportation. As shown in this chapter the motivational incentives are broadly studied and quite complex, therefore further psychological understanding is needed. The development of initiatives fostering sustainable consuming behavior is needed to create socially, economically and environmentally sustainable communities (McKenzie-Mohr 2000b).

2.4 An overview of theoretical framework

This thesis studies can participating citizens on transportation planning act as a behavioural change driver and with what incentives citizen-consumers behavioural change can be driven and what motivational factors should be used to generate long-term behavioural change. The research is conducted by using transportation industry

and governmental decision maker's perceptions on the phenomena. Their trust on the claim "participating can be turned to drive behavioural change" is tested. Also the beneficial motivational factors to enhance behavioural change are studied. Theoretical framework wraps relevant studies and theories under the sustainability marketing scheme showing in which context study problem is inspected.

First chapter's political theories, problems and studies on participating citizens in democratically lead countries form the core of theories. Participating citizens is important part of democratic decision-making processes. In addition, participating citizen-consumers is also in the core of sustainable development. Sustainability and societal marketing schemes both highlight the importance of participating and communicating with consumers. In sustainability marketing theories and in the concept of sustainable development (UN, 1999) the idea of participating and communicating are addressed as ways to promote behavioural change (specifically change in consuming habits). So far sustainable consuming and behavioural change has been mostly voluntary, therefore psychological approach is needed. Societal marketing studies have long focused on behavioural change from societal benefit perspective (public health campaigns etc.) and provides practical understanding. Research questions are based on these theories and studies. Since the act of participating is described as communicating between stakeholders, societal marketing studies provide practical tools to communicate in a way that behavioural change can be possible.

In order to understand how participating citizens looks in the SM scheme and where in that scheme research problem lies the theoretical framework uses sustainability marketing scheme (figure 7) as a tool to show its practical context. In the SM scheme recognizing socio-economical problem of road transportation is the starting point. These socio-economic problems are further introduced in the chapter 2.2.2. Participating stakeholders and engaging them into communicating follows implementing the chosen sustainability strategy and utilizing the sustainability marketing mix 4C's (communication). This part of SM practice leads to this study and

the reason for studying the mechanism of participating citizen-consumers. The mechanism of participating is studied as a possible behavioural change driver. Sociology studies of behavioural change are used to create understanding on behavioural change. In addition, picture of what motivates citizen-consumers to change behaviour, what values are important and what expectations (internal and external influences) can be drawn from earlier studies. Finally, TPB-model is used to understand citizen-consumers planned behaviour.

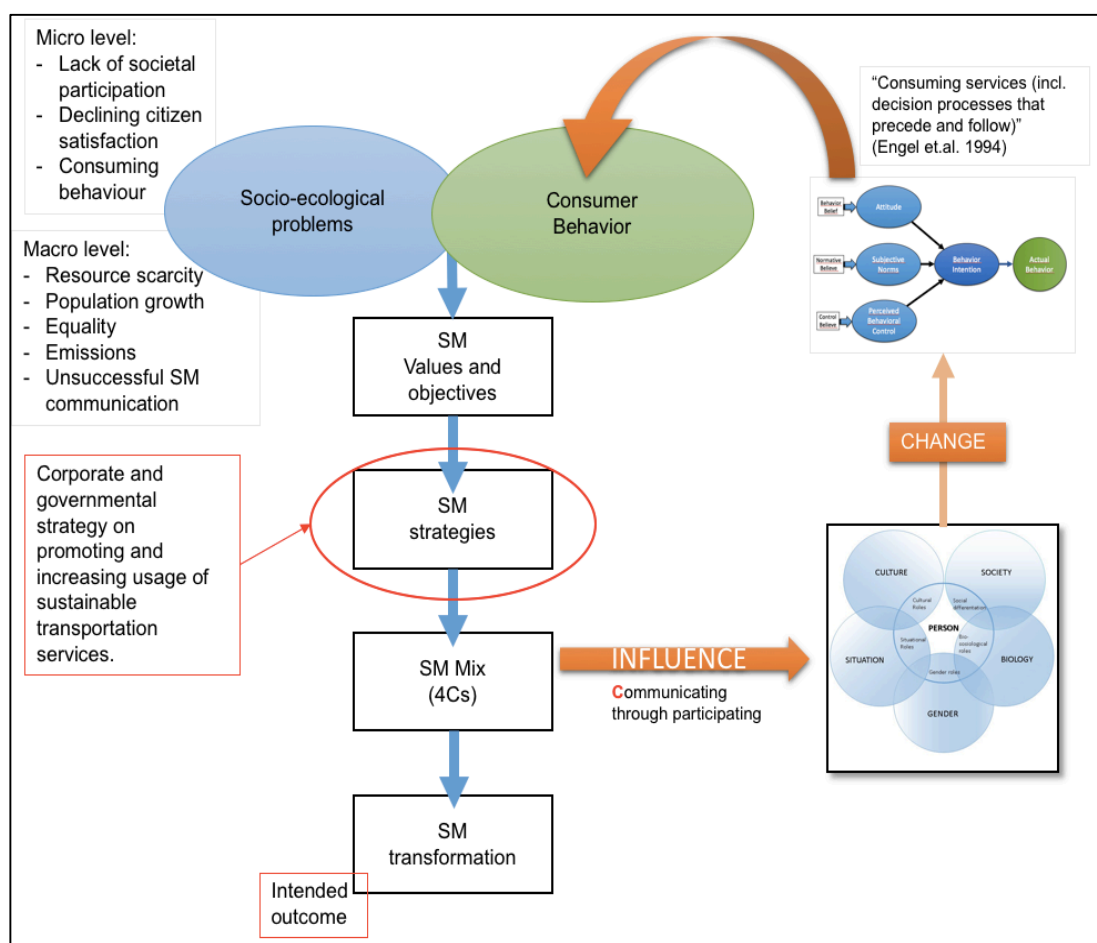


Figure 7 Study approach in sustainability marketing scheme

Sustainability issues on road transportation and societal problems such as collective action problem address why behavioural knowledge is needed. Sustainability marketing studies are searching optimal strategies to create long-term change. Finding

ways to create participatory mechanisms to enhance sustainable consuming habits is difficult. Societal marketing programs and studies highlight the social and psychological complexities of creating behavioural change. Sustainable transportation strategies are part of modern city planning and participating and communication between stakeholders is in the core.

TPB, individual's decision to behave certain way which results to the likelihood of specific outcome. So, in order for this to happen, citizen-consumer needs to be self-determined (SDT) i.e. motivated to act. Behavioural change studies consist of set of motivational constructs and proposed actions. Based on the complexity of the problem predictions and preconceived researchers' ideas on how to change citizen-consumer's transportation consuming behaviour more sustainable are used. This study behavioural change drivers and investigating how could participating citizen-consumers promote and increase sustainable transportation consuming behaviour. All the theories of behavioural change are pointing out to motivational factors in order to produce long term societal marketing success.

3 METHODOLOGY

3.1 Research Approach

As explained earlier, participating citizens is emphasised as a desired manner to communicate between stakeholders in the sustainability scheme. It is also in the core of democratic decision making and sustainability marketing actions. Understanding the potential participating could have in creation of behavioural change lacks attention. This study examines participating citizens as behavioural change agent in the context of transportation planning through the professional's opinion.

The theoretical framework for the empirical study collects previous knowledge on participation as political decision-making tool and in this given context adds theories on affecting consumer/human behaviour in order to better understand the phenomena. Deductive approach is used to study problem of *“could consumer behaviour be changed with suitable participation methods and motivational factors”*. Problem is formed from the grounds of former knowledge on decision making, consumer behaviour in marketing research and social sciences among sustainable transportation research and narrowed into research questions which are in this research tested against the decision making and transportation planning professional's views.

The empirical part of the study consists of cross-national questionnaire and analysis of the received data (figure 8). Final part of the thesis draws conclusions of the results and discusses what the results mean and what practical implications and future research prospects study has.

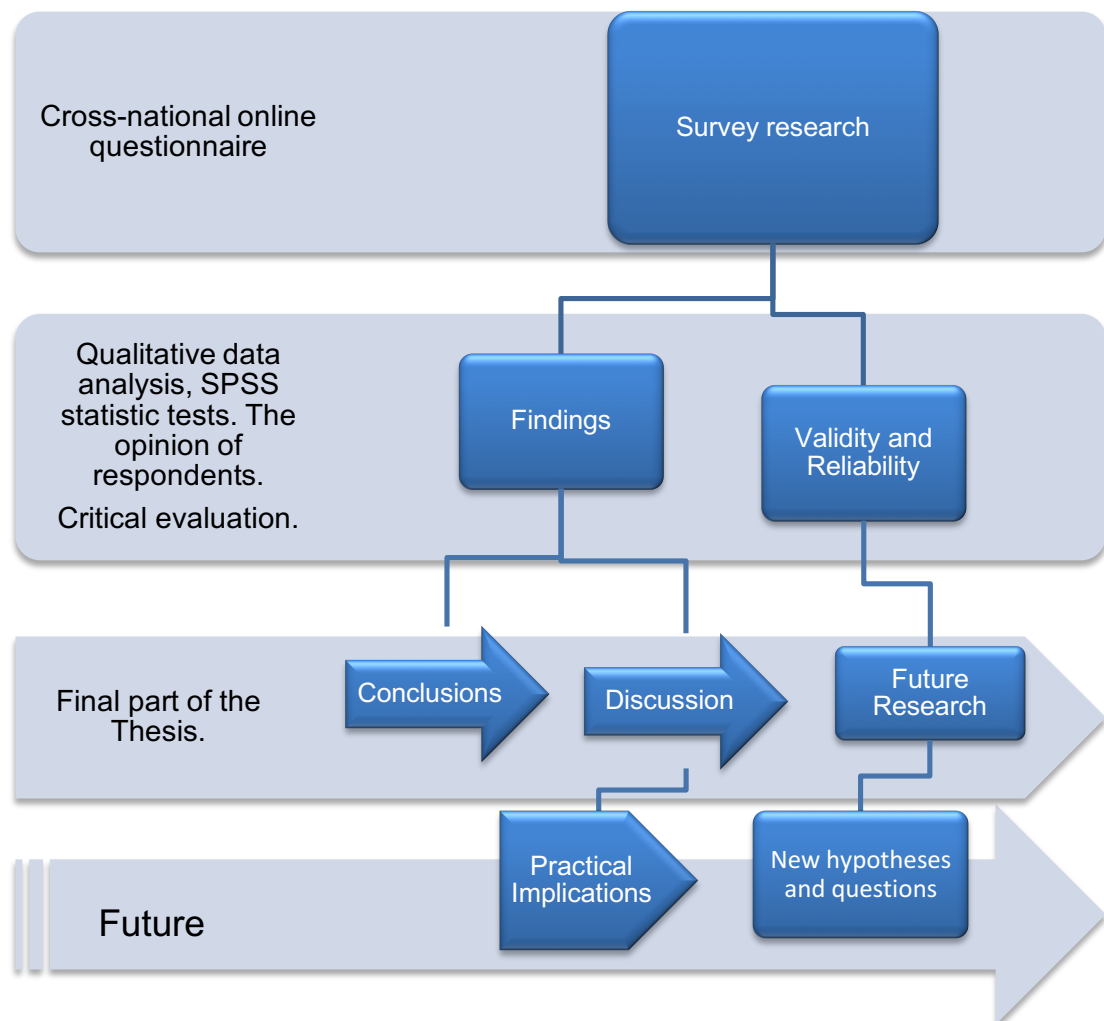


Figure 8 Empirical Part of the Study

Cross-national online questionnaire collecting quantitative data from transportation industry professionals and decision makers was used as the research method. After preliminary analysis of the obtained results of the research are indicating the insights and general opinion of stakeholder, respondents and those working around the governmental decision-making processes and transportation planning. The cross-national questionnaire was created after testing its meaningfulness with transportation professionals who were participating in discussion held at “Mobility-As-A-Service” LinkedIn group May 2017.

3.2 Study group

Questionnaires respondent group was purposive sample of the most relevant individuals and were chosen by using LinkedIn professional networks and governmental agencies and ministries. Participating citizens is part of democratic decision-making process and democracy as the political system is used by less than half of the worlds countries (Economist 2017), therefore respondents for the survey were selected using democracy or representative democracy as respondents' country of origins political system, hence the populations common denominator is democracy.

Democracy as a political system allows each individual to participate on decision making whereas other systems are constructed on more authoritarian manner. Therefore, data collection excluded other political systems. According to Democracy Ranking 2016 northern European countries with Australia and New Zealand were the strongest on the quality of democracy (Democracy Ranking Association 2016) and the provided democracy maps were used to rule out the countries with low rankings.

Study group was further narrowed from democracy as political system to professional role in transportation industry and/or role in participating on decision-making processes. The scope was to gather purposive sample of professionals from democratically lead countries with reliable insights on decision-making processes and common understanding of concepts. Study groups non-governmental respondents were gathered using LinkedIn professional networking groups for transportation industry professionals. Governmental respondents were gathered from the Finnish, Swedish and New Zealand Ministry of Transport and Communications employees. Research indicates the 'opinion' of stakeholder respondents working at the governmental decision-making processes and/or in transportation industry. The close stakeholder position enables gathering in depth and descriptive insights for understanding the possibilities around participating method.

3.3 Collection of data

Primary data was collected through cross-national online questionnaire. Data gained is both qualitative (nominal) and quantitative (ordinal) with the exception of two open ended questions providing qualitative data explaining the extreme opinions of respondents. Respondents perceptions, their ‘opinion’ as degree of agreement, is measured using ordered categorical variables where first category represents lowest and last is the highest. Likert five-point scale was used as psychometric measuring scale (Jamieson 2004) to assess respondents’ perceptions on “numerical codes=level”: ”1=Strongly disagree, ..., 5=Strongly agree”.

Using mean values in non-parametric analysis have been widely argued (Jamieson 2004) but in this study, means represent the general ‘opinion’ of the population and are treated as valuable information. Ordinal dependent variables used are somewhat between quantitative and qualitative (only the given rank is quantitative) and nonparametric analytical tests suitable specifically for ordinal data are applied in analysis (Sommer & Sommer, 1991; Jamieson, 2004).

Quantitative categorical data (without numerical measurements) were designed to help identify, rank and describe the selected variables. Scope of ranked data collection was to simplify the questionnaire for the respondents and provide accurate results for statistical analysis. Both nominal (descriptive) and ordinal (ranked) data were collected from the pre-selected respondents within given three-month time limit. After receiving preliminary results, analysis was conducted and conclusions were formed.

3.4 Cross-national online questionnaire

Preparatory discussion about the importance of the research and its usability was held May 2017 on a LinkedIn professional networking group “Mobility-as-a-Service” with 259 individual transportation industry members. Members came from all around the world with various transportation industry backgrounds. The online survey collecting

primary quantitative data was created by using Webropol online survey and analysis software (version 2.0).

After discussions on research topics usability with transportation, industry professionals the questionnaire items were tested using Webropol 2.0 software with three (3) pilot respondents. Pilot group consisted of one native English speaker with transportation industry background and two pilot testers with no relevant backgrounds on transportation industry or decision-making processes, one being a native New Zealander and other non-native English speaker from Finland. Questionnaire was held in English language since the democratic countries have great amount of different languages. Final decision on questionnaires language and layout was done based on the pilot tester's feedback. Criteria was respondent's mutual understanding of the concepts used about democratic decision-making and transportation planning.

The respondent's perception, overall 'opinion' is clustered to three units (opinion, trust, motivation) using the study of Raparelli et.al. (2017) as a benchmark. The units used in this research are based on the research questions. The units are used to describe the respondent's opinion, trust and motivation towards the assumption of: "*participating citizens can change citizen's transportation consuming behaviour*". The online questionnaire follows the research questions and the three units are clarifying the formation of respondent's opinion.

Questionnaire questions are organized on data requirements table (table 5) introduced by Saunders et.al. (1997, 368). The variables required and which data is measured are also placed on the data requirement table with evaluation of their relevancy. Four questions collecting nominal (descriptive) data, 13 ordinal (ranked) and two open ended investigative questions are used in the online questionnaire.

Table 5. Data requirements table

Investigative Q	<p style="text-align: center;">CLUSTER A. Trust</p> <p>Required variables: Participating method: trust, importance and usability</p>	<p style="text-align: center;">Detail in which data measured</p>
Rate the overall importance of participating citizens on transportation planning	Respondent's opinion of importance: participating citizens on decision making in general. Unimportant to very important level measuring democratic decision-making tool to define the preconditions and attitude base.	Opinion of importance in democratic decision-making process and citizen role: unimportant, somewhat unimportant, neither, somewhat or very important (Likert 5 Scale)
How likely participating citizens on transportation planning effects on how they choose to travel?	Respondents opinion on participating having effect on citizens behaviour.	Opinion of effectiveness: not at all, slightly, moderately, very, extremely (Likert 5 Scale)
Rate to what extent you agree with the following statement: "Governments promoting sustainable transportation will reduce citizens desire to own a car. "	Respondents level of agreement with: "Government influences on citizens consuming behaviour if it promotes ST" tests the beliefs and opinion of marketing. Measuring respondents' opinion does government really have behavioural change agent role when promoting ST.	Level of agreement on promoting: Strongly disagree, disagree, somewhat disagree, agree, strongly agree. (Likert 5 scale). If respondent strongly disagrees, explanatory question, "Why you strongly disagree with the following statement?" Is being asked to better understand the opinion.
Rate to what extent you agree with the following statement: "Participating citizens on the planning of sustainable transportation will reduce their desire to own a car. "	Respondent's level of agreement with the claim: " Participating citizens on the planning of sustainable transportation will reduce their desire to own a car." Questions tests the beliefs on participating citizens. Measuring do respondents think government has behaviour-changing role when participating citizens on ST development. This question will be compared with previous question.	Level of agreement on participating method: Strongly disagree, disagree, somewhat disagree, agree, strongly agree. (Likert 5 scale)
Rate to what extent you agree with the following statement: "Citizens who participate on transportation planning should be rewarded."	McKenzie-Mohr's (2000b) study about effective programs fostering sustainable behaviour concludes that psychology plays remarkable role on SM communicating. Question is related and precondition to last question asking opinion about monetary and social behavioural change drivers.	Level of agreement: Strongly disagree, disagree, somewhat disagree, agree, strongly agree. (Likert 5 scale) If respondent strongly agrees with the statement further questions "How should participants be rewarded?" "is being asked.

Investigative Q	<p style="text-align: center;">CLUSTER B. Opinion Required variable: KPI's of citizens and government</p>	<p style="text-align: center;">Detail in which data measured</p>
<p>How desirable it is for decision makers to participate citizens on these areas of transportation planning? (Infrastructure planning Route and transportation method planning Developing common policies and plans...)</p>	<p>Respondents opinion on which area of transportation planning the decision makers would preferably see the citizens participating. Trying to understand are these in the same line with citizens interests and are there intersections or KPI's that can provide understanding on more meaningful participating areas. Creates split-sample with question about personal interest.</p>	<p>Level of agreement: not at all, slightly, moderately, very, extremely (Likert 5 Scale)</p>
<p>Rate based on your personal level of interest. How important it is to you to participate on following areas of transportation development? (Infrastructure planning Route and transportation method planning Developing common policies and plans...)</p>	<p>Respondent own preference: in which area it is most interesting to participate on? This question creates split-sample and is to be compared with the same question about government's point of view. Do the points of interest collide anywhere?</p>	<p>Level of agreement: not at all, slightly, moderately, very, extremely (Likert 5 Scale)</p>
<p>Stakeholders interest comparison -test. Claims need to be placed in matrix. Click place on the table based on its relevance to both government and citizens.</p>	<p>Problem is yet to be solved who defines the interests of consumers and society (Wilson & Gilligan, 1997). Based on respondents' opinion, the idea of the matrix is to find KPI's and motivational drivers of both parties. How far these are located from each other's? The message citizen wants to hear when participating on decision making process might differ greatly from the message government seeks to deliver.</p>	<p>Most meaningful seen on a comparison matrix.</p>

Investigative Q	CLUSTER C. Motivation and Incentive Required variable: Behavioural change values and drivers	Detail in which data measured
<p>Have you encountered problems with participating citizens on decision making processes that can negatively effect on promoting sustainable transportation? (Promoting = effort to change participants consuming habits.)</p>	<p>Opinion of the respondents who work with participating citizens. What possible problems there might occur that can negatively affect the promoting of ST. This question needs further explanation if the answer is positive.</p>	<p>Yes, no, no opinion</p> <p>Answering "Yes" takes to explanatory question: "what problems have you encountered?"</p>
<p>How important you think these values really are to citizens?</p> <ul style="list-style-type: none"> - Efficiency of transportation - Cost-effectiveness of transportation - Symbolistic meaning transportation represents - Health and safety of transportation - Convenience of transportation - Status the transportation choice provides 	<p>Opinion of the respondents based on exchange theory (ET) (Belz & Peattie, 2012) where marketer has to understand how and where to offer benefits that the target adopter (consumer) values.</p>	<p>Level of importance: Not at all, Slightly, Moderately, Very, Extremely (Likert 5 Scale)</p>
<p>Place following motivation drivers in order of effectiveness. Which one would be the most effective driver in order to affect citizen's transportation choice?</p> <ul style="list-style-type: none"> - Social pressure (neighbours, relatives, family + friends) - Personal user ratings based on activity - Lower service pricing - Taxation (tax incentives) - Governmental pressure (law, regulations) 	<p>McKenzie-Mohr (2000b) stated importance of leveraging the already sustainably acting part of community (early adopters) on educating and promoting the ones within their reach. This question investigates the opinions of professionals on what motivates citizens behavioural change in order to understand does is correlate with McKenzie-Mohr (2000b) study.</p>	<p>Level of effectiveness.</p> <p>Scale 1-5</p> <p>5 = Most effective 1 = Least effective</p>

First, survey is collecting information about the respondents' gender and generation, region and employment type explaining whether they represent private sector or governmental transportation industry professionals. From the variables distinguished by Dillman (2007) the interest in this research is on respondents' *'opinion'* which is measured with respondents' level of agreement on given statements.

The needed data variables are divided (table 6) on three constructs as explained earlier. First construct maps the importance of participating and usability as a method. Key concepts "promoting" and "participating" are used separately. Questions about participating methods effectiveness on consumer behaviour were formed based on theory on collective action problem and sustainability marketing (SM) scheme. Respondents' opinion in this construct is seen relevant in order to understand participating methods meaningfulness and relevancy to respondents.

Secondly, survey aims to find key points of interest in decision making process from citizens and governments point of view. The colliding key interest points are important in order to form suitable post for promoting ST, the optimal place where both the stakeholders and the citizen-consumers operate closest on. This part of the survey is planned by utilising the theory of societal marketing scheme discussed in the chapter 2.3.2.

Third, questionnaire collects ordinal (ranked) data of respondents' opinions about government's ability to influence on citizens transportation consuming behaviour. Problems pointed out in chapter 2.1 participating citizens was used to indicate the relevancy of the research problem. In practice, promoting more sustainable consuming (e.g. ST) is what SM is aiming for and the theories and understanding the consumer in SMs' first two spheres of SM frame by Belz & Peattie (2012), "understanding consumer behaviour", was seen essential in this context in order to form any further conclusions for the planning frame. Lastly, questionnaire was investigating stakeholder opinions on citizen-consumer's behaviour through motivation drivers and role theories (RT) on the multiple roles citizens hold and do respondents find influencing these roles (by using suitable drivers) important.

Five-point Likert scale is used to gather respondents' opinions in the online surveys forced-choice questions. Five scale range of alternatives is chosen to create less general idea on the participants' opinion. Survey has 17 forced-choice questions (Saunders et.al. 2007) with two open ended filtering questions for explanatory purposes for those that are utmost against the given proposition. Forced choice-questions are used to make answering quick and easy. Open ended filtering questions are kept to minimum and hidden from those whose answer was not relevant using the software's questionnaire layout functions. The flow and order of questions of the online questionnaire is designed to be logical from respondents' opinion about participating as behavioural change method to finding KPIs' between the citizens and government to finally questioning what is most beneficial in order to affect citizen's behaviour.

Questionnaire was proof read and piloted by a native English speaker with transportation industry background and a native English speaker without a relevant transportation industry background. Also, a third person, non-native English speaker without industry background piloted the test. Based on the feedback after three rounds of testing about questionnaires length, completion time, clarity, defining unclear and/or uneasy questions, layout, language and topic omissions by the pilot participants the survey was decided to be sent only to transportation industry professionals who have mutual understanding of the used concepts and the completion time would stay shorter. The amount of questions was also decreased from original 25 to 17 based on the pilot groups' feedback. The final layout was checked using questionnaire layout checklist before sending it to respondents (Saunders et.al. 2007, 391).

Survey was emailed to professionals coming from countries using democracy as their political system. Altogether survey was sent out to 250 respondents in September 2017 and the survey-based data collection was completed in December 2017.

4 ANALYSIS AND FINDINGS

The aim is to find out respondents' *opinion* on research statement: "participating citizens on decision making process can change their consuming behaviour" (in democratic countries). Since the study is based on professionals' opinion the data was collected in an easy and prompt way through cross-national online questionnaire with limited amount of forced-choice questions. Data is analysed and statistically significant differences and relationships between respondent groups are tested using a group of non-parametric statistical analysis methods specifically suitable for categorical data (Jamieson, 2004; Sommer & Sommer, 2004; Saunders et. al., 2007).

This study consists of quantitative categorical (nominal and ordinal) and small amount of explanatory qualitative data, and the statistical analysis between independent and dependent variables indicating significant statistical difference is conducted after looking at the descriptive table of means and data variation. Also, assessment showing the strength of correlation between pairs and/or groups is conducted.

As said, first the analysis of the whole populations' *opinion* of all the three constructs is generated. Secondly, comparisons in order to find statistically significant differences between independent (groups) and dependent variables is conducted utilising set of non-parametric test methods. Statistically significant differences between two categories (male/female) in a group (gender) are conducted by using Mann-Whitney's *U*-test and statistically significant differences between more than two categories in the whole population (generations, employment types, regions) are conducted by using Kruskal-Wallis *H*-test respectively. Both methods are suitable for not normally distributed categorical data sets and commonly used. The assessment of the strength of relationships between independent and dependent variables is conducted by using Spearman's Rank correlations coefficient.

Statistical testing between all pre-determined independent variables (age, gender, industry, geographical region) and dependent variables, ranks, (respondent opinions ranked on Likert five-point scale) are conducted to point out any significant differences and/or relationships between given variables mean values and explain the

possible variance. Independent variables are chosen based on general respondent classifications and commonly used in comparisons in order to find significant differences between groups. Mean value is used to give accurate information in a situation where the compared data is ranked, non-linear and based on respondents' opinion and where the distribution of scores in each group generally is not identical.

Statistical tests are conducted by using Webropol software professional analytics program and IBM SPSS statistical analysis program. Since data was collected using Webropol software the initial results reporting and normality assessment are conducted using the tools software provided. More sophisticated statistical analysis results are created by using statistical analysis program SPSS, after transferring data on .xls form from Webropol to SPSS and cleaning, feeding values, labelling and organizing it in order to provide meaningful results.

4.1.1 Descriptive analysis

Following chapter presents the analysis of the results. Out of 250 sent questionnaires 42 responses arrived in the given three-month time. Response rate 16.8% is relatively good for online questionnaire which common rates do vary between 7-11% (Saunders et. al., 2007). The descriptive data of respondent group's demographics are presented in the following chapter.

Region and gender

Respondents gender was evenly distributed between 21 females, 21 males (n=42). Mann-Whitney's *U*-test (gender: female/male) is later used to test significant statistical differences between female and male respondents' perceptions on all clustered variables.

The distribution of the respondents' country of origin varies between four regions: European Union, Oceania, North America and Asia. European Union (57%) represents over half of the respondents, Oceania (29%) being the second largest region. One respondent in Asia is actually a citizen of a country in European Union and the responses were converted in right region in later analysis (table 7).

Table 6 The distribution of genders between regions, n=42

Region x Gender Crosstabulation		Gender		Total
		Female	Male	
Region	European Union	44%	56%	60% (n=25)
	North America	-	100%	12% (n=5)
	Oceania	83%	17%	29% (n=12)

Generations

Independent variable sample, the age groups, are based on general generation definitions. Generations are divided between different age groups forming five levels: A₁=1946-1954 (early baby boomers), A₂= 1955-1965 (baby boomers), A₃=1966-1976 (Generation X), A₄=1977-1994 (Generation Y) and A₅=1995-2012 (Generation Z).

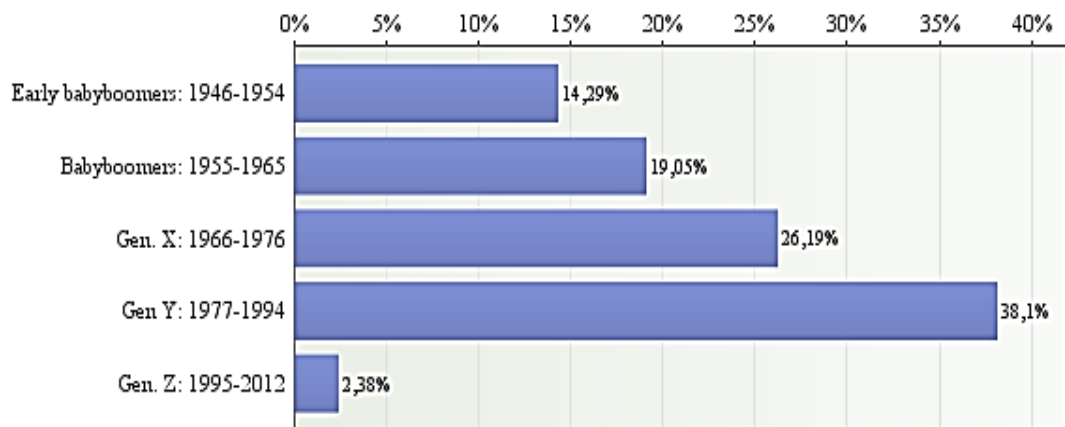


Figure 9 Generation distribution, n=42

The distribution of the respondents' birth years (figure 9) shows that nearly 60% (n=25) of the respondents are born before year 1976 which was also a pre-assumption based on the roles respondents hold (senior level). Generation Y is also well represented holding approximately 38% (n=16) of all respondents. The differences between generations are also tested by using Kruskal-Wallis H test in order to define whether generation-based differences have influence on respondents' opinion.

Employment type

The employment type shows whether the questionnaire meets the requirement being transportation industry (public and private sector) professional's equal opinion on the matter. Questionnaire was sent to selected study group and the results show that groups are nearly evenly divided between public and private sector employees.

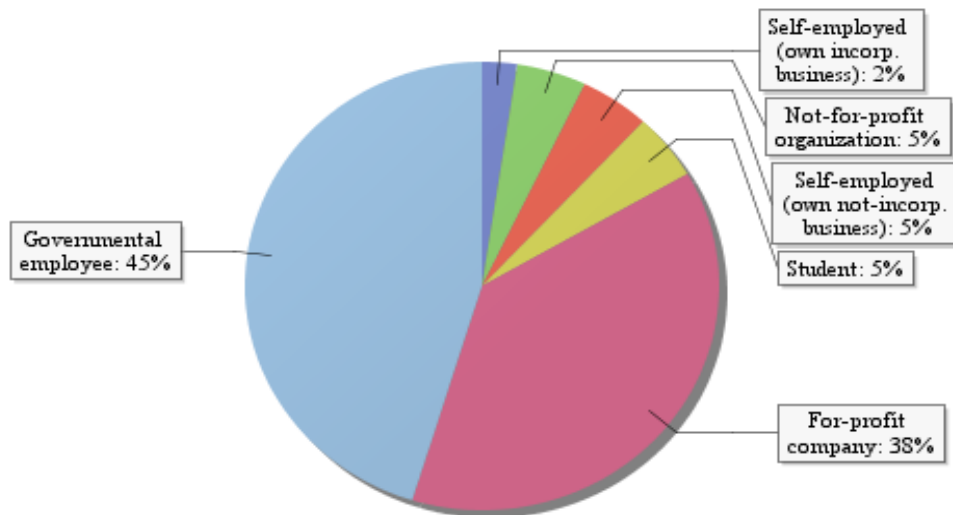


Figure 10 Respondent distribution based on employment type, n=42

The distribution of the respondents' employment type (figure 10) varies between six categories: governmental employees, for-profit company employees, not for profit organization employees, students, self-employed in incorporated or not-incorporated business. Two largest groups, the governmental employees (45.2%, n=19) and for-profit company employees (38.1%, n=16) represent the largest groups and together represent 83% of the whole population which is well in line with the selected respondent group.

Table 7 Generation and employment type distribution, n=42

Employment, n=42		For-profit comp.	Not-for-profit org.	Governmental	Self employed	Student
Generation	1995-2012		2%			
	1977-1994	12%	2%	19%		5%
	1966-1976	5%		17%	4%	
	1955-1965	12%		7%		
	1946-1954	10%		2%	2%	
Total		38%	5%	45%	6%	5%

Respondents are also widely distributed between employment type (table 8) and the generations. Closer look shows 36% of respondents are working for the government and are young, born between 1976-1994. In the group of for-profit organisations, the amount of same generation is only 17% of all respondents. This means that governmental employee's average age is younger than among the private sector respondents. The reason for this is the senior role respondents of for-profit companies (usually also means higher age) are representing. Self-employed respondents represent age group 1966-1976 and the oldest, 1946-1954.

Table 8 Gender and employment type distribution, n=42

Employment		Gender	
		Female	Male
Employment	For-profit company	43%	33%
	Not-for-profit organisation	5%	5%
	Governmental employee	38%	52%
	Self-employed (not-incorp.)	5%	5%
	Self-employed (incorp.)		5%
	Student	10%	

The distribution between respondents' employment type and gender (n=42) is relatively even. For profit companies have the highest percentage of female respondents 43% of all female respondents' (n=21). The governmental employees

have 38% of all women respondents. The males in for-profit companies represent 33% and in governmental roles 52% of all male respondents ($n=21$). The gender distribution is relatively even and therefore the gender-role distribution seen here forecasts relatively equal test results.

4.1.2 Trust

The testing for significant statistical differences is conducted by using the Kruskal-Wallis H -test. In this case generations, industry background, and geographical location are compared on a non-parametric analysis. The used variables on U test is not required or assumed to be normally distributed which means it can be used for Likert scale type of ranked data. Data was first tested with Webropol software's normality assessment (histograms) to validate the suitability for comparing independent nominal groups with dependent ordinal data (Kruskal & Wallis 1954, Ostertagova et.al. 2014).

Likert scale ranked scores are used as dependent data values. Both the Mann-Whitney U test and Kruskal-Wallis H test determine whether there are types of independent variables statistically significantly different ($p \leq 0.05$) from each other. In all populations the null hypothesis H_0 states: population means are equal, and alternative hypothesis states H_1 : population means are not equal. The Mann-Whitney's U -test (gender: female/male) is used to test significant statistical differences between female and male respondents' opinions based on better suitability for two independent variables.

Respondents level of agreement on participating as a suitable method, where respondents level the agreement on trust, importance and usability of the method are tested. Required variables in the cluster A are further explained in chapter 3.2.

Further description of the collected data (table 9) shows the mean, standard deviation and variance of cluster A. Mean value represents the overall level of agreement of the whole respondent group. In the descriptive statistics table mean value >3.45 is considered significant (since psychometric level >4 =agree) and determines whether respondents generally agree with the statement or not.

Cluster A is measuring trust, importance and usability of participating as method is conducted through set of five questions. Respondent's opinion on participating being a suitable method to change behaviour is above the level 3.45 on almost all questions in cluster A. defining the respondents trust (table 10) on the method. Overall the respondent's level of agreement is over avg. 3.8 among all measured factors, hence respondents do agree that participating citizens is a suitable method to drive change in consumer behaviour.

Respondents do also agree that both actions, participating and promoting, can drive change on citizen's transportation consuming behaviour and reduce willingness to purchase their own car. Participatory (3.98) and promoting (3.74) actions are both seen as behavioural change drivers.

However, some variance occurs. Promoting -concept has the most variance between replies but also other questions have high variance. Overall participating citizens is seen as the most important (4.4) factor with least variance (0.588) between opinions. What is comes to rewarding citizens who participate, the mean is lowest (3.4).

Table 9 Descriptive table of trust factors

	N=42 "OPINION" Mean, Likert five-scale, level of agreement (min.1 "strongly disagree" - max. 5 "strongly agree")	Mean	Avg	Std. Error	Std. Dev	Variance
A.	"Participating reduces citizens willingness to own a car"	3.98	3.814	0.13	0.841	0.707
	"Promoting reduces citizens will... to own a car"	3.74		0.156	1.014	1.027
	"Participating citizens affects transp. consuming behaviour"	3.55		0.133	0.861	0.742
	"Participating should be rewarded"	3.40		0.132	0.857	0.735
	Overall importance of participating citizens	4.40		0.118	0.767	0.588

Differences: Statistically significant differences between respondent groups are found. Kruskal-Wallis H test did not indicate significant differences between the A

constructs independent and dependent variables. However, Mann-Whitney U test reveals significant differences between genders.

A Mann-Whitney U test was run to determine if there were differences in scores between males and females. The question about the overall importance of participating citizens on transportation planning (figure 13) shows significant difference between men and women respondents' opinion ($U=122.5$ $z=-2.76$, $p=0.007$). The U tests shows significance between males (mean rank 16.83) and females (mean rank 26.17) opinion on how high they rate the overall score of trusting the importance of participating citizens on transportation decision making process. Female respondents are rating the statement considerably higher than men which means females believe in the democratic decision-making tool (that participating represents) considerably more than men. Since most of female respondents do not work in governmental institutions (based on employment type and gender type distribution table) the responses of men are showing the attitude of governmental employees.

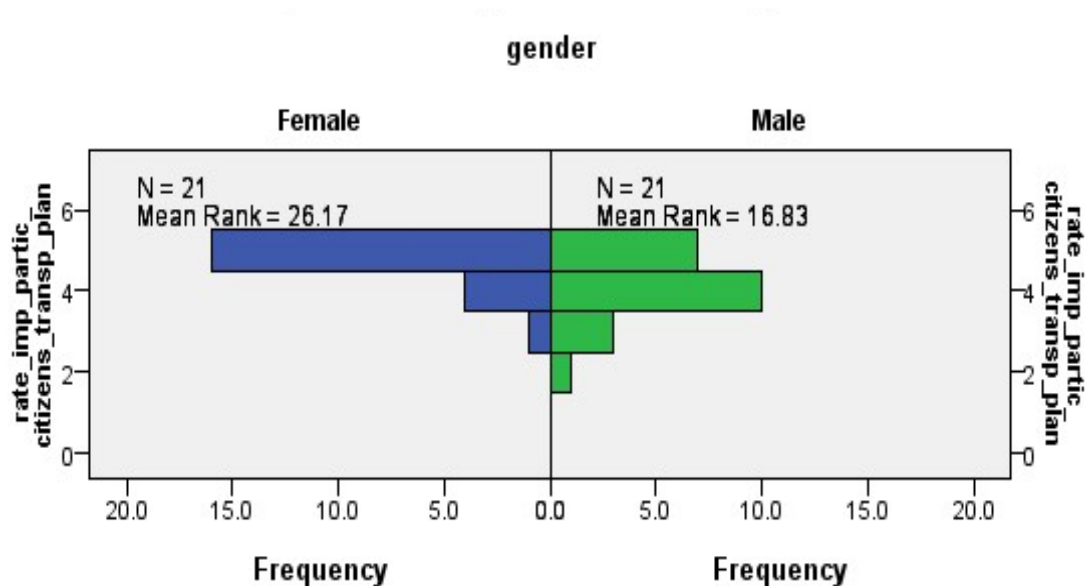


Figure 11 Overall importance on participating citizens/gender, n=42

The claim indicating the strength of respondents' beliefs that participating will change citizens attitude towards car ownership shows significant differences ($U=140.0$, $z=-2.268$, $p=0.023$). Females (mean rank 25.33) agree with the claim much higher than males (17.67). Resulting that the claim of participating citizens into decision making will reduce citizen's willingness to own a car has high level of trust among women. Females (mean rank 24.81) also agree much higher than men (mean rank 18.19) on the claim of the likelihood of participating affecting citizens decision how they choose to travel ($z=-1.89$, $p=0.054$).

A Spearman's rank-order correlation was run to assess the relationship between the variables in cluster A. Results are shown in the correlation matrix (table 11). There was a strong positive correlation between the claims (5.) overall importance of participating and (6.) participating methods effectiveness as behavioural change driver ($r=0.529$, $p=0.000$). There was also a strong positive correlation between claim (5.) and (6.) participating reducing willingness to own a car ($r=0.408$, $p=0.007$). There was also a strong positive correlation between claim (5.) and (7.) promoting reducing citizens willingness to own a car ($r=0.308$, $p=0.049$). Gender variable shows negative correlation on importance to participate and participating as a method.

Table 10 Spearman's Rho correlation matrix

Correlation matrix		1	2	3	4	5	6	7	8	9
5	Importance on participating	-.431**	.413**	0.272	0.126	1.000				
		0.004	0.006	0.081	0.427					
6	Participating effect on behaviour	-0.296	0.290	0.289	.316*	.529**	1.000			
		0.057	0.063	0.064	0.041	0.000				
7	"Promoting reduces..."	-0.264	.362*	0.273	0.106	.306*	.670**	1.000		
		0.091	0.018	0.081	0.503	0.049	0.000			
8	"Participating reduces..."	-.354*	0.292	-	0.099	.408**	.376*	.494**	1.000	
		0.021	0.061	0.419	0.532	0.007	0.014	0.001		
9	"Participating should be rewarded."	-0.006	0.179	-	0.184	0.237	.393*	0.269	0.173	1.000
		0.968	0.257	0.946	0.245	0.130	0.010	0.085	0.273	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Cluster A. “opinion” was tested on coefficient of reliability using Cronbach’s alpha and test resulted 0.75 being on acceptable level.

Last part of the trust construct A. was to define whether the respondents think there is sufficient amount of funding provided by the government and question “What is your personal opinion about your governments current spending on sustainable transportation planning?” was asked. Overall 71,43% of the transportation industry professionals think government should spend more on sustainable transportation planning and participating citizens. 23.81% think current spending is sufficient enough. There are no statistically significant differences between respondent groups.

4.1.3 Opinion

The required variable in this cluster is the key point of interest and is comparing these between the citizens and government. Further description of the data shows the mean, standard deviation and variance of question clusters defining respondents’ opinion on most important activities to participate citizens in.

Mean value represents the overall opinion of the respondent group. In the descriptive statistics of governments interests on participating citizens (table 11) mean value >3.45 is considered high and determines whether respondents generally agree that participating citizens on the given activity will be government’s interest.

Table 11 KPI values on participating citizens (government and citizens)

Activity	Government		Citizens	
	Mean	Std. Dev	Mean	Std. Dev
Infrastr. planning	3.29	0.864	2.93	0.921
Route and transportation method planning	3.98	0.749	3.60	1.127
Developing policies and plans	3.05	0.962	2.83	1.146
Issues concerning citizens personal living environment	4.19	0.833	3.95	0.962
Studying and education	3.36	0.727	3.05	0.987
Safety of transportation	3.36	0.958	3.24	0.932
Electing / un-electing officials	3.31	1.07	2.93	1.257
Transportation related service production	3.76	1.008	3.33	1.052
Avg.	3.538		3.233	

Overall the government's interest on participating citizens is high (avg. 3.535). Of all given activities "issues concerning citizen's personal living environment" (4.19) gets the highest value. Also participating citizens on route and transportation planning (3.98) has high relevancy for government. Electing officials (3.31) is among activities with lowest scores. Infrastructure planning (3.29) is seen as less relevant activity and developing policies and plans (3.05) gets the lowest score. Comparing the importance of given activities with citizen role reveals the differences between thinking.

Participating on planning the given activities in citizen's role gained 9% lower mean value (avg. 3.233). Respondents ranked activities lower within all eight options. Respondents ranked highest the interest on participating planning issues concerning citizens own living environment (3.95) and route and transportation planning (3.60). Citizens participating the planning of transportation related service production (3.33) gained an average score. Interest was lowest towards developing policies and plans (2.83) and electing/un-electing officials (2.93).

A Wilcoxon signed-rank was used to show statistically significant differences between the pairs that were being rated in the roles of a decision maker and citizen.

The test revealed significant differences between multiple pairs. According to test results (table 13) only the developing policies and plans ($Z = -1.250, p = 0.211$), issues concerning citizens own living environment ($Z = -1.380, p = 0.168$) and safety of transportation ($Z = -0.890, p = 0.374$) claims do not hold statistically significant difference between the responses.

Respondents did indeed successfully change roles from governmental decision maker to a citizen. This can be seen through statistically significant changes in importance to participate on infrastructure planning ($Z = -2.210, p = 0.027$), route and transportation planning ($Z = -2.496, p = 0.013$), issues concerning own living environment ($Z = -1.380, p = 0.168$) electing officials ($Z = -2.489, p = 0.013$) and service production. ($Z = -2.416, p = 0.016$).

Table 12 Wilcoxon signed-rank test

Pairs: government and citizen role	Z	Asymp. Sig. (2-tailed)
Infrastructure planning	-2.210 ^b	0.027
Route and transportation planning	-2.496 ^b	0.013
Developing policies and plans	-1.250 ^b	0.211
Issues concerning your own living environment	-1.380 ^b	0.168
Studying and education	-2.064 ^b	0.039
Safety of transportation	-.890 ^b	0.374
Electing / un-electing officials	-2.489 ^b	0.013
Service production	-2.416 ^b	0.016
a. Wilcoxon Signed Ranks Test		
b. Based on positive ranks.		

The result means that there is a significant difference between governments and citizens levels of interest to participate on planning and decision-making process.

Mann-Whitney U test, which was used to test significant differences between men and women shows two significant results. Males (mean rank 15.38) see government far less interested on participating citizens planning on issues concerning their own living environment ($U=92.0, z=-3.499, p=0.000$) than females (mean rank 27.62).

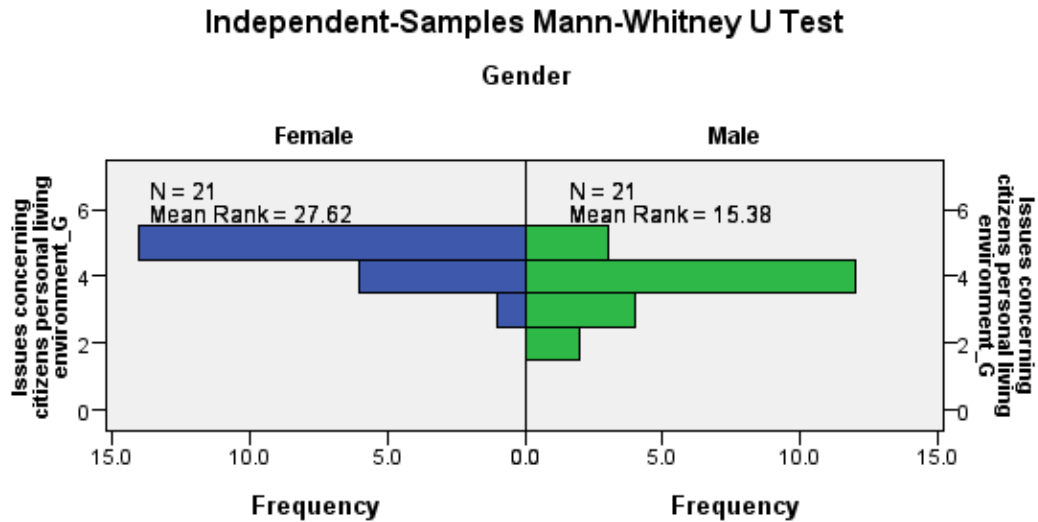
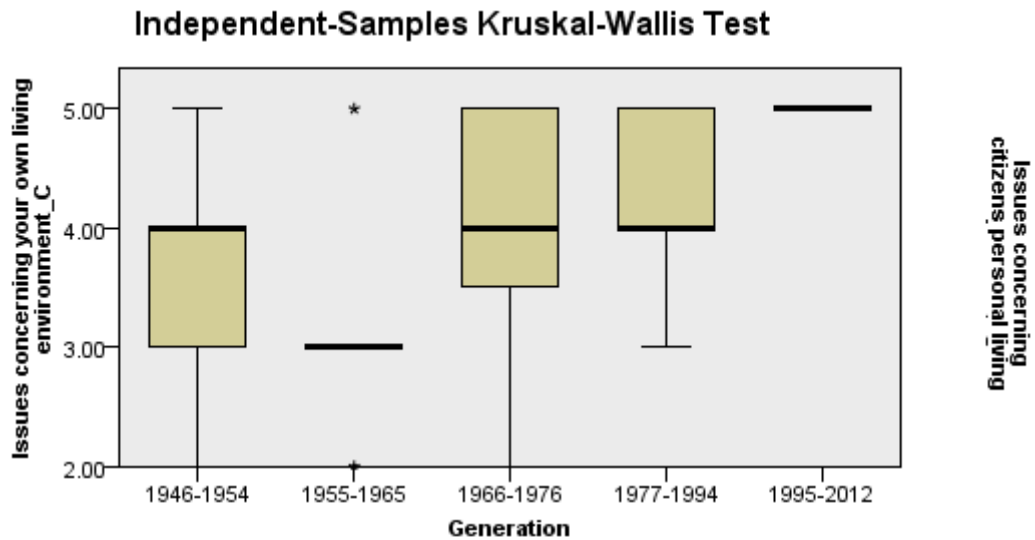


Figure 12 Gender related differences on perceptions, n=42

Differences are also significant between men (mean rank 17.74) and women (mean rank 25.26) on governments interest on participating citizens to transportation related service production ($U=141.500$, $z=-2.078$, $p=0.041$) planning. When responding in citizen role genders do not have any significant differences.

Kruskal-Wallis H test revealed only one significant difference which was found between generations. Mean scores were statistically significantly different between generations and their personal interest on participating on planning issues concerning their own living environment, $\chi^2(4) = 10.134$, $p = 0.038$.



Total N	42
Test Statistic	10.134
Degrees of Freedom	4
Asymptotic Sig. (2-sided test)	.038

Figure 13 Boxplot showing dissimilarity between generations

Boxplot (figure 13) shows how generations do not have similarity between their opinion and interest towards decision making related to their own living environment decreases the older respondents are. The oldest generation (mean rank 18.17) seems to have far more less interest on participating on decision making related to their living environment than younger generations. Those born between 1966-1976 (mean rank 23.45) and 1977-1994 (25.62).

The stakeholder interest test was run separately as a part of the questionnaire. Results are attached as an appendix. Respondents were asked to place given factors (motivational and participatory) in matrix, where left side represented governmental and horizontal the citizens level of interest. Upper right corner of the matrix is the most interesting location in order to find meaningful KPI's between the two stakeholders. The stakeholder KPI test shows three factors that respondents find very important to both parties: road conditions, citizen satisfaction and health and safety.

Also, network coverage sits partially inside the box with transportation related service pricing. Governmental interests are cost-effectiveness, saving energy and resources, environmental protections, saving costs and partially the efficiency of transportation. Entirely citizen related interest was convenience of transportation provides. Status and symbolism were seen least meaningful factors and are average level and low for government. The test result indicates that finding meaningful actions in these key interest development points (road conditions, citizen satisfaction and health and safety) would be most productive places to find ways to influence on transportation consuming behaviour.

As a part of the cluster B a question “*What problems you have encountered with citizen participation that negatively affect promoting sustainable transportation?*” was asked from those who have actually worked with participating citizens. Respondents think some citizens participate in order to promote the use of personal cars, and not to promote sustainable transportation and they also lack interest and/or understanding on the problem. Also, respondents think, that operating co-design driven planning approaches can be a laboured process with restricted outcomes. The market is seen far more creative when operating in "grey spaces". Societal issues were also pointed out: those participating usually represent the upper classes with plenty of options and those without car can not to afford taking day off and participate. Citizens might also have very narrow views (self-centred vs. communal gains) and might not be able to vision future (e.g. services). Respondents also discussed about the problems accessing public transportation where owning car is essential to travel (no public transportation available) and since EV high prices and charging difficulties the behavioural change could be jeopardised.

Also, the problems were addressed from government’s side. In general, the citizens are not having enough notice for things like hearings and government events tend to be bureaucratic announcements of future plans, not engaged dialogue that affects the outcome actually or perceptively. Time limitations are also seen as a problem and one respondent pointed out that governmental role is not to promote new technologies or companies. Also, more concrete affects and possibilities should be covered in the planning/engagement.

Cluster B on respondent's opinion towards KPIs were reliability tested on using Cronbach's alpha 0.845 (n=17) which shows good level of consistency.

4.1.4 Motivation and Incentive

The required variable in this cluster is to define respondent's perceptions on behavioural change values and motivational drivers. Further description of the collected data shows the mean, standard deviation and variance of question clusters two sections defining respondents' opinion, mean value representing the overall opinion of the respondent group. Cluster C1 reliability test on Cronbach's alpha 0.710 (n=6) shows acceptable level of consistency.

In the descriptive statistics (table 14) mean value >3.45 is considered significant and determines whether respondents generally agree with the statement or not. Overall the responses indicate moderate to high importance to citizens among all values (mean 3.563). The highest rates are given to convenience (mean 4.36) of transportation. Second place is given to efficiency and health and safety (3.74) of transportation.

Table 13 The importance of given values to citizen

C1.) Values importance to citizen, n=42	Mean	Avg	Std. Error	Std. Dev	Variance
Efficiency	3.74	3.563	0.145	0.939	0.881
Cost-effectiveness	3.19		0.164	1.065	1.134
Symbolistic meaning	3.14		0.134	0.872	0.76
Health and safety	3.74		0.113	0.734	0.539
Convenience	4.36		0.107	0.692	0.479
Status	3.21		0.121	0.782	0.611

The least important value is the symbolic meaning (3.14) of transportation with the cost-effectiveness (3.19) of transportation. This means that in respondent's opinion citizens do not seem to value the cost-effectiveness of the transportation nor the status it provides, their interest is in convenient, effective and safe traveling.

Overall both the *U* and *H* tests resulted relatively high level of consensus between the respondent's opinion. However, one statistically significant difference in sub-group C1 was found. The Kruskal-Wallis H test reveals statistically significant difference between regions (European Union, North America and Oceania) in construction C1. Mean scores were statistically significantly different between groups, $\chi^2(2) = 6.414, p = 0.040$. North American (mean rank 31.40) and Oceanian (23.96) respondent's rank symbolic meaning of the transportation far higher than respondents from European Union (mean rank 18.34). These two regions have very high personal car ownership rates and the result shows the cultural difference.

In the comparison of ranked behavioural change motivational drivers (table 16) the respondents found the lower service pricing as the most motivational driver (mean 3.64). Governmental pressure in the form of laws and regulations (3.36) follows closely with social pressure (3.07).

Table 14 The behavioral change motivational drivers ranked

C2.) Dependent variable, N=42 The behavioural change driver, ranked 1-5	Mean	Std. Error	Std. Dev	Variance
Lower service pricing	3.64	0.192	1.246	1.552
Gov. pressure: law, regulations	3.36	0.236	1.527	2.333
Social pressure	3.07	0.219	1.421	2.019
Taxation	2.64	0.189	1.226	1.503
Personal user ratings based on activity	2.29	0.197	1.274	1.624

Also in construct C2 both the *U* and *H* tests resulted relatively high level of consensus between the respondent's opinions on various questions. However, some statistically significant differences in sub-group C2 were found which are explained further below.

By looking at the standard deviation and variance of data the greatest distribution can be found from information construct C2. (table16) measuring respondents ranking of behavioural change drivers (compare the results of the most effective behavioural change drivers between monetary, regulatory and social pressure types).

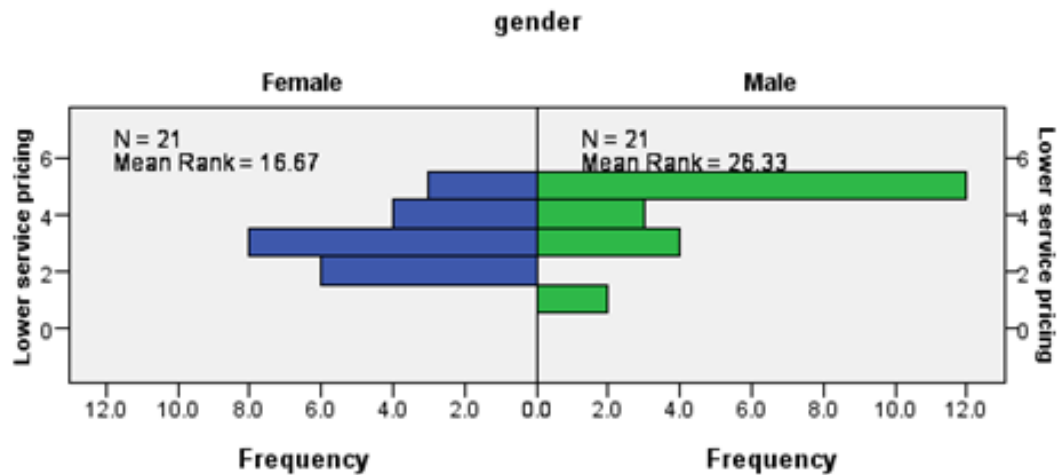


Figure 14 Men believe lower service pricing drive the change, U test

In construct C2 the statistically significant difference with U test (figure 14) is found between females (mean rank 16.67) and males (mean rank 26.33) opinion on lower service pricing ($Z=-2.66$, $p=0.007$) as a behavioural change driver. Men have far more belief on monetary drivers than women and they rank the driver as the highest.

The Kruskal-Wallis H test also reveals statistically significant difference between mean scores of regions (European Union, North America and Oceania), $\chi^2(2)=7.450$, $p=0.025$. In North America (mean rank 30.60) the respondents rank transportation related lower service pricing much higher factor in motivating behavioural change than is done in European Union (22.98) or in Oceania (14.62). Results are indicating great difference between thinking in regions (figure 15).

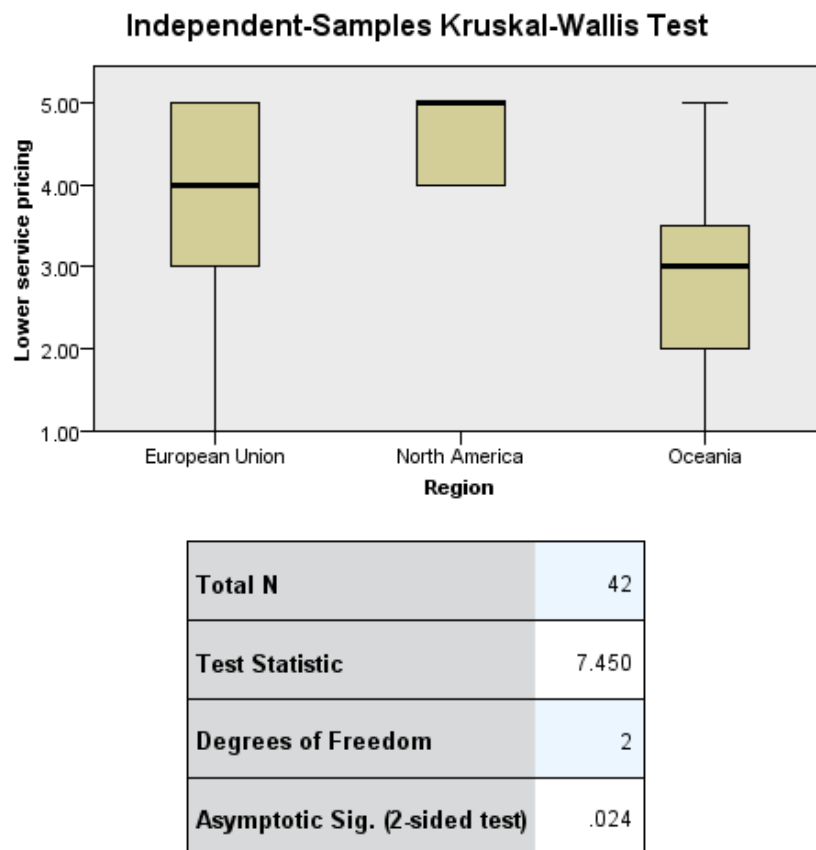


Figure 15 The differences on regions perceptions on behavioral change drivers

In North America lower service price is seen as the most important behavioural change driver. Since the North American respondents are all men, the result is in line with Mann-Whitney U test. Furthermore, Oceanians are mainly women and with similar car ownership culture with North Americans the results are again indicating the difference between thinking of genders and the difficulties democratic decision making has to face.

The Kruskal-Wallis H test also reveals statistically significant difference in symbolic meaning the transportation has between mean scores of regions (European Union, North America and Oceania), $\chi^2(2) = 6.414$, $p = 0.040$. North American (mean rank 31.40) and Oceanian (23.96) respondent's rank symbolic meaning of the transportation far higher than respondents from European Union (mean rank 18.34). These two regions have very high personal car ownership rates and the result shows the cultural difference.

As a part of the motivational construct C respondents were asked to answer to what extent they agree on statement: "Citizens who participate on transportation planning should be rewarded." (n=42, mean 3.41, std. 0.857, variance 0.735). The ones who strongly agreed on the claim were asked to further explain how citizen rewarding should take its place. One respondent thinks: "*rewarding should be an increased availability of options tailored to citizen's needs*". Other two respondents relied on financial and lower service fee -based incentives. Gender, generation, employment type or region had no significant difference on these questions responses.

4.2 Validity and Reliability

The following chapter explains the reliability testing conducted and validation of the study. Face validity was ensured by using three pilot testers before distributing the real survey. Respondents were asked to rate the questionnaire by looking at following factors: clarity, language, chosen questions and cluster models, user friendliness, usability, furthermore they were asked to explain how they understand the used concepts and language used. The final questionnaire was formed after the questions language and type were thoroughly scrutinised by going through three rounds of testing. Final questionnaire was also test-run by creating 50 test responds with Webropol software.

Surveys content validity was ensured by using small expert panel of social media group whether agreeing with the research problems relevancy or not. The content was weighed and reflected throughout the study on the theoretical framework. Content validity was measured on smaller scale with pilot group (one tester with relevant professional background) during and after the pilot tests. Content validity can be easily reviewed through the clustered structure, which provides better understanding what was measured and creates firm easy to follow structure for the study. However, the Lawshe test (Webb et.al. 2006) was not used with a larger panel, which is commonly used for content validity testing. It was not found reasonable to run Lawshe together with the busy experts since pilot testers were being used. In order to determine larger populations opinion, the Lawshe testing for content validity is highly recommended in the future.

Main study group was chosen after the content validity testing in discussion group. The selection of the expert group was based on their interest on future of transportation and their professional role in the transportation industry and/or decision-making processes. Final decision to concentrate on professionals with specific knowledge on the area of research was made after receiving feedback from three road tester's citizens (two without and one with transportation planning backgrounds) from Finland, New Zealand and England. Without comprehension the used concepts "citizen participation" and "sustainable transportation" were unclear to the respondent and the questionnaire was not able to provide the crucial in-depth insights in the first stage of the research. Questions measuring the same construct from different viewpoints were used to see level of consistency.

Construct validity of the study appears to exist since testing the study groups perceptions resulted to assumption where participating citizens indeed have potential as behavioural change agent, hence what was expected to be correlated turned out to correlate.

5 DISCUSSION AND CONCLUSIONS

The key results are interpreted and discussed in this chapter. Also, conclusions of the research problem and thesis as a whole are drawn. Since the participating citizen's method is used in democratic countries the research was conducted in democracies. The scope is to find professional respondents opinion and insights on the usability of 'participating citizens' as behavioural change agent. This chapter also provides understanding for further longitudinal studies on democratic participation method acting as a behavioural change agent.

5.1 Discussion of key findings

According to Jung & Wu (2016) active citizen participation can hold public administrators accountable for performance, and also the perceived public performance is positively associated with citizen satisfaction. Discussion around participation methods is often employed in recognition of a need to involve the public in some way, assuming that involvement is an end in itself, rather than a means to an end (Wiedemann & Femers, 1993). The goal of this thesis was to find out the means. government representatives and transportation industry professionals' opinion on participating citizens on planning sustainable transportation and the opportunity the political decision-making method holds in changing citizens transportation consuming behaviour.

The problem was studied thoroughly by using cross-national questionnaire (survey) as a strategy on three democratically administrated regions: European Union, North America and Oceania. The design of the questionnaire was formed based on previous research with similar methodology on Likert Scale and the clustered questions. Clusters tested respondents trust, opinion on suitable KPIs and the motivational drivers in order to form understanding whether the participating as a method would have potential as behavioural change agent. The summary of the three clusters is discussed here through the research questions with the key findings.

Research question1. Can participating citizens change their transportation consuming behaviour?

The main research question aims to finding out government representatives and transportation industry professional's perceptions on participating citizens on planning sustainable transportation. Also, the possibility of changing their transportation consuming behaviour. The research provided results and solid answer for first research question: the mean rank given by transportation industry professional's shows high level of agreement. Indeed, participating citizens can act as a behavioural change agent on changing their transportation consuming behaviour. Furthermore, participating in general is seen as highly suitable democratic decision-making tool and the importance of the method was ranked highest among all the construct A questions. However, this opinion is heavily gender biased showing females being far more positive towards participating citizens than males.

Respondents agree, that participating citizens on transportation planning can change their behaviour by reducing the willingness to own a private car. They also believe, that participating can encourage citizens using public transportation more frequently. The positive attitude towards pair '*promoting*' and '*participating*' as methods was mutual among all respondent groups. However, these results are gender biased with significant differences between male and female respondents. Female's opinion is significantly more positive towards participating citizens and the method acting as a behavioural change agent. Women having more trust in the participating method can be argued as echoes from the past when gender equality issues were higher and the difference towards democratic decision making reflects these attitudes.

Respondents were asked to address problems affecting the participating methods usability and the findings were divided in two groups. First group was based on the respondents' statements between citizen motivation and/or understanding related problems. Collective action problem (CAP) purports that individual knows lack of participation is unlikely to have a sufficient impact on the political process, and individual cannot be excluded from consumption of the common goods or participation in spite of the free-riding (Olson, 1965; Ford Runge, 1984; Rydin & Pennington, 2000). Respondents do think some citizens lack interest and/or

understanding on the problem but also that they participate in order to promote the use of personal cars, and not to promote sustainable transportation.

Societal issues were also pointed out: those participating usually represent the upper classes with plenty of options and those without car can not to afford taking day off and participate. In other words, results show a situation where multiple citizens would all benefit from a certain action, but due to cost individual cannot or will not solve it (Dowding, 2011). Citizens also have narrow views (self-centred vs. communal gains) and might not be able to vision future (e.g. services). Respondents also discussed about the problems accessing public transportation where owning a car is essential to travel (no public transportation available) and since EV high prices and charging difficulties don't meet the demand. Participating on planning is meaningful where the infrastructure is at place.

Second problem group was government actions and participatory method related. Respondents pointed out that in general, the citizens are not having enough notice for things like hearings and government events tend to be bureaucratic announcements of future plans, not engaged dialogue that affects the outcome actually or perceptively. Time limitations are also seen as a problem and one respondent pointed out that governmental role is not to promote new technologies or companies. Also, more concrete affects and possibilities should be covered in the planning/engagement in order to truly make participating meaningful.

The results are actually indicating an underlying problem how the method 'participating citizens' is harnessed and utilised in practice. Contemporary research has addressed the problems decision makers face to meet the interests of citizens and problems with declining participating rates. Respondents see operating co-design driven planning approaches as a laboured process with restricted outcomes. The market is seen far more creative when it is operating and planning is conducted in "grey spaces". Overall 71.43% of the transportation industry professionals think government should spend more on sustainable transportation planning and participating citizens which results to a conclusion of participating having methodological and resource related issues.

RQ2. Where policy makers want citizens participating in?

Research question 2. Was designed to find the key interest points of both parties, the government and the citizens. Discussion of where the government really needs citizen contribution and on the other hand what is in the interest of citizens is where these two parties KPIs' were thought to collide. The idea of finding the mutual KPIs is to locate place for fruitful collaboration and use the genuine interest as leverage. Data collection was specifically designed based on the key focus areas of decision making (Schiller et.al. 2010) and discuss where government needs citizen contribution.

According to results, the respondents ranked nearly all areas from policy maker's point of view as meaningful. From policy makers point of view the citizens are needed participating in multiple areas of planning and decision making and according to respondents the most feasible are matters concerning citizens personal living environment and route and transportation planning. These results are understandable in order to gain better citizen satisfaction and harness living environment related broader understanding.

SQ1.3. Are policy maker's interests colliding with citizens interests?

When respondents were placed in the role of a citizen and they rated the given options based on their personal interest to participate the results had significant differences. Overall respondents as citizens are less interested on participating in all given options than decision maker's expectation was. However, highest interest towards *issues concerning their own living environment* and *route and transportation planning* were in line with what respondents think government's interests are and these two areas of decision making are the two KPIs and main findings. Participating in transportation related service production is also among respondent's interests even though government interest was lower.

The stakeholder interest comparison test where respondents placed transportation related factors on matrix based on its meaning for citizens and government shows where the interest towards various motivational factors, actions and infrastructure)

(Schiller et.al.2010) is highest for both parties. Based on the results which is presented as a matrix (attachment) the interests are colliding mostly on three areas: the road conditions, citizen satisfaction and health and safety of transportation. It is fair to state, that private car owner's opinion was at the back of the respondent's mind when they rated road conditions highest. Citizen satisfaction is in the core of decision making and health and safety naturally support sustainable development.

Also, network coverage sits inside the box of highly important factors for both parties among transportation related service pricing. Addressing the network coverage as a citizens and governments high interest means greater accessibility for both parties. Online participation has found to be mainly one-way information gathering, not two-way interaction with the decision makers (Thomas & Streib, 2003; Conroy & Evans-Cowley, 2006). According to Coglianese (2006) reasons are cognitive and motivational, not technological. As the initial idea this thesis was set to investigate the participating methods usability as behavioural change agent, it is worth mentioning that participating as usual is changing and e-participating methods are developed.

As Tufekci (2014, 204) stated the digitally networked participation with its individualistic and personal nature and immediate reach is suitable for citizens who see their own agency as crucial, aspire to be empowered individuals and cherish this empowerment. This thesis is providing perceptions of optimal combination through technology, KPIs and values and motivational factors. However, in open question about the problems participating citizens and promoting behavioural change respondents mentioned governments role not being suitable for promoting new technologies and products. However, Belz & Peattie (2012) pointed out that in the long run salutary and desirable products will actually benefit both; consumers and society and understanding the KPIs and mutual interests when planning on participating citizens is definitely worth investigating and harnessing to create needed behavioural change.

SQ1.4. How to attract consumers participating in decision making?

Fourth question was aimed to investigate with what values "participating" method

have potential in the future as behavioural change agent. Scope was to find transportation industry professionals opinion and insights of the citizen's values. Also, scope was to understand can findings provide information for further study on democratic participation method as a behavioural change agent.

As Belz and Peattie (2012) mentioned, exchange theory (ET) implies that marketers and behavioural change agents have to understand and offer benefits that the target adopter (consumer) values. In this thesis values have meaning as providing transportation industry professionals and decision makers perceptions to understand what is rated highest. The overall highest rates on personal values related to personal transportation were designed to help identify and understand the values (costs) behind citizens behavioural change.

Highest rates were given to *convenience* of transportation, *efficiency* of transportation and *health and safety* of transportation. All these values entail the understanding of the costs involved in the behaviour change. These values provide information and incentives to the agent (governmental office participating citizens) who creates the offer and invites people to change their behaviour. Convenience and efficiency of transportation in a citizen's life means effortless access to transportation services and reflects the needs citizens have.

However, the Kruskal-Wallis H test revealed statistically significant differences between regions. Respondents in North America ranked the symbolic meaning of transportation far higher than respondents in other regions (mean rank 31.40). Oceanian (23.96) respondents ranked symbolic meaning much higher than respondents from European Union (mean rank 18.34). These two regions where respondents ranked symbolic meaning the transportation represents higher have also very high private car ownership rates and the results are indicating the state of public transportation networks and cultural differences. Where car ownership is seen as a status and symbolizing certain lifestyle creating behavioural change towards sustainable transportation habits needs different approach than in areas where transportation is mainly seen as a way to travel.

SQ1.5. What values affect transportation consuming behaviour?

In the comparison of ranked behavioural change drivers (table 16) the respondents found the lower service pricing as the most motivational driver (mean 3.64). Governmental pressure in the form of laws and regulations (3.36) follows closely with social pressure (3.07).

The values respondents ranked highest varied mostly between male and female respondents. Males are particularly oriented on thinking that driving change is effective mostly through monetary incentives (lower pricing, tax reductions etc.) and females are far more interested of believing in social incentives. Question about rewarding the citizens provided one particularly thought-provoking result: *rewarding should be an increased availability of options tailored to citizen's needs.*

The final part of the research was to map the motivational drivers on behavioural change. Changing the consumers' behavior is at the center of transition to a sustainable transportation future and according to McKenzie-Mohr, (2000b) psychological knowledge is needed in the development of initiatives to foster this behavior. Monetary and non-monetary (social) motivational drivers were tested side by side in order to find general opinion and possible differences. Incentives can be goods as a benefit of participation to some citizens, and in the non-material case the possibility of meeting citizens with similar values and beliefs jointly with the satisfaction of collaborating with collective effort (Dwyer & Hodge, 1996; Rydin & Pennington, 2000).

Based on the results *lower service pricing* and *governmental policies* would be the most influential options on motivating the behavioural change based on respondents' general opinion. As mentioned earlier, Rothchild (1999) addressed the role of non-voluntarism: e.g. law or policy development with punishment, which is preferable when consumers cannot understand the benefits of behavioral change and cost to society. However, the motivational drivers have statistically significant differences between respondents' gender.

As already mentioned earlier, males' opinion on behavioural change is highly motivated by financial incentives, while females believe in the social pressure. For that reason, the generalisation of the mechanisms of changing citizens consuming

behaviour is complex. The studies on social status and ties with own group members show increasing willingness to keep good relations with other participants and the surrounding society (Fischel, 1985; Weale, 1992; Dwyer & Hodge, 1996; Rydin & Pennington 2000) and according to findings of this research this claim seems to apply strategically much better with females. What comes to females' role as a decision maker in the family is to keep in mind when planning on affecting females behavioral change. As Biddle (1986) mentioned, persons are members of social positions and hold expectations for their own behaviors and also those of other persons. Females seem to be far more aware of others opinion and influenced by roles. People are social beings who learn and maintain behaviors appropriate to the positions they occupy.

In North America, where the questionnaire respondents were all males, lower service price was seen as the most important behavioural change driver. This is in line with the other findings male group represents. The social exclusion related problem addressed by Georgakis & Nwagboso (2012) provides an important viewing point: where passengers cannot really afford to use personal motor vehicles but *affordable* public transportation is missing, the behavioural change is not likely to become a reality without provision of effective, accessible and *affordable* public transportation. Schiller et al. (2010) calls this problem a remote suburbs social issue with enforced car-ownership in low income households.

The economic policy instruments (e.g. fuel and vehicle taxation, public transportation subvention, congestion and toll charge, parking fees and taxation of employee benefits) with laws and regulations play significant role on transportation planning means (Motiva 2017). Based on the findings males in general believe these are the most influential behavioural change drivers. If the governmental planning on taking actions is towards economy policy instruments the social issues on the area and impacts should be thoroughly investigated before implementation.

Conclusions can be drawn based on the findings of significant gender related differences between respondents' opinion: the decision making is likely to be gender biased which is worth taken into consideration.

5.2 Theoretical and practical contributions

The interesting part of the study was understanding how democratic decision-making truly gives voice to everyone but the variance and differences between male and female, and different regions respondents' opinions is definitely worth keeping in mind. Opinions varied significantly between men and women. In democratic decision making the overall mean is the good enough for all but in the case of government being in the hands of different generation or just run by one gender the opinion becomes important. For practical use the thesis provides a clear insight on what is the industry professional's perception in three democratic regions and how gender biased the thinking actually is despite the professional roles respondents hold.

Societal problem of participating those who have access to participating events was one of the most interesting and key findings of the study. Schiller et. al. (2010, 191) address the complexity policy makers are facing with questions around "whose trips are the most valuable" and this thesis provides a holistic picture of a citizen-consumer who should be seen as an individual with multiple roles where behaviour is and can be influenced by various factors. Theoretically it provides perspective on sociological research where the citizen role can be used to promote desirable behavioural patterns based on the societal status.

Using this as a viewing point and understanding the person and the needs through their roles is likely more beneficial and sustainable from commercial point of view. When marketing new technologies and/or services the understanding of governmental collaboration is needed and this thesis provides an insight of the thinking inside. Psychological and social science-based understanding on how to form suitable participating methods, activities with the idea of changing or influencing the behaviour of citizen-consumers with incentives and suitable marketing methods is needed. A commercial innovation on participating citizens while they are consuming transportation services would be worth investigating.

5.3 Limitations and future research

The initial idea was to study directly on how participating can *de facto* promote and change citizen-consumers transportation behaviour, possibly using study groups and observational methods. However, lack of sufficient reliable data of the ways to use participating as a decision-making method promoting governmental sustainability goals on mobility forced to take a step back. This research is an approach in the sustainability marketing scheme to understand and find opportunities where and how to promote and implement sustainable consuming habits. The strength of the thesis is its usability as a crosscut of industry professionals and decision maker's insights. The weakness is relatively low number of respondents (n=42) which creates limitations on generalizing the results. Other limitation is focusing on professionals 'opinions' instead of following actual decision-making process and observing behavioural changes first hand. The methodological approach makes this thesis theoretical. However, since the opinions of respondents from all three regions were quite encouraging future research does gain its validation.

'*Opinion*' research is originally marketing and political researchers' area of study and very common problem with generalisation of the results of international surveys comes from eventually lacking some specific notions of the country and living conditions and broader population would be needed to cover all democratic countries. The meaningfulness of such broad study on the topic can also be questioned. The study method is also worth examining critically with Lawshe test as explained further in validity chapter of the study.

The potential on affecting consumer behaviour is on marketing professionals' minds and the ways to improve responsibility lies in sustainable business owners' minds. Field study to test created grounded theory on the participating citizens and promoting sustainability would be needed. Study would be most beneficial combining sociology and marketing research methods and include population with longitudinal testing with ethnographic methodology. To create more generalizable results of what is the true causality, *behavioural change* by using *participating method* in the context of *sustainable transportation planning* definitely needs multidiscipline approach and longitudinal thinking.

Highly interesting future research proposal would also be to test the theoretical proposal and practical implications of this research by conducting comparative observational research with two study groups who are either given the societal marketing incentives or left without. Would other societal or personal factors influence or disturb the of SM communication goal delivery?

Castelnuovo & Mainka (2016) introduced “*citizen relationship management system 311*” through involving all stakeholders in cities on decision-making process. System requires open innovation forums and specifically participating on the group. What is interesting continuance of this management system, is a form of collaboration, where participating happens actually simultaneously when using the public services. The easy flow of information both ways between citizen and government in actual consuming situation (without specific time or space limitations) would be worth investigating further with ICT industry.

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APPENDIX

Mann-Whitney *U*-test "GENDER"

Mann-Whitney <i>U</i> -test "GENDER", N=42 (female 21, male 21)			Mann-Whitney <i>U</i> -test "GENDER", N=42		
VARIABLES	Z	P	VARIABLES	Z	P
<i>Generation</i>	-0.77	(p=0.444)	STAKEHOLDER INTEREST COMPARISON TEST		
<i>Employer type</i>	-0.33	(p=0.769)	Road conditions:Citizen	-1.11	(p=0.274)
<i>Geographic regions</i>	-1.76	(p=0.070)*	Road conditions:Government	-0.5	(p=0.623)
Overall importance of participating citizens on transportation planning?	-2.76	(p=0.007)*	Network coverage:Citizen	-0.18	(p=0.867)
How likely participating citizens on transportation planning effects on how they choose to travel?	-1.89	(p=0.064)	Network coverage:Government	-0.1	(p=0.926)
"Governments promoting sustainable transportation will reduce citizens desire to own a car. "	-1.69	(p=0.097)	Transportation related service pricing:Citizen	-1.18	(p=0.242)
"Participating citizens on the planning of sustainable transportation will reduce their desire to own a car. "	-2.27	(p=0.030)*	Transportation related service pricing:Government	-0.52	(p=0.614)
"Citizens who participate on transportation planning should be rewarded."	-0.04	(p=0.972)	Environmental protection:Citizen	-0.83	(p=0.414)
What is your personal opinion about your governments current spending on sustainable transportation planning?			Environmental protection:Government	-0.57	(p=0.579)
Government should spend more	0	(p=1.266)	Saving energy and resources:Citizen	-0.5	(p=0.623)
Government should spend less	-1	(p=1.000)	Saving energy and resources:Government	-0.55	(p=0.588)
Current spending is sufficient enough	-0.72	(p=0.719)	Citizen satisfaction:Citizen	-0.31	(p=0.760)
No understanding or knowledge	-1	(p=1.000)	Citizen satisfaction:Government	-1.55	(p=0.124)
How desirable it is for decision makers to participate citizens on these areas of transportation planning?			Saving costs:Citizen	-1.75	(p=0.081)
Infrastructure planning	-0.32	(p=0.789)	Saving costs:Government	-0.53	(p=0.605)
Route and transportation method planning	-1.07	(p=0.269)	Efficiency of transportation:Citizen	-0.28	(p=0.789)
Developing common policies and plans	-1.29	(p=0.227)	Efficiency of transportation:Government	-0.13	(p=0.906)
Issues concerning citizens personal living environment	-3.5	(p=0.000)*	Cost-effectiveness:Citizen	-1.74	(p=0.084)
Studying and education	-1.44	(p=0.163)	Cost-effectiveness:Government	-0.38	(p=0.713)
Safety of transportation (routes and vehicles)	-0.96	(p=0.344)	Health and safety:Citizen	-0.57	(p=0.579)
Electing / un-electing officials	-1.71	(p=0.092)	Health and safety:Government	-1.18	(p=0.242)
Transportation related service production	-2.08	(p=0.041)*	Convenience:Citizen	-0.39	(p=0.704)
Have you encountered problems with participating citizens on decision making processes that can negatively effect on promoting sustainable transportation? :			Convenience:Government	-0.04	(p=0.975)
Yes	-1.94	(p=0.100)	Symbolism:Citizen	-0.62	(p=0.545)
No	-0.37	(p=1.000)	Symbolism:Government	-0.05	(p=0.965)
No opinion	-1.53	(p=0.215)	Status:Citizen	-1.67	(p=0.096)
			Status:Government	-0.34	(p=0.741)

APPENDIX

Mann-Whitney *U*-test “GENDER”

Rate based on your personal level of interest. How important it is to you to participate on following areas of transportation development?				
Infrastructure planning	-0.24	(p=0.816)	How important you think these values really are to citizens?	
Route and transportation planning	-0.95	(p=0.381)	Efficiency of transportation	-1.57 (p=0.125)
Developing policies and plans	-0.26	(p=0.807)	Cost-effectiveness of transportation	-0.5 (p=0.643)
Issues concerning your own living environment	-1.55	(p=0.122)	Symbolistic meaning transportation represents	-0.53 (p=0.618)
Studying and education	-1	(p=0.341)	Health and safety of transportation	-1.07 (p=0.316)
Safety of transportation (routes and vehicles)	-0.47	(p=0.709)	Convenience of transportation	-0.15 (p=0.961)
Electing / un-electing officials	-1.24	(p=0.225)	Status the transportation choice provides	-1.69 (p=0.090)
Service production	-1.12	(p=0.279)	Most effective driver to affect citizens transportation choice?	
			Social pressure (neighbours, relatives, family&friends)	-1.85 (p=0.065)
			Personal user ratings based on activity	-0.63 (p=0.546)
			Lower service pricing	-2.66 (p=0.007)
			Taxation (tax incentives)	-1.7 (p=0.085)
			Governmental pressure (law, regulations)	-1.86 (p=0.062)
			* $p \leq 0.05$ significant difference	
Source: Webropol Professional Analytics				

Kruskal-Wallis H-test N=42

VARIABLES	GENERATION <i>H, (p)</i>	REGION <i>H, (p)</i>	EMP. TYPE <i>H, (p)</i>
Generation	5.39 (p=0.249)	11.23 (p=0.011)*	3.64 (p=0.603)
Employer type	5.6 (p=0.231)	3.95 (p=0.267)	18.38 (p=0.003)*
Geographic regions	4.71 (p=0.318)	0.69 (p=0.875)	9.98 (p=0.076)
Overall importance of participating citizens on transportation planning?	7.89 (p=0.096)	2.62 (p=0.455)	5.84 (p=0.322)
How likely participating citizens on transportation planning effects on how they choose to travel?	6.41 (p=0.170)	4.15 (p=0.246)	7.42 (p=0.191)
"Governments promoting sustainable transportation will reduce citizens desire to own a car. "	5.9 (p=0.206)	0.71 (p=0.871)	6 (p=0.307)
"Participating citizens on the planning of sustainable transportation will reduce their desire to own a car. "	5.07 (p=0.281)	1.59 (p=0.661)	1.61 (p=0.900)
"Citizens who participate on transportation planning should be rewarded."	2.88 (p=0.578)	5.77 (p=0.123)	3.45 (p=0.630)
What is your personal opinion about your governments current spending on sustainable transportation planning?			
Government should spend more	5.95 (p=0.203)	4.73 (p=0.193)	4.92 (p=0.426)
Government should spend less	2.82 (p=0.589)	41 (p=0.000)*	41 (p=0.000)*
Current spending is sufficient enough	8.42 (p=0.077)	2.21 (p=0.530)	2.68 (p=0.750)
No understanding or knowledge	2.82 (p=0.589)	0.75 (p=0.861)	1.21 (p=0.944)
How desirable it is for decision makers to participate citizens on these areas of transportation planning?			
Infrastructure planning	6.9 (p=0.141)	2.1 (p=0.552)	1.42 (p=0.922)
Route and transportation method planning	2.25 (p=0.690)	4 (p=0.262)	6.68 (p=0.246)
Developing common policies and plans	7.63 (p=0.106)	2.49 (p=0.477)	4.05 (p=0.542)
Issues concerning citizens personal living environment	3.34 (p=0.503)	4.41 (p=0.220)	7 (p=0.221)
Studying and education	6.54 (p=0.162)	0.64 (p=0.887)	5.58 (p=0.349)
Safety of transportation (routes and vehicles)	3.43 (p=0.489)	0.77 (p=0.856)	2.48 (p=0.780)
Electing / un-electing officials	5.01 (p=0.286)	3.33 (p=0.343)	7.11 (p=0.212)
Transportation related service production	3.84 (p=0.428)	5.08 (p=0.166)	6.79 (p=0.236)
Have you encountered problems with participating citizens on decision making processes that can negatively effect on promoting sustainable transportation? :			
Yes	3.67 (p=0.453)	5.53 (p=0.137)	5.09 (p=0.405)
No	0.69 (p=0.953)	4.23 (p=0.238)	5.98 (p=0.308)
No opinion	3.51 (p=0.477)	1.46 (p=0.691)	1.32 (p=0.933)
Rate based on your personal level of interest. How important it is to you to participate on following areas of transportation development?			
Infrastructure planning	4.27 (p=0.371)	0.87 (p=0.832)	3.86 (p=0.569)
Route and transportation planning	3.72 (p=0.446)	3.44 (p=0.328)	7.98 (p=0.158)
Developing policies and plans	7.82 (p=0.099)	2.4 (p=0.494)	2 (p=0.850)
Issues concerning your own living environment	10.13 (p=0.038)*	3.52 (p=0.318)	7.94 (p=0.159)
Studying and education	8.15 (p=0.086)	2.59 (p=0.460)	2.63 (p=0.757)
Safety of transportation (routes and vehicles)	4.65 (p=0.325)	4.03 (p=0.258)	3.01 (p=0.698)
Electing / un-electing officials	9.25 (p=0.055)	0.67 (p=0.879)	5.58 (p=0.349)
Service production	7.4 (p=0.116)	2.86 (p=0.414)	9.98 (p=0.076)

* $p \leq 0.05$
significant difference

Source: Webropol Professional Analytics

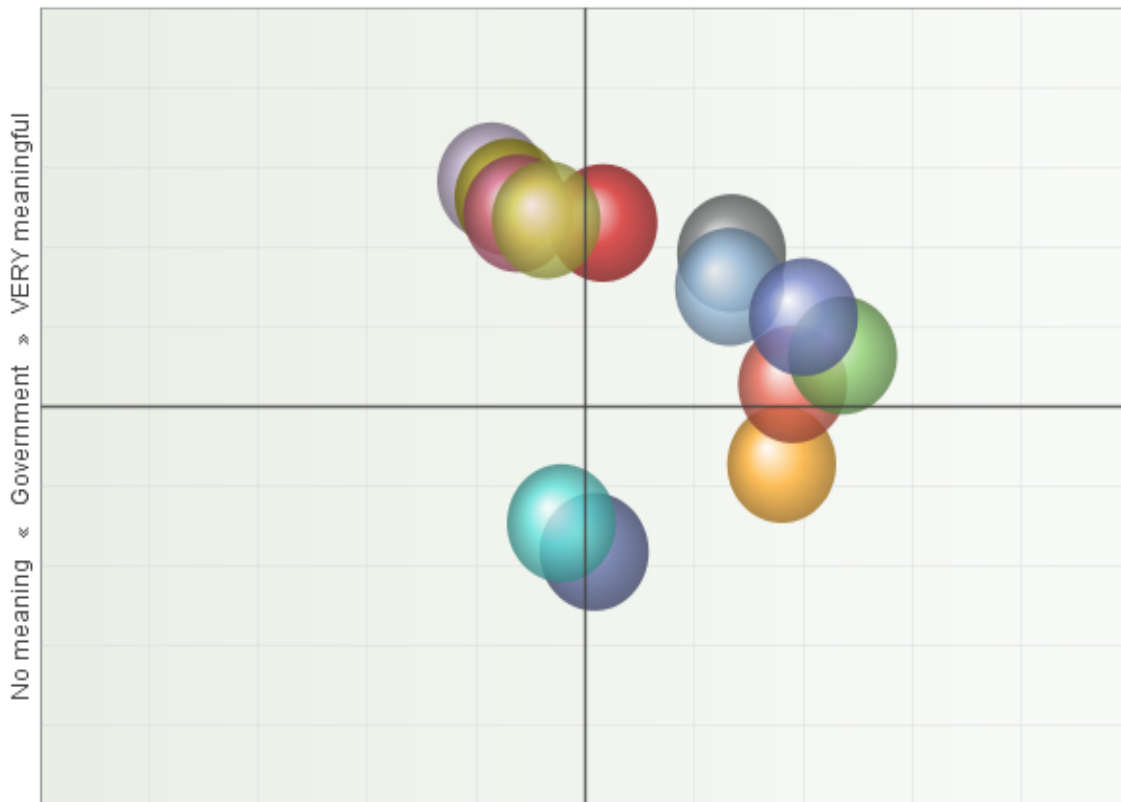
Kruskal-Wallis H-test			
VARIABLES	GENERATION (df4)	REGION (df3)	EMP. TYPE (df5)
STAKEHOLDER INTEREST COMPARISON TEST	H, (p)	H, (p)	H, (p)
Road conditions:Citizen	6.72 (p=0.151)	3.97 (p=0.265)	5.83 (p=0.323)
Road conditions:Government	1.23 (p=0.872)	0.13 (p=0.988)	2.34 (p=0.800)
Network coverage:Citizen	11.5 (p=0.022)*	3.02 (p=0.388)	11.07 (p=0.050)*
Network coverage:Government	2.06 (p=0.724)	0.94 (p=0.815)	5.18 (p=0.394)
Transportation related service pricing:Citizen	1.28 (p=0.865)	1.52 (p=0.677)	7.36 (p=0.195)
Transportation related service pricing:Government	7.1 (p=0.131)	4.65 (p=0.199)	4.44 (p=0.488)
Environmental protection:Citizen	2.11 (p=0.715)	0.71 (p=0.871)	4.18 (p=0.523)
Environmental protection:Government	1.11 (p=0.892)	5.7 (p=0.127)	9.91 (p=0.078)
Saving energy and resources:Citizen	6.65 (p=0.156)	1.07 (p=0.785)	4 (p=0.550)
Saving energy and resources:Government	2.93 (p=0.570)	4.32 (p=0.229)	8.38 (p=0.136)
Citizen satisfaction:Citizen	4.27 (p=0.371)	0.54 (p=0.909)	2.81 (p=0.730)
Citizen satisfaction:Government	2.41 (p=0.661)	3.61 (p=0.307)	5.07 (p=0.408)
Saving costs:Citizen	5.77 (p=0.217)	4.39 (p=0.222)	6.51 (p=0.260)
Saving costs:Government	5.82 (p=0.213)	4.28 (p=0.233)	13.01 (p=0.023)*
Efficiency of transportation:Citizen	3.17 (p=0.530)	3.99 (p=0.263)	10.17 (p=0.070)
Efficiency of transportation:Government	3.05 (p=0.549)	3.96 (p=0.265)	11.03 (p=0.051)
Cost-effectiveness:Citizen	4.27 (p=0.371)	5.14 (p=0.162)	8.93 (p=0.112)
Cost-effectiveness:Government	2.48 (p=0.648)	2.96 (p=0.397)	13.73 (p=0.017)*
Health and safety:Citizen	2.9 (p=0.575)	0.18 (p=0.980)	1.03 (p=0.960)
Health and safety:Government	4.98 (p=0.289)	2.04 (p=0.565)	7.07 (p=0.216)
Convenience:Citizen	4.54 (p=0.338)	2.73 (p=0.435)	6.9 (p=0.228)
Convenience:Government	2.91 (p=0.574)	2.62 (p=0.454)	3.31 (p=0.652)
Symbolism:Citizen	5.46 (p=0.243)	8.8 (p=0.032)*	5.21 (p=0.391)
Symbolism:Government	2.86 (p=0.581)	3.04 (p=0.386)	4.92 (p=0.426)
Status:Citizen	4.1 (p=0.393)	8.71 (p=0.033)*	2.01 (p=0.847)
Status:Government	0.78 (p=0.942)	3.1 (p=0.377)	7.27 (p=0.202)
How important you think these values really are to citizens?			
Efficiency of transportation	0.63 (p=0.959)	2.18 (p=0.536)	8.97 (p=0.110)
Cost-effectiveness of transportation	0.83 (p=0.935)	2.01 (p=0.571)	4.37 (p=0.497)
Symbolistic meaning transportation represents	2.48 (p=0.648)	6.45 (p=0.092)	3.24 (p=0.664)
Health and safety of transportation	3.48 (p=0.481)	2.17 (p=0.538)	5.39 (p=0.370)
Convenience of transportation	14.31 (p=0.006)*	1.92 (p=0.589)	5.69 (p=0.338)
Status the transportation choice provides	8.45 (p=0.076)	4.21 (p=0.239)	4.43 (p=0.489)
Most effective driver to affect citizens transp. choice?			
Social pressure (neighbours, relatives, family&friends)	1.2 (p=0.878)	7.36 (p=0.061)	5.71 (p=0.335)
Personal user ratings based on activity	7.43 (p=0.115)	2.85 (p=0.415)	2.63 (p=0.756)
Lower service pricing	1.38 (p=0.847)	10.91 (p=0.012)	7.49 (p=0.187)
Taxation (tax incentives)	2.31 (p=0.679)	6.27 (p=0.099)	6.14 (p=0.293)
Governmental pressure (law, regulations)	5.93 (p=0.204)	3.31 (p=0.347)	3.66 (p=0.600)

Source: Webropol Professional Analytics

* $p \leq 0.05$
significant difference

N=42 "OPINION" Mean, Likert five-scale, level of agreement (min.1 "strongly disagree" - max. 5 "strongly agree")		Mean		Std. Dev	Variance
		Statistic	Std. Error	Statistic	Statistic
A.	"Participating reduces citizens willingness to own a car"	3.98	0.13	0.841	0.707
	"Promoting reduces citizens will.. to own a car"	3.74	0.156	1.014	1.027
	"Participating citizens affects consuming behaviour"	3.55	0.133	0.861	0.742
	"Participating should be rewarded"	3.4	0.132	0.857	0.735
	Overall importance of participating citizens	4.4	0.118	0.767	0.588
B1.	Infrastr. planning (Govnmnt interest on particip. citizens)	3.29	0.133	0.864	0.746
	Route and transportation method planning (Gi)	3.98	0.116	0.749	0.56
	Developing common policies and plans (Gi)	3.05	0.148	0.962	0.925
	Issues concerning citizens personal living environment (Gi)	4.19	0.129	0.833	0.695
	Studying and education (Gi)	3.36	0.112	0.727	0.528
	Safety of transportation (Gi)	3.36	0.148	0.958	0.918
	Electing / un-electing officials (Gi)	3.31	0.165	1.07	1.146
	Transportation related service production (Gi)	3.76	0.155	1.008	1.015
	Infrastructure planning (Citizens interest on participating)	2.93	0.142	0.921	0.848
	Route and transportation planning (Ci)	3.6	0.174	1.127	1.271
B2.	Developing policies and plans (Ci)	2.83	0.177	1.146	1.313
	Issues concerning your own living environment (Ci)	3.95	0.148	0.962	0.925
	Studying and education (Ci)	3.05	0.152	0.987	0.973
	Safety of transportation (Ci)	3.24	0.144	0.932	0.869
	Electing / un-electing officials (Ci)	2.93	0.194	1.257	1.58
	Transportation related service production (Ci)	3.33	0.162	1.052	1.106
	Efficiency (Values importance to citizen)	2.74	0.145	0.939	0.881
C1.	Cost-effectiveness (Vic)	2.19	0.164	1.065	1.134
	Symbolistic meaning (Vic)	2.14	0.134	0.872	0.76
	Health and safety (Vic)	2.74	0.113	0.734	0.539
	Convenience (Vic)	3.36	0.107	0.692	0.479
	Status (Vic)	2.21	0.121	0.782	0.611
	Social pressure (As behavioural change driver)	3.07	0.219	1.421	2.019
C2.	Personal user ratings based on activity (bcd)	2.29	0.197	1.274	1.624
	Lower service pricing (bcd)	3.64	0.192	1.246	1.552
	Taxation (bcd)	2.64	0.189	1.226	1.503
	Govnmntl pressure: law, regulations (bcd)	3.36	0.236	1.527	2.333
Valid N=42 (list wise) SPSS					

N=42



- Road conditions ● Network coverage ● Transportation related service pricing
- Environmental protection ● Saving energy and resources ● Citizen satisfaction ● Saving costs
- Efficiency of transportation ● Cost-effectiveness ● Health and safety ● Convenience
- Symbolism ● Status