

Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland.

Dissertation submitted in part fulfilment of the requirements for the degree of MBA at Dublin
Business School

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Declaration

I, Michal Skadlubowicz, declare that this research is my original work and that it has never been presented to any institution or university for the award of Degree or Diploma. In addition, I have referenced correctly all literature and sources used in this work and this work is fully compliant with the Dublin Business School's academic honest policy.

Signed: Michal Skadlubowicz

Date: 22/09/2016

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Abstract

The purpose of this research is to analyse attitudes and behaviour in relation to the rental of electric car. In order to understand how attitudes and behaviour of consumers are involved in the purchase process the researcher will, in first place, define the consumer behaviour and attitudes and the relationship between these two during the secondary research. The project will explore as well the environmental issues of today's world with significant focus on the car industry.

Exploration of consumer attitudes and behaviour towards environmental issues and rental of electric car will be the focus of the primary research delivered in the form of the survey.

In order to answer the research question, the research will undertake quantitative method. In order to collect relevant and accurate data, the research will use survey to capture 101 responses.

Collected data will be analysed and present in simple, user friendly format with help of charts and tables.

Finally, the researcher will conclude, based on the primary and secondary research results, whether environmental issues can play significant role when renting a car, and if electric car could be an option on Irish market.

Project will finally include recommendations in the context of environmental issues and rental of electric car in Ireland.

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1. Introduction

1.1 Research background

The current marketplace reveals a mounting emphasis on environmental sustainability, and firms are increasingly seeking ways to respond (e.g., Banerjee, Iyer, and Kashyap 2003; Grinstein and Nisan 2009). By the end of 2017, the amount U.S. firms will spend on green projects is expected to reach \$44 billion (Verdantix 2013), and these initiatives are widespread across industries.

Climate change is a common concern of humankind. Global warming is an issue which need to be recognized by all people and action is required. According to Talbot, Boiral (2015, pp329-436) “governments, investors, suppliers, customers, competitors, and the general public are, therefore, becoming increasingly aware of these issues and tend to exert institutional pressures, particularly on carbon-intensive industries (Boiral et al. 2012; Okereke and Russel 2010; Pinkse and Kolk 2009)”.

For many people, businesses and governments climate issues are very sensitive subject. According to Olsen, Slotegraaf and Chandukal (2014, pp. 119-137) “In response to a top ten global consumer trend, firms are increasingly introducing environmentally sustainable (“green”) new products”. One of the sectors of economy, cars manufactures, are highly involved in “green” product race.

In Ireland in 2015 (YTD as of 16/12/2015), 465 electric cars were sold, 0.37% of total new vehicles sold, comparing to 221 and 0.23% in 2013.

Table 1 EV sales number in Ireland 2015

Fuel Types	2015 Units	2015 % Share
Diesel	88634	71.19%
Petrol	33781	27.13%
Petrol Electric	1400	1.12%
Electric	465	0.37%
Petrol/Plug-In Electric Hybrid	115	0.09%
Diesel/Electric	93	0.07%
Petrol & Gas	9	0.01%
Diesel/Plug-In Electric Hybrid	1	0%

Source; <http://www.beebpeep.ie/stats/>

The researcher will show that today many consumers are more aware of environmental issues and consequently may purchase products according to their pollution and general impact to the environment.

According to Nielsen's (2014) Global Online Environment and Sustainability study(it surveyed 30,000 respondents in 60 countries), 55% of their respondents stated that they would be "willing to pay more for products and services provided from companies that are committed to positive social and environmental impact". Therefore, it is not surprising with statistics such as these that many companies have begun offering environmentally friendly product options. (Johnstone, Pey Tang, 2015, pp. 311-328)

The researcher in this paper presents, that those ongoing worldwide environmental issues have impact on consumer's attitudes and car rental purchase behaviour. According to McCarty and Shrum (2001), "environmentally conscious behaviour is unlikely to deliver instant personal gain or gratification," but rather the future-oriented outcome (e.g. cleaner environment) often benefits society as a whole (Massoules 2011).

Attitudes and behaviours are the key elements in terms of consumer personal decision making in relation to the product purchase. They can strongly influence consumer perception of a product, but from the other hand there are many variables that can influence purchase behaviour, such as previous experience or friends, family etc.

Throughout this research, the researcher will attempt to understand how high is the environmental awareness of car rental consumer, and how this can influence the car group selection while booking the rental. Are the Irish car rental customers willing to accept new technology? The researcher selected this topic, because consumer needs are constantly changing, and with higher consumer environmental awareness, new, greener car rental products have a chance to be successful. This is the main reason why, this research is important for the researcher, but as well for the future of car rental business in Ireland and environment as a whole.

1.2 Rationale for the Research

Currently, none of the main rental companies on the Irish market are offering fully electric cars in their Fleet portfolio. The goal of this dissertation is to analyse how big role the customer's awareness plays in relation to EV cars when choosing the rental vehicle. The outcome of this research can help to understand, if EV cars could win their place in Irish car

Rental industry, when introduced. The researcher will show as well that in today's market, the customer is more aware of pollution issues and will look for the products according to their "green" side and how they impact the environment in terms of CO2 emissions, waste and sustainability. During the literature re-view researcher came across positions which are investigating "green purchasing" (Johnstone, Pey Tang, 2015, pp. 311-328) or how the environmental policies affect the car sector (Verboven, 2014, pp. 389-392). There are as well some of the projects which are purely focused on the electric car purchase (Massoules, et al 2011) or (Dietich et al 2014), but in relation to the electric car as a rental car product nothing was found, hence the researcher decided to explore this subject in this project.

1.3 Research objectives

Saunders et al (2009) defines research objective as specific and clear statements that identify what researcher would like to achieve as a result of doing the research project. The project goal is to explore attitudes and behaviour of sample group towards the rental of electric car in Ireland. Main objective;

To explore customer attitudes towards rental of electric car in Ireland.

According to Wrenn at al 2007 "The objectives serve to guide the research results by providing direction, scope of a given project, and serve as the basis for developing the methodology to be used in the project"

Sub-objectives;

1. Define customer attitudes and behaviour, and the relation between them.
2. To analyse consumer environmental awareness in Ireland
3. To identify the environmental attitudes toward consumer behaviour in the car-rental market.
4. To analyse if electric cars can replace traditional vehicles when renting in Ireland.
5. To analyse consumer awareness in relation to Electric cars portfolio and infrastructure in Ireland.

1.4 Research question - Hypothesis

The research question is the critical part of any research. It is very important for researcher to develop a question which will be in the area of his personal interest, so that he can fully focus

and dedicate to the project. Research questions that are “just right” are those that are just right for the investigation at the given time, in the given setting (Clough and Nutbrown, 2002).

Research question;

“What are the car rental customer’s attitudes towards rental of electric cars in Ireland?”

Sub-questions;

1. Are the consumers aware of environmental issues?
2. The influence of environmental awareness and importance placed on the environment on consumer behaviour.
3. Can electric car be a first choice for car rental consumer in Ireland?
4. Does Irish car rental companies offer electric cars today?

In addition, there are different hypotheses to take into consideration, corresponding to the quantitative approach, which was selected for this research.

The hypotheses are derived from the discussed academic theory from the literature review chapter, and divided into; consumer behaviour, attitude, Irish car rental market and environmental awareness.

Hypothesis 1: The consumer perception of electric cars is low.

Hypothesis 2: The Irish Car Rental market offers wide range of electric cars to the customers

Hypothesis 3: The consumer attitude towards rental of electric cars is positive

Hypothesis 4: The consumer environmental awareness is high

Hypothesis 5: The consumer adopt environmental friendly behaviour when selecting rental vehicle

1.5 Research Roadmap

The research is structured into six main chapters or sections, consecutively developed and treated in the same order as per below;

The first chapter Introduction, provides the background of the research and researcher, as well it sets the objectives and goals for the research. Therefore, it is divided into eight parts;

research background, research rationale, research objectives and question, research recipient, research new and relevant, suitability of research for researcher and final research limitations.

In the second chapter researcher examines literature in the context of the research objectives. The aim of this chapter is critically review, compare and contrast the academic debate on consumer behaviour and attitudes. This chapter presents the overt lineage to the research objectives and hypotheses.

In the chapter 3 researcher presents research methodology and methods available, strengths and weaknesses of methods used in research are analysed, and described. All findings are supported by the academic research literature. In this chapter, the researcher explained and justified his choice of methodology behind the research.

Chapter number 4 will cover research data analysis and findings, which aim is to present the results of the primary research conducted with quantitative research method in clear and simple method without general conclusions.

Chapter number 5 will cover the discussion over the research findings with linkage to the literature, goals and objectives from previous chapters.

In the chapter number 6 researcher will present his conclusions and recommendations towards based on the research findings as well it will reflect towards possible further researches.

Additional chapter will cover;

Reflection of the researcher experience with the research but as well the whole MBA experience.

Bibliography

Appendices

1.6 Recipients for Research identified

The proposed research will be submitted as part of the curriculum of Masters in Business Administration program at Dublin Business School. The principal recipient of the proposed dissertation will be Dublin Business School. The research is intended to perform a quantitative analysis on around 100 people (Car Rental Professionals) to explore their

attitudes and perception towards rental of eclectic car in Ireland. The results could be available in future for further research. Based on the research outcome, researcher will draw conclusions and recommendation which could be useful for any business which is in relation with electric cars and/or the rental.

1.7 New and Relevant Research

During literature review researcher came across articles and other researches which were focused on the purchase of “green” cars (Verboven et al 2014, pp 389-392), but there was no relation to the customer behaviour, attitude when choosing a rental vehicle. As the number of sales of the electric cars is growing in Ireland and other countries, naturally owners of those cars will look for something similar when renting a car. From the commercial point of view, rental companies will have to fill the gap in the market and introduce those “green” cars to the customers at some stage in Ireland as well. Currently EV and Hybrid cars are not present in Irish Car Rental market. Analysing other countries UK, Italy where these type of cars are in rental fleet, Ireland will need to follow the trend and offer them to customers in near future. In order to introduce these cars to the Irish leisure customers a successful project must be designed (Wiley and Sons, et al 2007).

1.8 Suitability of Researcher for the Research

The researcher, from young age has been interested in automotive sector and cars always have been his big hobby. In 2008 researcher has graduated university in Poland with Master in Accounting and Tax. In 2009 he has started working for one of the biggest Car Rental companies in the world “Hertz”, currently as Senior Financial Accountant in Fleet Accounting department, supervising processes of purchase and sales of the cars across European corporate countries. The automotive market is changing, 25 years ago diesel engine was only used in Trucks, machines and marine sectors, today diesel engine is in almost every second car around us, and there is strong belief that time for the EV cars is on its way. In recent years, the innovative electric/hybrid cars have increasingly penetrated European markets including Ireland. According to the McKinsey and Company 2014 report “Although global and European sales figures are still small (below 1% of new car registrations), we see that in some pockets, growth has picked up speed – driven by government support, an improved offering of electric vehicles (EVs) by the automotive industry, and a growing familiarity and willingness to buy on the side of the consumer. In Norway, one such growth pocket, the top-selling car models in September, October, and December of 2013 were

battery electric vehicles (BEVs). In November of last year, EVs reached 12% of sales in Norway.” Every big manufacturer has an E-car or hybrid in their today’s fleet offer, as a natural step these vehicles are now being introduced as well to the Car Rental market, but not yet in Ireland.

1.9 Limitations to the research

There are certain limitations to this research. Some of the limitations are due to the nature of the study and some were already noted at this stage and some will be during the execution phase. The cross-sectional approach is selected for the research method, which is investigating a specific topic in a specify time frame. Because of the 12 weeks’ time frame, research must be well organized and planned. As the research is based on the Web based survey it’s necessary for the system to be available for users in order to complete the survey. Researcher will be taking holidays during the research project which could lead to some small delays if not planned well. It is mandatory for the researcher to fallow the plan in order to successfully complete each of the milestones (Gantt chart in appendix).

2. Literature Review

2.1 Introduction

The literature review main purpose is to define and analyse the main terms included in research question and objectives of this research. Researcher main focus in first place will be to define attitudes and behaviours separately in order to understand what they mean based on different researches and approaches. Later on researcher will investigate how behaviour and attitudes affect each other and how they are affecting customer decision when purchasing a product (rental of a car). As the project focus is on “green” cars in Irish Rental Business, the review will explain and define consumer environmental awareness and provide overview of ongoing international environmental issues with focus on Ireland. Finally, the researcher will analyse the Irish Car industry with specific focus on Car Rental Business.

2.2 Consumer Behaviour

According to Julia Dieterich (2014, p13), consumer behaviour is an important aspect of marketing and brand management.

According to Kotler (2009) “Consumer behaviour is the study of how individuals or groups buy, use and dispose of goods, services, ideas or experience to satisfy their needs or wants”.

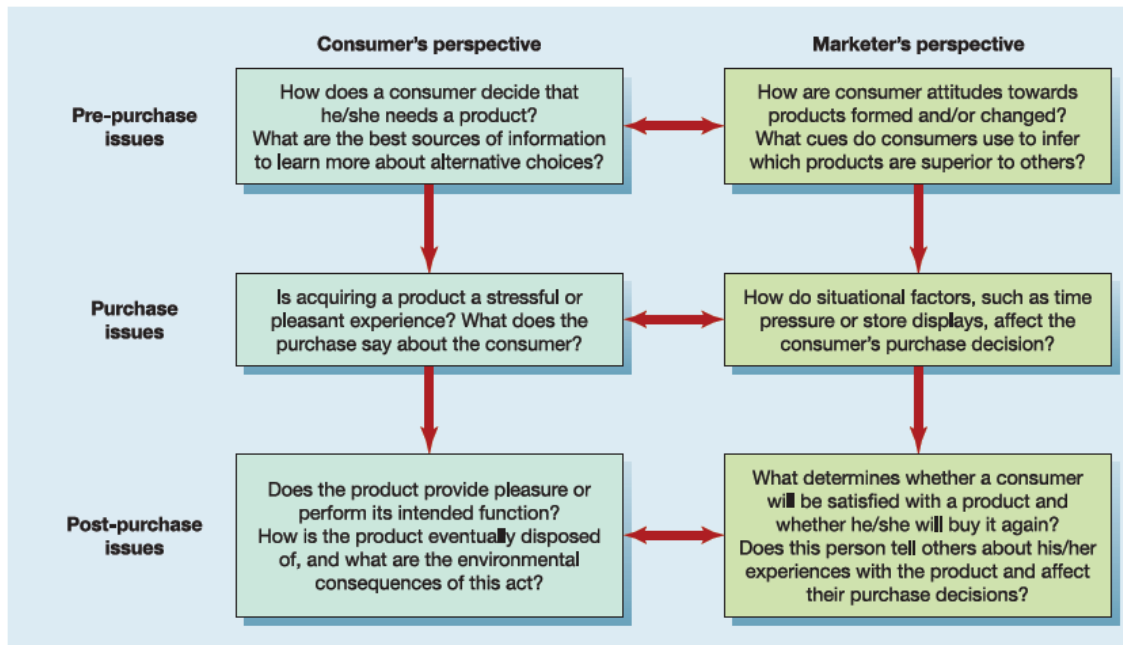
According to Solomon et al 2013, the field of consumer behaviour is the study of the processes involved when individuals or groups select, buys, use or dispose products, services, ideas or experiences to satisfy needs and desires. A consumer is generally identified as a person who identifies a need or desire, makes a decision to purchase, and then disposes of the product during the three stages in the consumption process.

As per McNeal et al (2007, p51) purchase is defined as the exchange of money for services or goods between two parties, purchaser and vendor.

According to Baines et al (2011, p80) during this process cognition, perceptions and learning will be developed, which are necessary to get deep insight into how the marketer can make positive impact to influence the purchasing process. In the early stages of development consumer behaviour was often referred to as buyer behaviour, now day’s marketers recognize this as an ongoing process and not as the one time interaction only at the time of purchase. The exchange, in which two or more parties give and receive something of value, is an integral part of marketing (Bradley at al 1995).

According to Solomon et al 2013, this exchange plays important part in the consumer behaviour process, but only expanded view on the entire process provides full visibility on the consumer issues before, during and after a purchase (Figure 1).

Figure 1 “Some issues that arise during stages in the consumption process”



Source: “Consumer behaviour, a European Perspective” M. Solomon, 2013

In this study, understanding the theory of consumer behaviour is not enough, the researcher will have to investigate into the results of the survey and provide recommendation at what stage of the tree, the consumer has the most concerns around “green” car rental.

2.3 Defining Attitudes

Over the years, the study of attitudes has focused on different areas of interest, first psychometrics and their measurement (1920-1935), then the development of theories of stability and change (1955-1965), and finally the structure, content and functioning of attitudes. (McGuire, 1985, 1986).

According to Ackermann, Palmer (2014, pp. 529-550) probably the most widely known early definition of attitude is Allport’s (1935, p. 810) who defined attitude as “... a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related”,

which could lead to understating how rental consumer will react to perspective of rental an electric vehicle in Ireland

The functional theory of attitudes was initially developed by the psychologist Daniel Katz, to explain how attitudes facilitate social behaviour (Lutz, 1975, pp 49-59). According to this approach, attitudes exist for a reason, as they serve a function for the person.

According to Russell, Fazio, Lenn and Effrein (et al 1984), consumers who expect that they will need to deal with similar information at a future time will be more likely to start forming attitudes in anticipation of this event.

According to Foxall (et al 1998) "Attitudes are usually represented as being positive or negative, favourable or unfavourable to an object, idea, or other entity". This quotation clearly states that Car Rental consumers can have positive or negative attitudes towards the rental of the "green"/electric car in Ireland. Moreover, an attitude is a "psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour" (Eagly and Chaiken, 1993).

According to Perloff (2003), "attitudes are learned, enduring, global and typically emotional and are strongly linked with behaviour".

Jasko, Kruglanski, Baldner, Pierro, Chernikova, Milyavsky and Babush (2015, pp. 598-620) argues that "An attitude is a judgment that a given object or state of affairs falls somewhere on the continuum between good and bad, or likable versus unlikable."

According to Kotler industries regularly fit their products "into existing attitudes rather than to try to change attitudes" et al (Kotler, 2009, p249), hence it's so important to understand the consumer attitudes.

If attitudes are learned this mean that they have been billed as people grow in their live, "The process by which an individual learns the norms, values, beliefs attitudes and behavioural patterns of the group to which they belong" (Knott 2010).

According to Steluta and Popescu, (2013, pp. 36) attitude is nowadays defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993, pp.1). This definition encompasses the key features of attitudes - namely, tendency, entity (or attitude object), and evaluation. This

conception of attitude distinguishes between the inner tendency that is attitude and the evaluative responses that express attitudes (Eagly and Shelly, 2007, pp.582-602).

Consumer attitudes are expressed through thoughts, feelings and behaviours, and they cannot be neutral, “You are for or against object” (Sherif C W et al 1965). You can either like or dislike something, you have your own opinions, judgment about beliefs (Massoules at al 2011).

Understanding of consumer attitudes towards electric cars in car rental business is the key for the success of implementation those cars on Irish car rental market.

2.4 Attitudes functions

Analysis by LeBoeuf, Simmons (2010, pp 348-360) confirms that attitudes can serve different functions is not new one (Katz 1960, Smith, Burner and White 1956). For example Katz (1960) describes people as motivated to attain a variety of goals, including maximizing concrete rewards, expressing values and the self, defending the self against, threatening ideas, and structuring the world.

Although early research proposed several attitude functions (Katz 1960, Smith, Burner and White 1956), subsequent research has primarily focused on the “unanimous distinction between instrumental and symbolic functions” (Ennis and Zanna 2000, p. 396; see also Abelson and Prentice 1989; Berger and Heath 2007; Johar and Sirgy 1991; Prentice 1987; Shavitt, Lowrey, and Han 1992).

According to Maier (1965), “attitudes determine meanings, reconcile contradiction, organize facts and select facts”. Similar approach was presented by Foxall R. et al (1998, pp. 103).

Furthermore Katz (1960), Smith (1956), Haddock (2012) psychologist argues that there are four functions to attitude:

- Utilitarian function – “The utilitarian function is related to the basic principles of reward and punishment. We develop some of our attitudes towards products simply on the basis of whether these products provide pleasure or pain” (Solomon et al 2013). Consumer assesses the product or device simply to achieve his/her goal.
- The value expressive function – “A person forms a product attitude not because of its objective benefits, but because of what the product says about him or her as a person” (Solomon et al 2013). Consumer expresses his/her opinion about the products.

- The Ego-defensive function – “Attitudes that are formed to protect the person, from either external threats or internal feelings, perform an ego-defensive function” (Solomon et al 2013).
- Knowledge function – allow consumer to build his/her own knowledge about the product or service.

According to Solomon et al (2013) an attitude can serve more than one function, but in many cases a particular one will be dominant. The key element is to identify the dominant function a product serves for consumers (i.e. what benefits it provides), marketers can then use these benefits in their communications and packaging in order to improve customer experience.

Attitude is about how consumer will react, behave to the products, brands, services and in some examples can even lead to consumption, purchase of the product. From that point of view attitude can be described as a ‘predictor for behaviour’ since it predicts certain type of behaviour (Williams, 2013, pp. 268-269).

LeBoeuf, Simmons (2010, pp 348-360) argues that some of the researchers took an individual-differences approach, proposing that people who differ on certain traits will exhibit corresponding differences in attitudes functions ((e.g., Bazzini and Shaffer 1995; DeBono 1987; Lavine and Snyder 1996; Petty and Wegener 1998), but more relevant approach to marketing is a product-centred approach that investigates associations between products and attitude functions (Shavitt 1990; Shavitt, Lowrey, and Han 1992).

2.5 Attitudes and Behaviour

Cohen (1960) stated that “attitudes are always seen as precursors of behaviour, as determinants of how a person will actually behave in his daily affairs” (pp. 137–138). Similarly, Petty and Wegener (1998) affirmed that “attitudes (are) important because of the fundamental role that individuals’ attitudes . . . play in the critical choices people make regarding their own health and security as well as those of their families, friends and nations” (p. 3230).

Substantial work in social psychology was devoted to questions about the kinds of attitudes that promote behaviour and the conditions that facilitate the attitude behaviour link (e.g., Ajzen, 1985, 2012, 2014; Ajzen & Fishbein, 1980; Fabrigar, Petty, Smith, & Crites, 2006; Fazio, 1990, 1995; Fishbein & Ajzen, 1975; Krosnick & Petty, 1995; Regan & Fazio, 1977; Sivacek & Crano, 1982, among others).

According to Jasko, Kruglanski, Baldner, Pierro, Chernikova, Milyavsky and Babush (2015, pp. 598-620) “The search for moderators of the attitude behaviour relation was likely sparked by early accumulation of findings that not all attitudes actually prompt behaviour”.

Well known in this regard is Wicker’s (1969) review, which found “little evidence to support the postulated existence of stable, underlying attitudes within the individual which influence both his verbal expressions and his actions” (p. 75). Wicker concluded, somewhat pessimistically, that “it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviours than that attitudes will be closely related to actions” (p. 65) and he challenged researchers to look for “factors . . . which are consistently better predictors of overt behaviour than attitudes” (Wicker, 1969, p. 75).

A unique and highly influential approach to the attitude behaviour issue is represented in Fishbein and Ajzen’s theories of reasoned action (TRA) and of planned behaviour (TPB; e.g., Ajzen, 1985, 2012; Fishbein & Ajzen, 1975, 2010). Their essential argument was two-pronged. (a) First they proposed that general object attitudes, of the kind typically addressed by attitude researchers (e.g., Cacioppo et al., 1981; Eagly & Chaiken, 1993; Fazio, 2007; Thurstone, 1931) are in principle unrelated to specific behaviours and hence they should be relinquished as behavioural predictors. (b) Instead, they proposed that focusing on attitudes toward the behaviour provides a more effective method of behavioural prediction. In what follows, we examine both arguments in greater detail and discuss them from the present theoretical perspective.

According to Fishbein and Ajzen (2010): “We cannot expect strong relations between general attitudes toward an object and any given behaviour directed toward that object” (pp. 258–259). According to the authors then, a general attitude toward an object will predict an aggregate of behaviours relevant to the attitude but not any specific behaviour (Ajzen, 2012; Fishbein & Ajzen, 2010).

According to Jasko, Kruglanski, Baldner, Pierro, Chernikova, Milyavsky and Babush (2015, pp. 598-620) other studies of attitude-behaviour relation strongly imply the situational presence of goals that drove the behaviour of interest—for instance, Sivacek and Crano (1982) posited that what they termed “vested interest” moderates attitude-behaviour consistency. In two studies, they found that the strength of the attitude-behaviour relationship varied as a function of individuals’ perceived vested interest on the attitude issue, with those who had more vested interest displaying higher attitude-behaviour consistency.

Attitudes have clearly a central position in research on consumer behaviour. Nevertheless a clear and demonstrative link between attitude and behaviour is not found (Jie et al 2009). Attitudes are an important factor that influences consumer behaviour.

Azjen and Fishbein (1977) argued that attitudes are better predictors of behaviour.

In relation to Electric cars as green products in Car Rental business, Johnstone and Tan (2015, pp. 311-328) stated that many researchers have also looked at environmental knowledge when exploring green attitudes and behaviour. This is because environmental knowledge is frequently assumed to drive green consumption behaviour (e.g. Bartkus et al. 1999; Schlegelmilch et al. 1996) based on a linear progression model that knowledge leads to environmental awareness and concern, which in turn is thought to contribute to pro-environmental behaviour (Kollmuss and Agyeman 2002). However, the empirical evidence for this relationship is far from clear (Chan 2001).

As a result consumers' positive attitudes about the environment do not necessarily translate into actual purchase behaviour (e.g. Carrigan and Attalla 2001; Chatzidakis et al. 2004; Gupta and Ogden 2009; Pickett-Baker and Ozaki 2008). This phenomenon is generally known as the "attitude-behaviour gap" or the "green gap".

2.5.1 Multiattribute Attitude Models

According to Salomon et al (2013) multi-attribute attitude models have been extremely popular among marketing researchers. "This type of model assumes that a consumer's attitude (evaluation) of an attitude object (Ao) will depend on the beliefs he or she has about several or many attributes of the object. The use of a multi-attribute model implies that an attitude towards a product or brand can be predicted by identifying these specific beliefs and combining them to derive a measure of the consumer's overall attitude" (Solomon et al 2013).

As a result attitude is a mix between attributes, beliefs and importance. There are few different approaches;

Attitude towards object model - "consumer beliefs about the attributes and benefits of a brand" (Fishbein, 1975), consumer evaluate the benefits of the product before action is taken. Azjen and Fishbein et al (1977) argues that an attitude toward a behaviour may often be a direct determinant of this behaviour (and behavioural intentions), but that an attitude toward

an object (e.g., a brand attitude) has no necessary relation to behaviour. Brand attitude is a key component of a brand's value (e.g., Farquhar 1989; Keller and Lehmann 2006) and plays a vital role in driving a brand's success (e.g., Aaker and Jacobson 2001). Thus, understanding how brand attitude changes as a result of the introduction of green new products offers important knowledge, especially as the trend toward environmental sustainability continues to grow. (Olsen, Slotegraaf, Chandukala, 2014, pp 119-137)

Attitude-toward-Behaviour Model - "This is the individual's attitude towards behaving or acting with respect to the attitude object rather than the attitude to the object itself" (Quinn, 2008). Consumer is first trying to know the product, and whether it will be really needed (based on would it suit them and their experience).

The theory of reasoned action - The original Fishbein model, which focused on measuring a consumer's attitude towards a product, has been extended in a number of ways to improve its predictive ability (Ajzen and Fishbein, 1977, pp. 888-918). The revised version is called the theory of reasoned action. This theory suggests that consumer's behavioural intentions depend mostly on the person's attitude.

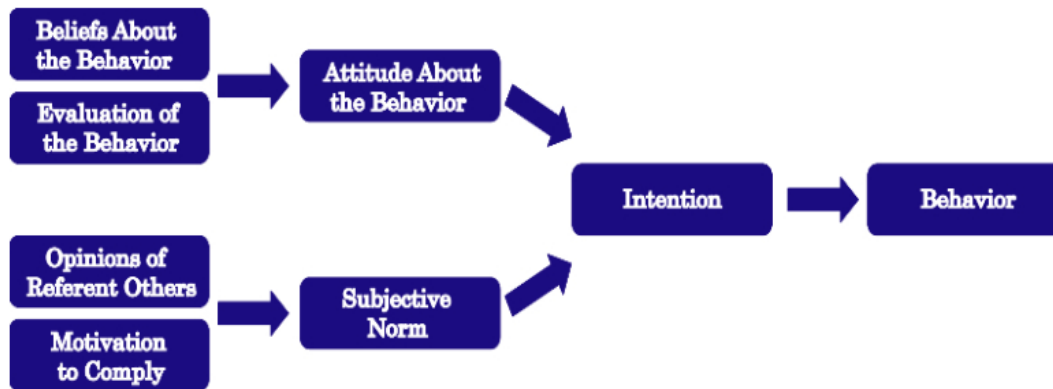
The Theory of Reasoned Action (TRA) addressed criticisms of rational choice explanations of consumer behaviour by proposing that individuals are rational in using information available to them, and recognised the role of social influence on this rationality. (Ajzen & Fishbein, 1980)

According to Southey (2011, pp. 43-50) "the theory of reasoned action (Ajzen & Fishbein, 1969, 1980) provides a model that has potential benefits for predicting the intention to perform a behaviour based on an individual's attitudinal and normative beliefs. This model was extended to accommodate developments in the variables and the resulting model was named the theory of planned behaviour (Ajzen, 1991). Whilst these models have been widely used to evaluate a range of consumer behaviours, there is an argument that they are not suitable to use in evaluating decisions in an organisational context because of the dynamic and intricate multiphase, multi-person, multi-departmental and multiobjective nature of the decision processes in organisation (Thompson & Panayiotopoulos, 1999; Johnston & Lewin, 1996). This argument is not as strong or convincing when it comes to small business because by their very nature small business decisions tend to be the domain of a single individual."

Fishbein model (1980) is based on the integration of “the separate evaluations of the salient beliefs, weighted by the strength of each belief, to create an overall evaluation or attitude”.

The below Figure 2 demonstrates the theory;

Figure 2 Theory of Reasoned Action



Fishbein-Aizen Theory of Reasoned Action

Source: <http://www.soc.iastate.edu/sapp/soc415FAM.html>

Consumer can acquire beliefs or information about the product from the direct experience or from the media, advertisement, internet, and friends. “Attitudes always produce pressure to believe consistently with them, but external pressures and extraneous considerations can cause people to behave inconsistently with their attitudes. Any attitude or change in attitude tends to produce behaviour that corresponds with it.” Fishbein has noticed that behavioural criteria have rarely been as much subjected to the same previous and rigorous analysis as verbal attitude measures; moreover he argued that such analysis is required to understand the relation between attitudes and behaviour. (Freedman, J. L. et al, 1970). Bagozzi and Warshaw (1990) Steluta, & Popescu, (2013) argued that Fishbeins models are frequently tested model of attitude - behaviour relations, but they lacked the objective behaviour which is an important component of consumer behaviour. (Massoules et al 2011)

According Jackson (2012, pp. 43-50) to the Theory of reasoned action can be applied in situations in which an individual consciously considers a decision to engage in ethical behaviour, such as using the guidance of a formal code of conduct or behaviours learned in a school, church etc. that relates to making ethical business decisions, or in this case, auditing decisions.

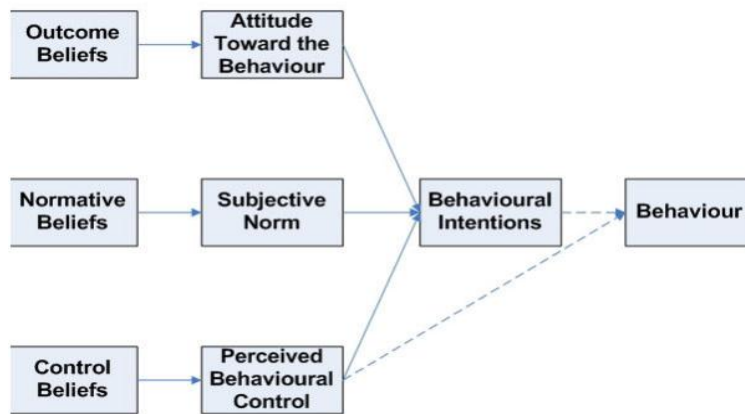
2.5.2 Planned behaviour

Planned behaviour is an extension of the previous theory discussed in this chapter (reasoned action). According to this theory planned consumer action is guided by three kinds of acknowledgments; outcome beliefs, normative beliefs, and control beliefs.

Analysis by Ferencz-Kaddari, Shifman, Koslowsky (2016, pp. 671-709) refers to theory of Planned Behaviour (Ajzen, 1985), as a popular conceptual framework for the prediction of intentions and behaviour in various areas (Ajzen, 2001). According to the theory, a person intends to act in a rational and active way and considers her intention according to the results of that very action. Furthermore, the person's intention to act in a specific fashion allows for predicting the behaviour even before it has been carried out as intentions expresses readiness to make an effort in implementing that behaviour. In other words, the greater the intention, Ferencz-Kaddari (et al. 2016, pp 693) the higher the likelihood that the behaviour will be carried out. In accordance with this theory, Ajzen (1985) developed a model describing the factors predicting behaviour in many disciplines ranging from marijuana smoking (Conner & Mcmillan, 1999) to use of condoms (Reinecke, Schmidt, & Ajzen, 1996). The model has been used in predicting actual behaviour as well as intentions with equal success (Armitage & Conner, 2001; Sutton, 1998).

According to Ackerman, Palmer (2014, pp. 529-550) theory of planed behaviour (and TRA) arose from recognised limitations of traditional attitude– behaviour research frameworks (Hale, Householder, & Greene, 2003), yet attitudes remain imprecisely defined, and in this study we explore the interaction between implicit and explicit dimensions of attitudes. Following Fazio, Chen, McDonel, and Sherman (1982), attitude is defined here as an association stored in memory between an object and an evaluation, positive or negative. Furthermore, this association can be automatically activated upon mere exposure to the attitude object (Fazio, Sanbonmatsu, Powell, & Kardes, 1986).

Figure 3 Planned behaviour



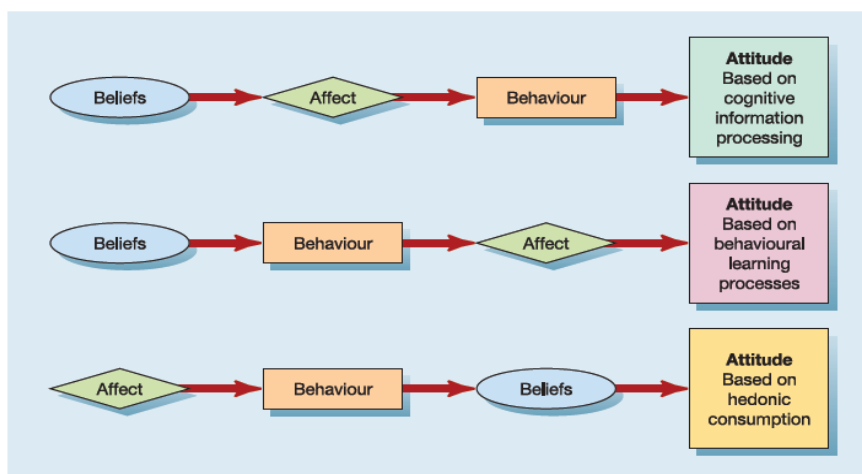
Source: <http://www.ehjournal.net/content/4/1/23/figure/F1>

2.5.3 ABC Model Attitudes

According to Solomon et al (2013) attitude has three components: “affect refers to how a consumer feels about an object, behaviour involves a consumer’s intention to do something in regard to an attitude object” and cognition refers to the consumer’s beliefs in relation to a particular object. Those components are the key elements to understand the consumer purchase decision process. This model emphasizes the interrelationships between knowing, feeling and doing. Consumers’ attitudes towards a product cannot be determined simply by identifying their beliefs about it.

They have significant impact on purchase behaviour what can be seen on below Figure 4.

Figure 4 Three hierarchies of effects



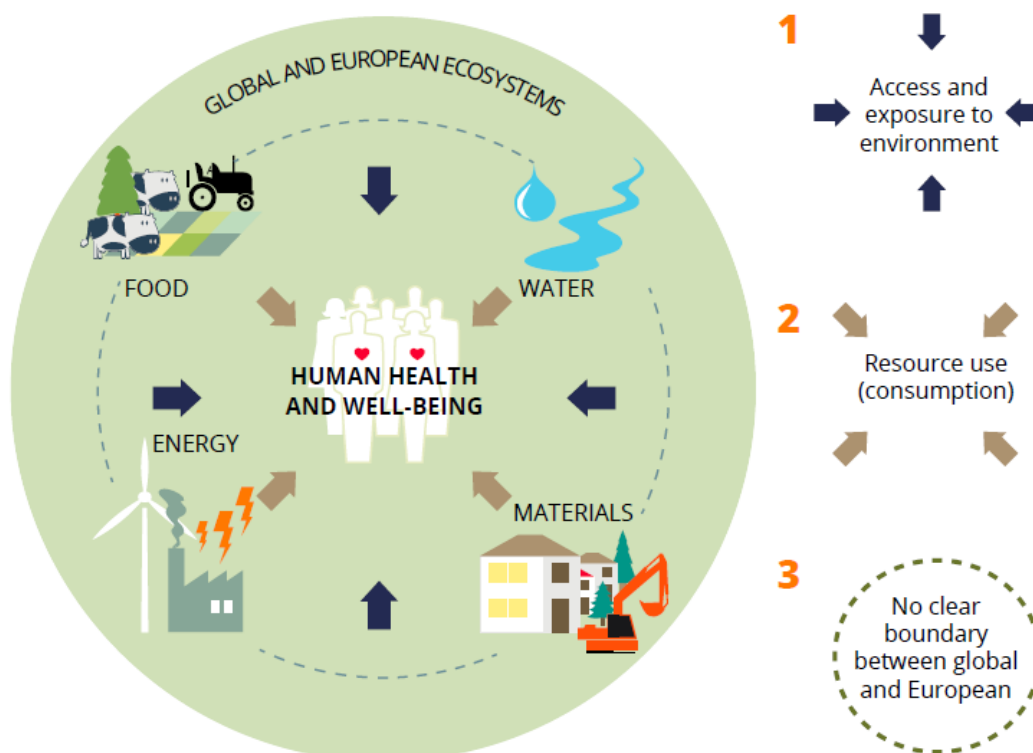
Source: “Consumer behaviour, a European Perspective” M. Solomon, 2013

2.6 Environmental issues

According to the 2015 report of European Environment Agency “In 2015, Europe stands roughly halfway between the initiation of EU environmental policy in the early 1970s and the EU's 2050 vision of living well within the limits of the planet. Underlying this vision is recognition that Europe's economic prosperity and well-being is intrinsically linked to its natural environment — from fertile soils to clean air and water.”

Environmental concern is extremely important topic for both marketing practitioners and policy makers in today world. Not only because there are heightened concerns about the impact consumers' buying and consumption behaviours are having on the environment (Johnson et al. 2008), but because businesses are facing increased pressure to incorporate environmental and social responsibilities into their corporate strategies. In fact, corporate social responsibility is deemed to be “a base requirement of operating in the 21st century and is not an option” (Charter et al. 2002, p. 8).

Figure 5 Three systemic characteristics of environmental challenges



Source: EEA.

According to the 2015 report of the European Environment Agency “Many of today's environmental challenges are characterized by their complexity (i.e. they have multiple causes and feature many interdependencies between their underlying drivers and associated impacts). They are difficult to delineate or define clearly as they pervade different parts of the environment and society in various ways. Thus, they are often perceived differently by different groups in society and at different geographical scales. Three systemic characteristics that are common to many of today's environmental challenges are of particular importance here”

By 2050, the global population is expected to exceed 9 billion, according to projections by the United Nations (UN, 2013). Today, the global population is 7 billion, and in 1950 it stood at less than 3 billion. Since 1900, materials use has increased tenfold (Krausmann et al., 2009), and may double again by 2030 (SERI, 2013). World demand for energy and water are both projected to rise by between 30% and 40% over the next 20 years (see, for example, IEA, 2013, or The 2030 Water Resource Group, 2009).

Similarly, total demand for food, feed, and fibre is projected to grow by about 60% between now and 2050 (FAO, 2012), while the area of arable land per person may decrease by 1.5% per year if no major policy changes are initiated (FAO, 2009).

According to the European Environment Agency (2015) globalization not only affects society, the economy or environment in Europe but consumption or production in a country or region contribute to environmental pressures in other parts of the world. Human activities across the globe are already significantly changing major bio-geochemical cycles on Earth. The changes are sufficiently large to alter the normal functioning of these cycles. Such bio-geochemical cycles involve the planetary scale pathways for the transport and transformation of matter within the earth's biosphere, hydrosphere, lithosphere, and atmosphere. They regulate the transport of carbon, nitrogen, phosphorus, sulphur, and water, all of which are of fundamental importance for the planet's ecosystems (Bolin and Cook, 1983). Simply put, these dynamics can be summarized by two types of human-induced global environmental changes, which both directly and indirectly impact the state of the environment in Europe (Turner II et al., 1990; Rockström et al., 2009a):

- Systemic changes (systemic processes at a global scale), i.e. changes that manifest at continental or global scale with direct impact on environmental systems (such as climate change or ocean acidification),

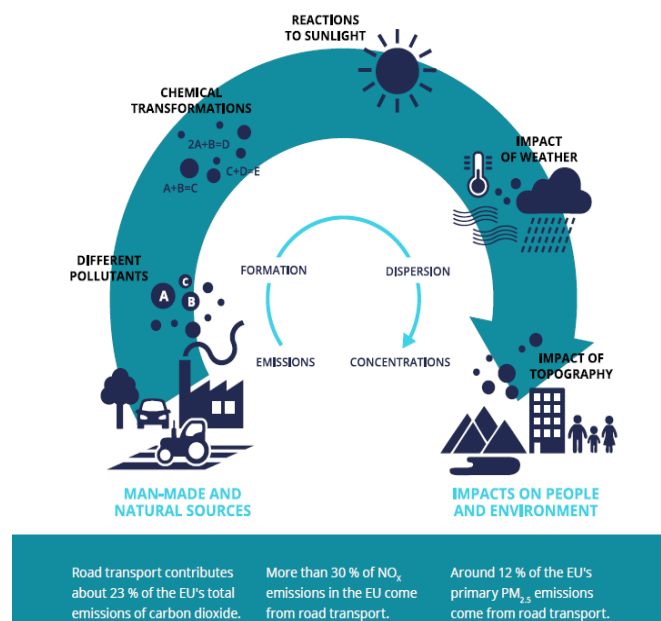
- Cumulative changes (aggregated processes from local or regional scale), i.e. changes that primarily occur on a local scale but are so widespread that they amount to a global phenomenon (such as soil degradation, or water scarcity).

The resulting human influence on global cycles has now reached unprecedented levels in the history of the planet, and researchers argue that we have recently entered a new geological epoch: the Anthropocene (Crutzen, 2002).

The green economy is seen by the EU, UN and the OECD as a strategic approach to the systemic challenges of global environmental degradation, natural resource security, employment, and competitiveness (EEA, 2015). Policy initiatives in support of green economy objectives can be found across major EU strategies, including the Europe 2020 Strategy, the 7th Environment Action Programme, the EU Framework Programme for Research and Innovation (Horizon 2020) and sectoral policies, such as transport and energy.

According to European Environment Agency (et al 2016), road transport is an important source of both greenhouse gases and air pollutants. Despite improvements in vehicle efficiencies over past decades, today the sector is responsible for almost one fifth of Europe's greenhouse gas emissions. Emissions from vehicles also lead to high concentrations of air pollutants above EU standards in many of Europe's cities.

Figure 6 Air pollution: from emissions to exposure



Source: “Explaining road transport emissions”, European Environment agency, 2016

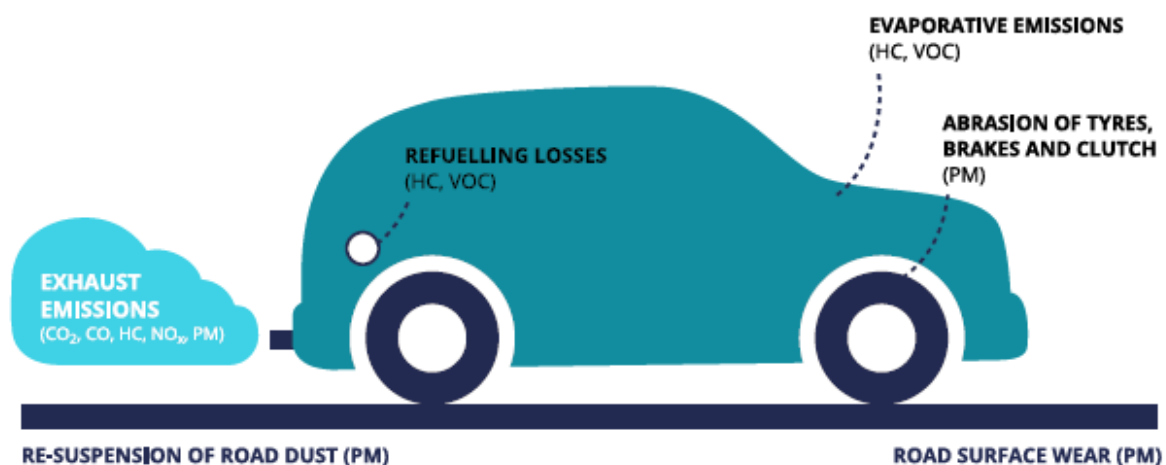
“While GHG emissions from all other main sectors of the economy have fallen in recent decades, those from transport have increased. Road transport GHG emissions are today around 16 % above the levels in 1990. As emissions from other sources have decreased, the contribution that road transport makes to total EU emissions has increased by around half — from a 13 % share in 1990 to almost 20 % share in 2013.” (European Environment agency, 2016)

There are three main vehicle emissions groups:

- Exhaust emissions – the emissions produced mainly from the combustion on different petroleum products (petrol, diesel, natural gas and liquefied petroleum gas.
- Abrasion emissions – the emissions produced from the mechanical abrasion and corrosion of the vehicles.
- Evaporative emissions – the results of vapours escaping from the vehicle’s fuel system.

Figure 7 Vehicle emissions and efficiency

The different types of emissions from vehicles, and a comparison of the relative amounts of selected pollutants released by the latest Euro 6 petrol and diesel vehicles



Source: “Explaining road transport emissions”, European Environment agency, 2016

Among different studies, there are two main reasons why consumers are going for the green cars; being economy (Diamond, 2009; Gallagher & Muehlegger, 2011) and concern for the environment (Ewing & Sarigöllü, 2000; Jansson, 2011; Koller, Floh, & Zauner, 2011). Concern for the environment has dual aspects to it. On the one hand, consumers are genuinely concerned about the deterioration in the environment and would strive to do whatever they can to prevent it. On the other hand, consumers may have an ulterior motive of wanting to be “seen as environmentally-responsible,” and thus create a better image for themselves (Griskevicius, Tybur, & Van den Bergh, 2010). Namely, certain consumers want to signal something about themselves to others through the use of environmentally-friendly vehicles. (Lee, Jung, Chu et al 2015, pp. 79-91)

As discussed in the literature review, environmental issues play a significant role in today's world. More and more governments, companies, and as well single units recognize the problem and act in favour of improvement or reduction of pollutions. Among them a big part plays the car manufacturing sector and all other business associated with cars, including the car rental sector.

2.7 What is a “Green” – electric car

According to the 2015 KPMG report “recent marketing initiatives, supported by wide media coverage, suggest the age of innovative technologies, like fuel cell vehicles and self-driving cars (a last evolutionary step of vehicle connectivity) is rapidly approaching.”

“Green” cars are innovative that leads OEM towards a higher level of environmental sustainability. Currently in the European Union (inclusive Ireland), new vehicles are homologated and grouped for road use based on CO₂ emission. According to the European Commission, there will be a reduction of the “average emissions from new passenger cars in the EU to 120 g of CO₂/km. This proposal should enable a reduction to 130 g of CO₂/km and complementary measures yet to be adopted by the EU should deliver a further reduction of 10 g/km”. Electric cars represent the group of the vehicles with CO₂ emission level equal to zero as they are powered by an electric motor which runs on batteries charged.

According to the KPMG report (2015) “the day when most of us drive fully electric cars is still on the distant horizon. In 2020, less than one in 20 vehicles produced are forecast to be equipped with electrified powertrains, the majority of which will be only slightly electrified full or partial hybrids”.

According to European Environmental Agency over the past years, a number of alternative engine technologies have been implemented on the commercial scale by vehicle manufacturers. Some of them are;

A hybrid vehicle combines an internal combustion engine and an electrical motor to power the wheels. The combustion engine runs off fossil fuels as for a conventional vehicle, and a battery provides additional electric power that assists the conventional engine during, for example, vehicle acceleration. The battery is typically charged during the braking or slowing of the vehicle. Hybrids deliver certain benefits compared to conventional technologies, as they reduce fuel consumption and CO₂ emissions by up to 35 %, as well as reducing air pollutant emissions (ICCT, 2015b). The size of the emissions reduction varies with the sophistication of the hybrid system. Petrol hybrids are amongst the cleanest commercially available vehicles with regard to regulated pollutants (JRC, 2012).

Plug-in hybrid vehicles, similarly contain both a conventional and an electrical motor which provide power to the wheels. The difference compared to a normal hybrid is that the batteries can be charged by 'plug-in' to the electricity grid. The environmental impact of plug-in hybrids depends on their operation mode — the all-electric mode of plug-in hybrids results in effectively zero tailpipe emissions in urban conditions, but relying on the conventional engine can lead to emission levels comparable to those of normal vehicles (European Environment agency, 2016).

Pure electric vehicles have only an electrical motor and no internal combustion engine. Electrical motors have an efficiency that may exceed 80 %, and they offer substantial GHG and air pollutant reductions compared to conventional vehicles. However the higher cost, infrastructure needs, and battery capacity are still factors that limit the public uptake of electric vehicles (JRC, 2012). Currently in Ireland there are 1200 public charge points available across the island of Ireland

Around the globe rental companies are introducing more green products and electric cars are among them, unfortunately as of today none of the main rental companies can offer an electric car in Ireland.

2.8 Irish Car Rental market

The representative trade organization for the car rental industry in Ireland is The Car Rental Council of Ireland. The Council is a constituent member of the Irish Tourist Industry

Confederation. It is recognized by Ireland's official agencies Failte Ireland and Tourism Ireland Ltd and contributes to the development of national tourism policies. Currently The Car Rental Council of Ireland includes thirteen members;

- Hertz
- Avis
- Budget
- Carhire.ie
- Celtic Campervans
- Sixt
- Dollar – Thrifty
- Donal Ryan
- Dooley – car rentals
- Enterprise
- GI Car Rentals
- Europcar
- Motability Ireland

According to the annual Euro monitor report, car rental transactions in Ireland increased by 6% in 2015 to reach 2.7 million while current retail value sales grew by 3% to reach €323 million. The rise in transactions can be attributed to the unprecedented number of inbound tourists while the increase in value sales, despite lagging behind, signals a significant rise in rental price points compared with previous years and is also indicative of strong competition within the category for market share. Following the industry's decimation after Ireland's economic collapse in 2008/2009, car rentals in Ireland has re-emerged lean and energetic and is currently experiencing a rebound in fortunes. Despite the fact value sales remain far below those seen in the pre-crash period leading up to 2008, the area appears to be positioned more solidly than when Ireland's economy was dangerously overheated.

2.9 Conclusion

The discussion around consumer behaviour, attitudes including the link between them, but as well the environmental issues were the main points of investigation in this chapter.

According to Perloff (2003), "attitudes are learned, enduring, global and typically emotional and are strongly linked with behaviour". This leads to the conclusions that attitude is formed

as a result of socialization and educational process, which can be influenced by internal or external factors. Once formed it is hard to be influenced or even changed. The way the consumers approach a product, whether they like it or not, whether they want to purchase or not, is driven by attitude that influences the behaviour through social pressures and other internal and external factors (Smith et al 2008).

In order to understand and investigate the views and attitude toward rental of electric car in Ireland all the models presented in the literature review offer different perspectives on attitude formation, change and impact on actual behaviour.

Environmental issues and how they can influence consumer decision process when renting a car are another part of this research. In the literature review section, research has presented the main issues related to the use of the standard combustion engines – cars, and the benefits which electric cars are offering. Unfortunately car rental market in Ireland currently is not offering any electric vehicles for rent, which comparing to other EU countries, where those type of vehicles are offered is hard to accept.

3. Research Methodology

This research focuses on attitudes and behaviour in relation to the car rental and environmental issues. As a result, the methodology used by researcher in this project will answer as accurately and effectively as possible the research questions. The researcher need to be fully aware of philosophical commitments when applying correct research strategy as this has significant impact on what we do but as well how we understand what we investigating (Johnson and Clark, et al 2006).

According to Hakim (2000) “research review provides a synthesis of existing knowledge on a specific questions, based on an assessment of all relevant empirical research that can be found”.

Moreover, Wrenn et at (2007) argued that “the research question represents a decomposition of the problem into a series of statements that constitute the end results sought by the research project”.

Research question;

“What are the Irish car rental customer’s attitudes towards rental of electric car in Ireland?”

Sub-questions;

1. Are the consumers aware of environmental issues?
2. Do these consumers adopt environmentally friendly behaviour?
3. Can electric car be a first choice for car rental consumer in Ireland?
4. Does Irish car rental companies offer electric cars today?

The project goal is to explore attitudes and behaviour of sample group towards the rental of electric car in Ireland. In order to answer the research questions it is critical to define the research objectives.

According to Wrenn (et al 2007) “The objectives serve to guide the research results by providing direction, scope of a given project, and serve as the basis for developing the methodology to be used in the project”

To explore customer attitudes towards rental of electric car in Ireland.

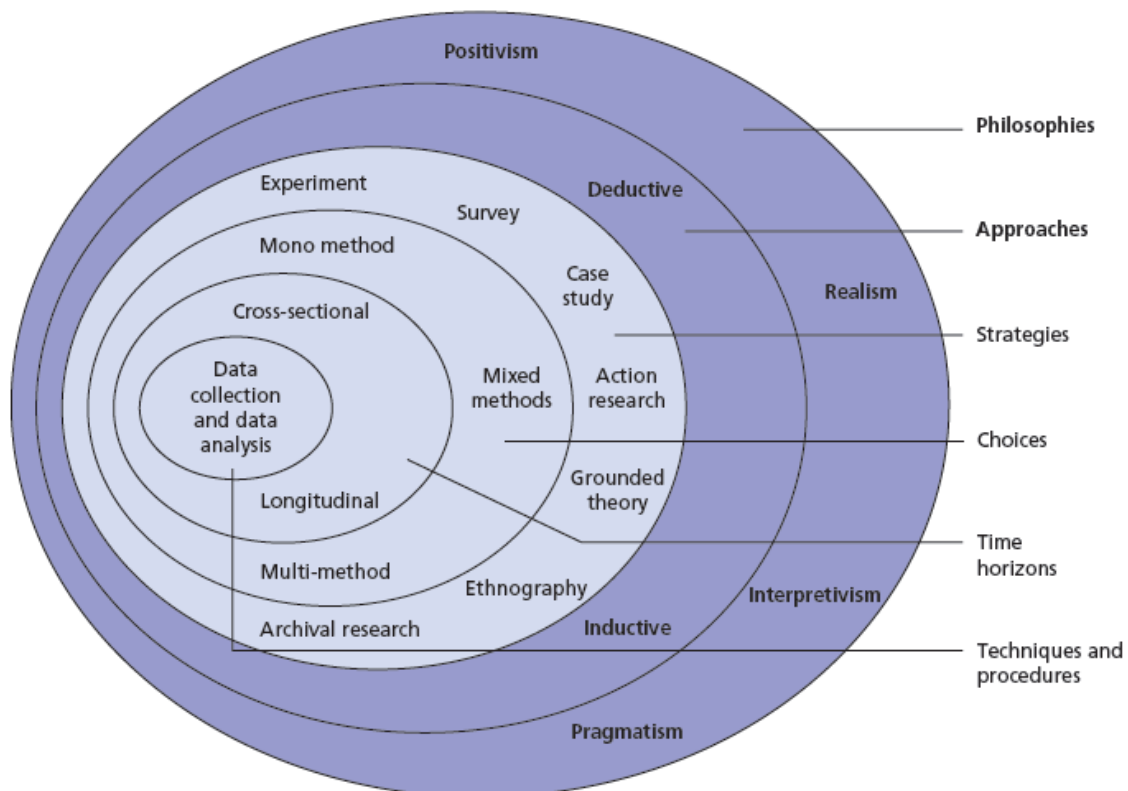
According to Wrenn et al 2007, “The objectives serve to guide the research results by providing direction, scope of a given project, and serve as the basis for developing the methodology to be used in the project”

Sub-objectives;

1. Define customer attitudes and behaviour, and the relation between them.
2. To analyse consumer environmental awareness in Ireland
3. To identify the influence of attitudes and behaviour on electric car rental process.
4. To analyse if electric cars can replace traditional vehicles when renting in Ireland.
5. To analyse consumer awareness in relation to Electric cars portfolio and infrastructure in Ireland.

A practical instrument which can help researcher in planning the strategy of the research is “research onion” (Figure 8.). Each area of the “research onion” will be defined in order for the research to be reliable, valid and credible

Figure 8 Research onion



Source: “Research methods for business students” M. Saunders, P. Lewis, A. Thornhill, 2007

3.1 Research Philosophy - Positivism

In the past two decades, research approaches have multiplied to a point at which investigators or inquirers have many choices (Creswell et al 2003).

According to Creswell (2003) researchers start a project with certain assumptions about how they will learn and what they will learn during their inquiry. These claims might be called paradigms (Lincoln & Guba, 2000; Mertens, 1998); philosophical assumptions, epistemologies, and ontologies (Crotty, 1998); or broadly conceived research methodologies (Neuman, 2000).

According to Hakim (2000), “the way in which you design your research will depend upon your own preferences, your research philosophy, and your ideas as to the most appropriate strategy and choices of methods for conducting your research.”

According to Saunders (2007), the research philosophy which researcher will adopt contains important assumptions about the way in which researcher view the world.

As Johnson and Clark (2006) noted, business and management researchers need to be aware of the philosophical commitments they make through their choice of research strategy since this has significant impact not only on what they do but what they understand as what is investigated.

Saunders (2007) agrees with Johnson and Clark (2006) who argue that the important issue is not so much whether our research should be philosophically informed, but it is how well we are able to reflect upon our philosophical choices and defend them in relation to the alternatives we could have adopted.

According to Saunders (2007) it's very easy to get an impression that one research philosophy is better than another, which is very wrong. They are better, but only at doing different things. Different research approaches can be used in the research depending on the questions they need to answer. In the practical reality research questions rarely falls into only one philosophical domain. Saunders refers in his research to two main research philosophies; ontology and epistemology but not forgetting about axiology. Each contains important differences which can influence the way the researcher will think about the research process (Figure 9.)

Figure 9. Research Philosophies

	Positivism	Realism	Interpretivism	Pragmatism
Ontology: <i>the researcher's view of the nature of reality or being</i>	External, objective and independent of social actors	Is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	Socially constructed, subjective, may change, multiple	External, multiple, view chosen to best enable answering of research question
Epistemology: <i>the researcher's view regarding what constitutes acceptable knowledge</i>	Only observable phenomena can provide credible data, facts. Focus on causality and law like generalisations, reducing phenomena to simplest elements	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings motivating actions	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data
Axiology: <i>the researcher's view of the role of values in research</i>	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance	Research is value laden; the researcher is biased by world views, cultural experiences and upbringing. These will impact on the research	Research is value bound, the researcher is part of what is being researched, cannot be separated and so will be subjective	Values play a large role in interpreting results, the researcher adopting both objective and subjective points of view
Data collection techniques most often used	Highly structured, large samples, measurement, quantitative, but can use qualitative	Methods chosen must fit the subject matter, quantitative or qualitative	Small samples, in-depth investigations, qualitative	Mixed or multiple method designs, quantitative and qualitative

Source: Saunders (2007, pp. 150)

As the main goal of the research is to study the behaviour and actions of humans and based on characteristics of the research, positivism methodology will be used.

The researcher will adopt the philosophical stance of the natural scientist as stated by Remenyi et al 1998:32 “working with an observable social reality and that the end product of such research can be law-like generalisations similar to those produced by the physical and natural scientists”

In order to generate the research strategy for collecting data the existing theory will be used and new hypotheses will be developed. This was discussed in the previous literature review in order to develop the research hypothesis. “These hypotheses will be tested and confirmed, in whole or part, or refuted, leading to the further development of theory which then may be tested by further research.” (Saunders, Lewis and Thornhill, et al 2007)

Another important element of positivism approach to the research is that “the researcher is independent of and neither affects nor is affected by the subject of the research” (Remenyi, Williams, Money and Swartz, et al 1998), in other words research is undertaken in a value-free way. For the researcher, it could be challenging to stay objective, due to developing feelings during the process of research and personal opinions. In positivism data collection is highly structured in large samples usually quantitative method with possible qualitative as well.

3.2 Research Approaches - Deductive

According to the Saunders (2007) *research onion* Figure 8. The second layer of the onion is the research approach, in which three approaches are noted; deductive, inductive and abductive (mixed)

According to Easterby-Smith et al. (2008) there are three reasons why the choice of the correct research approach is important:

- First, it enables researcher to take a more informed decision about the research design, which is more than just the techniques by which data are collected and procedures by which they are analysed.
- Second, it will help the researcher to think about those research strategies and choices that will work for the research and, crucially, those that will not.
- Third, Easterby-Smith et al. (2008) argue that knowledge of the different research traditions enables you to adapt your research design to cater for constraints. These may be practical, involving, say, limited access to data, or they may arise from a lack of prior knowledge of the subject.

Creswell (2002) suggests a number of practical criteria, which can help researcher to choose the correct research approach. One of the most important of these, are the emphasis of the research and the nature of the research topic. A subject on which there is a wealth of literature from which researcher can define a theoretical framework and a hypothesis lends itself more readily to deduction. With research into a topic that is new, is exciting much debate, and on which there is little existing literature, it may be more appropriate to work inductively by generating data and analysing and reflecting upon what theoretical themes the data are suggesting.

Saunders et al 2007 has identified some of the major differences between deductive and inductive approaches to the research;

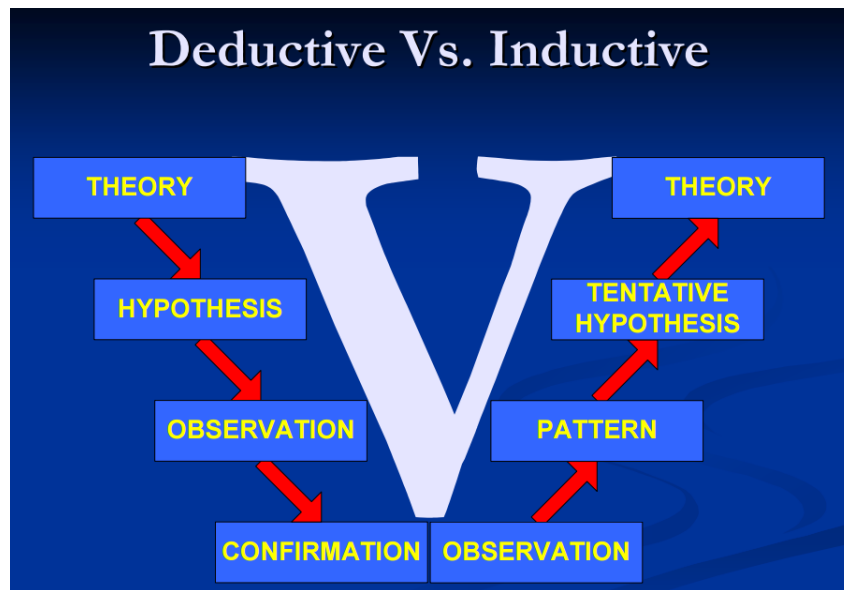
Figure 10 Deductive vs Inductive emphasises

Deduction emphasises	Induction emphasises
<ul style="list-style-type: none"> • scientific principles • moving from theory to data • the need to explain causal relationships between variables • the collection of quantitative data • the application of controls to ensure validity of data • the operationalisation of concepts to ensure clarity of definition • a highly structured approach • researcher independence of what is being researched • the necessity to select samples of sufficient size in order to generalise conclusions 	<ul style="list-style-type: none"> • gaining an understanding of the meanings humans attach to events • a close understanding of the research context • the collection of qualitative data • a more flexible structure to permit changes of research emphasis as the research progresses • a realisation that the researcher is part of the research process • less concern with the need to generalise

Source: Saunders et al 2007, pp. 127

According to Aqil Burney (et al 2008) inductive approach is usually described as moving from the specific to the general, while deduction begins with the general and ends with the specific. “The induction approach is based on inductive reasoning or thought which turns a simple observation or thought into a general theory” (Massoules et al 2011).

Figure 11 Deductive vs Inductive



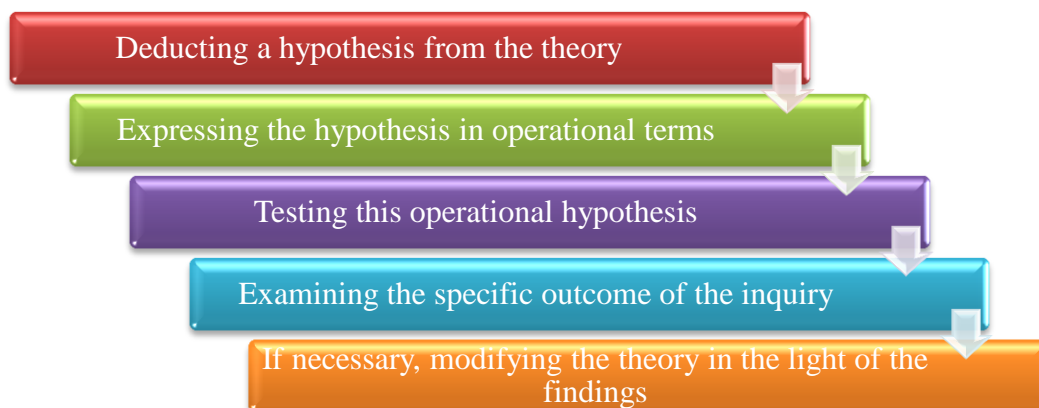
Source: Aqil Burney S.M. 2008, Inductive & Deductive Approach

For this research, the researcher first investigated, explored and analysed the literature in relation to; behaviour, attitudes, relations between them, Electric “green” cars including environmental issues, and Irish car rental market which is called deductive approach.

As per Collis and Hussey et al (2003) deductive approach is the dominant research approach in the natural sciences, where laws present the basis of explanation, allow the anticipation and phenomena, predict their occurrence and as a result permit them to be controlled.

Robson et al (2002) identifies five stages through which deductive research will progress;

Figure 12 Deductive stages according to Robson (2002)



Source; Adapted from Robson et al 2002.

Furthermore as the researcher has adopted the quantitative paradigm with positivism philosophy the logical approach as suggested by Saunders (2007) would be deductive.

Finally the Inductive approach rejects the stimulus – response model of human behaviour which is has been used as part of this research for the theory development, hence render the inductive approach unusable.

In this research hypotheses will be developed and tested. The deductive approach is chosen due to the planned quantitative survey, which will allow researcher to test, hypotheses and answer the research question.

3.3 Research Strategy - Survey

The most important element of strategy is, whether it will enable researcher to answer his particular research questions and meet the research objectives.

According to Saunders (2007) “Your choice of research strategy will be guided by your research questions and objectives, the extent of existing knowledge, the amount of time and other resources you have available, as well as your own philosophical underpinnings.”

As part of the research strategy, survey research has been adopted. According to Saunders (2007) survey research is closely linked with deductive approach. The survey strategy is very popular and often used as common in business, usually linked to deductive approach. A survey allows collecting a large amount of data from sizeable populations, usually in fast and economical way, which is very important for this type of research. In addition, the data collected using a survey strategy can be used to suggest possible reasons for particular relationships between variables and to produce models of these relationships. A further advantage is that the survey will be conducted as long as 101 responses are collected.

Surveys can be implemented in many various formats i.e. Survey can be administered as by interview with structured questions or by allowing population to complete questionnaire which can be distributed by email, post, telephone or online. Some of the limitations to the survey is the type of the questions which can be included, as these will determine the significance of the data acquired.

In the research strategy there are different alternatives to the survey which researcher could adopt, like; experiment, case study, action research...

According to Saunders (2007) experiment is a form of the research that owes much to the natural sciences, although it features strongly in much social science research, particularly psychology. The purpose of an experiment is to study causal links; whether a change in one independent variable produces a change in another dependent variable (Hakim 2000). There are significant limitations to this research strategy as often experiments, including those in disciplines closely associated with business and management such as organisational psychology, are conducted in laboratories rather than in the field, hence cannot be adopted.

Robson (2002) defines case study as “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence”. Yin (2003) also highlights the importance of context, adding that, within a case study, the boundaries between the phenomenon being studied and the context within which it is being studied are not clearly evident. According to Saunders (2009) the case study strategy is most often used in explanatory and exploratory research. It’s linked to interviews, observation and consequently researcher has to use multiple source of data, which in this research is not planned, hence cannot be completed.

After comparing and analysing different strategies, the researcher has selected survey strategy as the best suited for this project. Considering the time and money limitations, survey was the best choice. It will allow researcher to collect the data in relatively short period of time and it will be easy to present and conclude on the results, including some cross-sectional analysis which is important when investigating car rental consumers. As this dissertation takes individuals of sample population as unit of analysis, explanation generated from surveys is limited to individual level and their opinion, attitude & behaviour and cannot provide analyses on the matter of development of social associations, limitations of surveys are not only confined to capacity of researcher to do it badly, but also there are logistical and cost limitations as well (Klandermans & Staggenborg, et al 2002).

3.4 Research choice – Mono method

The next layer in the research onion is research choice.

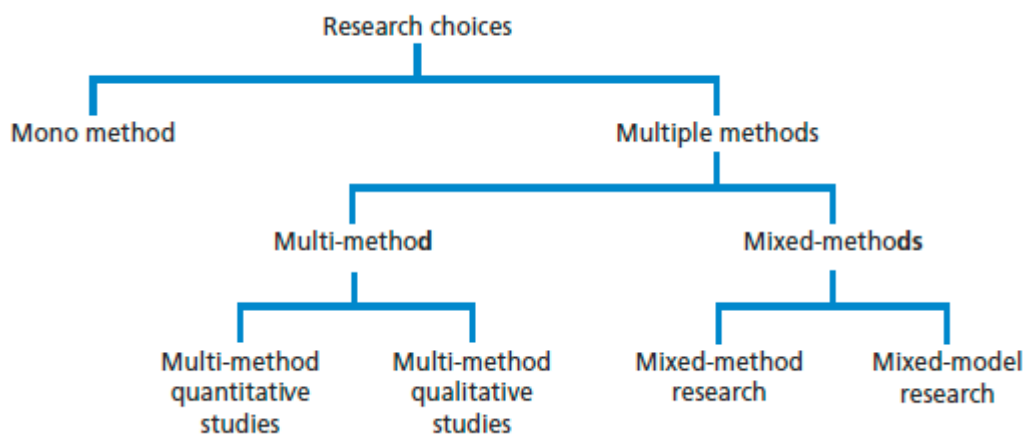
The main issue in conducting the primary research is whether to use qualitative or quantitative methods or a mix method of both. Researcher has to make the choice on the ways the data is collected and analysed (Mason, 2006), aligned to the paradigm of the research (Collins, 2010).

Given the research purpose, where the researcher wants to determine attitudes and behaviour in relation to the car rental including consumer environmental awareness the quantitative mono method will be used.

According to Saunders et al 2009 quantitative data in a raw form, before is processed and analysed, convey very little meaning to the most people. As a result, these data need to be processed to turn it into useful information, with help of graphs, charts and statistics, which will allow researcher to explore, present, describe and examine relationship and trends. Some of the benefits of quantitative mono method is that research findings can be generalised, data collection is quick and the results are independent of the researcher and finally it's effective in researching large number of people.

Researcher decided not to take multiple methods approach, as they tend to require more time, costs and can be problematic if a single researcher has to carry out both quantitative and qualitative research (Johnson & Onwuegbuzie, 2004).

Figure 13 Research choices



Source: Saunders et al 2007, pp.152

3.5 Time horizon – Cross Sectional

The next stage of the research strategy is to decide on the amount of time to be taken into account while collecting data for the research. Researcher need to choose if the research will be a “snapshot” taken at a particular time (cross sectional) or it will be a more akin to a diary or a series of snapshots and be a representation of events over a longer period of time (longitudinal research).

Cross-sectional study design is a type of observational study design. In a cross-sectional study, the investigator measures the outcome and the exposures in the study participants at the same time. The participants in a cross-sectional study are just selected based on the inclusion and exclusion criteria set for the study. Once the participants have been selected for the study, the investigator follows the study to assess the exposure and the outcomes. Cross-sectional designs are used for population-based surveys and to assess the prevalence of diseases in clinic-based samples. These studies can usually be conducted relatively faster and are inexpensive. They may be conducted either before planning a cohort study or a baseline in a cohort study (Maninder Singh Setia, 2016, pp. 261).

According to Crothers et al 2015 “longitudinal surveys follow the same group of respondents over time (sometimes over long periods of time such as decades) with repeated collection of the same variables. There may be disciplinary differences in focus. Because of the repeated observation at the individual level, they have more power than cross sectional observational studies, by virtue of being able to exclude time-invariant unobserved individual differences, and by virtue of observing the temporal order of events. However, some of the disadvantages of longitudinal studies include the fact that they take a lot of time and are very expensive.”

Since this research will be carried out in a particular time (20/07/16 to 27/07/2016) and phenomenon, the time horizon for this research will be cross-sectional rather than longitudinal. Further reasons for selection of cross sectional approach are limited funds and time of the researcher, which are essential requirements for longitudinal research.

3.6 Sampling Method

According to Saunders et al 2006, a sampling method “reduces the amount of data you need to collect by considering only data from a subgroup rather than all possible cases”. Henry (1990) argues that “using sampling makes possible a higher overall accuracy than a census”. There are two main sampling techniques:

- Probability sampling, according to Saunders et al 2009 it is “associated with survey-based research strategies where you need to make inferences from your sample about a population to answer your research question(s) or to meet your objectives”, “however, for populations of less than 50 cases Henry (1990) advises against probability sampling. He argues that you should collect data on the entire population

as the influence of a single extreme case on subsequent statistical analyses is more pronounced than for larger samples”.

- Non-probability sampling, according to Saunders et al 2009 “provides a range of alternative techniques to select samples based on your subjective judgement. As well it’s described as the most practical, although it does not allow the extent of the problem to be fully determined.

Non-probability sampling method provides a range of techniques for selecting the sample, where sample cannot be selected statistically at random (Saunders et al 2007)

Convenience sampling is most commonly used in behavioural sciences (Gravetter & Forzano, 2012:151), it’s built upon selections which suit the convenience of the researcher and which are “first to hand”. For this research to generate finding about consumer behaviour in relation to rental an electric car, a non-probability, convenience sampling is selected to reach sample of 101 individual respondents.

According to Stake et al 1995 “our time and access for fieldwork are almost always limited. If we can, we need to pick cases which are easy to get to and hospitable to our inquiry”.

There are some of the limitations to convenience sampling, as the researcher might get biased sample (Gravetter & Forzano, 2012:151), as the sample is not controlled. Furthermore convenience sampling causes issues with generalizability of the study (Laursen et al. 2012:158). Despite this, convenience sampling is popular sampling technique as its easier, inexpensive and less time consuming (Gravetter & Forzano, 2012:151) and is especially beneficial as the single researcher is conducting this research.

In this investigation researcher does not have access to specific sample frame, which justifies the use of the non-probability samples method. The researcher has also taken into account variables such as time and money. Based on researcher subjective judgment, sample will be selected to answer the research question, again taking under consideration time, money, contacts and deadlines. Further limitations in relation to the sample are presented in chapter 3.9 Limitations.

As per Patton (2002), sample size is dependent on research question(s) and objectives – in particular, what need to be find out, what will be useful, what will have credibility and what can be done within available resources. Important concepts of sampling are population,

sample and unit, very often sample and population are confused with one another. (Saunders et al, 2009).

Research believes that it's important to sample a wide range of nationalities, age and education level as the car rental consumer is very diverse and mostly based on the leisure consumer coming to visit Ireland from different parts of the world, but also includes well educated business consumers.

- Population: the group of people the researcher is interested in – Employees of one of the Shared Service Centre in Dublin (Car Rental Professionals), Ireland, currently 950 people, high probability of previous experience with car rental.
- Sample: A small subset of this group used for research – for survey 101 selected people from 950 SSC employees
- Unit: An individual in the population or sample.

3.7 Data Collection, Editing, Coding and Analysis

The centre of the research onion is data collection. The data collection method is a significant phase in the methodology, mostly due to the tools used to collect the data and the manner in which the research is conducted, are the factors upon which the research data stands (Saunders et al, 2012). There are two ways in which data was collected for this research. One is the secondary data collection and the second is primary data collection.

3.7.1 Secondary Data

The secondary data collection is the data that already exist and which may have been gathered for some other purpose (Kotler & Armstrong, 2011), and consist of different form like publications, books and electronic media (Saunders, 2012).

The secondary data was collected, reviewed, critically analysed and presented in the chapter three of literature review of this research. The potential limitations of the secondary data is that this data as collected for other purposes may lack relevance, accuracy, may not be contemporary and could be biased (lacking objectivity) (Kumar, 2008).

The secondary, qualitative data used for this research has been sourced from; academic journals, EBSCO data base, books and EBSCO host. In addition specific market reports were sourced using KPMG, European Environment Agency online database. All the sources of the secondary data have been referenced in the bibliography section of this paper.

3.7.2 Primary Data

The primary data refers to the information's which are gathered from the primary source of origin for the first time to explain or investigate a particular phenomenon (Kurtz et al 2009) related to the research. The value of the primary data is significant, as it can lead to new insights and greater confidence in the outcomes of the research, where secondary data allows only to build on what has been done before (Saunders et al 2012). The researcher decided to select questionnaire based data collection method in order to collect primary data research (quantitative data), decision was supported by analysing advantages and disadvantages of the questionnaire. Researcher planned the data collection with consideration of disadvantages of questionnaires in order to limit the risk.

Table 2 Questionnaire – advantages and disadvantages

Questionnaire	Advantages	Disadvantages
	Good for measuring attitudes	Could be time consuming
	Provide information about participants internal meanings and ways of thinking	Response rate is low
	High reliability and validity	Not fully administrated
	Ease of data analysis	Missing questionnaires
	Useful also for exploration	

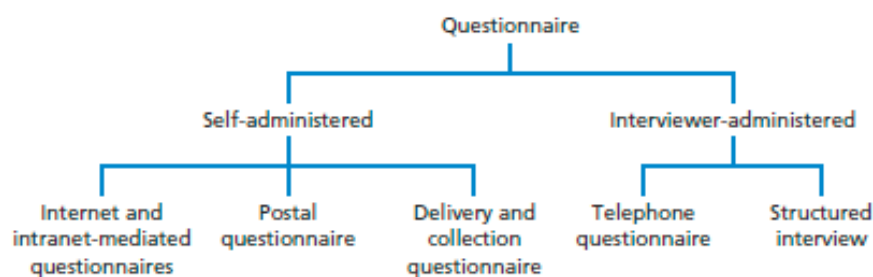
Source: Saunders et al 2009

3.7.2.1 Collection Method

According to Jankowicz et al 2005 questionnaires, if worded correctly, normally require less skill and sensitivity to administer than semi-structured or in-depth interviews.

The research option for self-administered, internet based questionnaires (survey), which allow to collect in relatively short period of time at low cost required data.

Figure 14 Questionnaire options



Source; Saunders et al 2009

The self-completion questionnaires will be used to collect the primary data. According to Denscombe et al 2007 some of the main advantages of internet based questionnaires are;

- High confidence that the right person has responded – survey distributed by email.
- Relatively short period of time required to collect the responses
- Data input automated
- Low cost of administration and execution
- Good for measuring attitudes

Some of the main disadvantages of the surveys are;

- Lack of proof how truthful the responded is
- There is no way of telling how much thought a responded has put in
- There is a risk that the survey questions are not objective but can be based on researcher personal decisions and assumptions.

The researcher will use survey software “surveymonkey”, for one month with total cost of 35 euro (<https://www.surveymonkey.com/>) It is the responsibility of the researcher to ensure the validation of the questionnaire (Hair et al 2007).

A link to the survey will be send by email to selected sample of population Appendix 1. Results will be collected presented in form of charts and analysed using “surveymonkey” software. Conclusions and recommendations will be formulated based on the above.

3.7.2.2 Questionnaire Design

According to Saunders at al 2009 the internal validity and reliability of the data collected for the primary research and the response rate achieved depend, to a large extent, on the design of the questions, the structure of the questionnaire, and the rigour of the pilot testing.

“A valid questionnaire will enable accurate data to be collected, and one that is reliable will mean that these data are collected consistently” Saunders at al 2009. Foddy (1994:17) discusses validity and reliability in terms of the questions and answers making sense. In particular, he emphasises that “the question must be understood by the respondent in the way intended by the researcher and the answer given by the respondent must be understood by the researcher in the way intended by the respondent”. Which lead to the conclusion that there are four stages that must occur if the questionnaire is to be valid and reliable.

The questionnaire will have 21 questions which are simply put and easy to understand. The questionnaire is articulated in around four main sections, first is the unit profile, which includes questions like, gender, age, nationality and education level. The second part is in relation to consumer awareness of EV cars portfolio and infrastructure in Ireland. The third part of the questionnaire is to gather data on consumer environmental awareness and the last part is to cover aspect of environmental friendly behaviours consumer adopt while selecting the renal vehicle.

The structured questionnaire design has been used with response scale of Likert – Type scale (Albaum, 1997) of 5 point, with questions scaled on 1 to 5 (1 = strongly agree, 2=agree, 3=undecided, 4=disagree and 5 = strongly disagree). The respondents will be requested to tick the appropriate degree of agreement with the question. The 7 point Likert could have been used by adding very strongly agree or very strongly disagree, but as argued by Goodwin (2010:477) & Lissitz & Green (1975) there is no clear advantage in that by adding extra refinement, but on the contrary increases the time used by the respondent (Arun Kumar Jaryal, 2013).

3.7.3 Data Analysis

Once all data is collected researcher will start analysing data and interpreting results. According to Kvale (1996) analysis occurs not only during the collection of data but after as well.

Quantitative data is popularly classified in the business statistics books into *data types* using a hierarchy of measurement, often in ascending order of numerical precision (Berman Brown and Saunders 2008; Dancey and Reidy 2008). These different levels of numerical measurement dictate the range of techniques available to researcher for the presentation, summary and analysis of the data.

According to Saunders quantitative data can be divided into two groups: *categorical* and *numerical*. Categorical data refer to data whose values cannot be measured numerically but can be either classified into sets (categories) according to the characteristics that identify or describe the variable or placed in rank order (Berman Brown and Saunders 2008).

In this research for analysing data of the survey, categorical data will be used, as the values cannot be measured numerically but can be classified into categories. Part of the data can be classified into more than two sets which can be ranked.

Software tool of SurveyMonkey and excel will be used for analysis of data. This will include visualizing the findings in form of diagrams, charts and tables which will help to identify interdependences and compare proportions and trends.

3.8 Ethical Issues

Ethics in this research will refer to the researcher appropriate behaviour in relation to the rights of those who will be part of this work, or will be affected in any way. Saunders et al 2009 argues that research ethics, is ensuring the design of the research methodology is sound and morally defensible to all those involved.

According to Cooper and Schindler (2008, pp.34) ethics are the “norms or standards of behaviour that guide moral choices about our behaviour and our relationship with others”, therefore research ethics relates to questions about how we formulate our research topic, collect data, gain access, process and store confidential data, analyse and write up our research findings in moral and responsible way (Saunders et al 2007).

The researcher main area of concern during this research is the access to the population. As per Robson (2002) and Sekaran (2003) researcher should never attempt to apply any pressure on intended participant's to grant access. The participant must have the option to withdraw at any point of time during the survey process which need to be respected by the researcher (Saunders et al 2009).

Another ethical concern is that some of the respondents does not even read through the questions and just ticks randomly, it can also not be ensured how honestly the respondents answers the questionnaires (Saunders et al 2009).

All data, findings must be kept in confidentially and researcher must be aligned with the data protection legislation. As mentioned in previous chapter SurveyMonkey was selected to administrate the questionnaire, all data will be collected and saved using this provider.

3.9 Limitations

Limitations to research methodology are primarily related to the research design choices, made by the researcher on every steps of the way as research proceeds (Creswell, 1994:18) though the research onion.

Main limitation of this research is that, it is solely concentrated on employees of one of the Shared Service Centre in Ireland and their attitudes towards EV cars as rental product, and not all population of Irish rental customers.

The researcher as an employee of one of the Car Rental companies in Ireland, was not allowed to interview the rental customers, hence decided to use Car Rental professionals for the sample population.

The different regional variables such as culture, socio economic conditions, and attitudes of society have profound effect on shaping their needs and development of the wants and demand (Chaffey, 2009). As a result the factors which may result in rental of electric car for the sample used in this research may not be applicable for the Irish rental consumers.

Another limitation to the research is that data collected by the survey strategy, which will be used in this project. Surveys in general are unlikely to be as wide-ranging as those collected by other research strategies. One of the examples will be the limit to the number of questions that any questionnaire can contain.

Furthermore subject error and observe bias are two of the risks that would compromise reliability. Although researcher has taken situational ethical stance for this study to avoid to the response bias but surveys to some extent could be prone to respondent's bias as has been argued by Kotler & Armstrong, 2011 that respondents may either try to give answers to appear clever or well educated, or just help interviewer by providing agreeable answers.

The researcher is well informed about electric cars portfolio and electric cars infrastructure in Ireland and he could erroneously think that the respondents are also well informed. In addition, personal beliefs, values and prejudices can lead into wrong assumptions, which as a result can lead to a non-objective research. The researcher has to be objective at any stage of the research. This mean that he has to avoid selectivity during the analysing process to change the results according to his personal expectations (Saunders et al 2009).

4. Data Analysis

4.1 Introduction

This chapter concentrates on the findings from the study. Saunders et al (2009) describes data analysis as a set of methods and techniques that can be used to obtain information and insights from the data.

The quantitative data, which will be analysed in this chapter was generated from the questionnaire made up of 21 questions in total, taking 3 minutes to complete on average. The basic descriptive statistics will be applied to summarise and tabulate the collected data (Field, et al 2009).

All the coding was performed in surveymonkey software and manually by researcher in excel file using the same coding scale. The details of the scale can be found under each question analysis, hence they are not repeated for each table, chart then after.

The researcher goal is to answer the research questions posted at the outset:

“What are the car rental customer’s attitudes towards rental of electric car in Ireland?”

Sub-questions;

1. Are the consumers aware of environmental issues?
2. The influence of environmental awareness and importance placed on the environment on consumer behaviour.
3. Can electric car be a first choice for car rental consumer in Ireland?
4. Does Irish car rental companies offer electric cars today?

In addition, there are different hypotheses to take into consideration, corresponding to the quantitative approach, which was selected for this research.

Hypothesis 1: The consumer perception of electric cars is low.

Hypothesis 2: The Irish Car Rental market offers wide range of electric cars to the customers

Hypothesis 3: The consumer attitude towards rental of electric cars is positive

Hypothesis 4: The consumer environmental awareness is high

Hypothesis 5: The consumer adopt environmental friendly behaviour when selecting rental vehicle

Analysis from the secondary sources will confirm these findings.

4.1.1 Reliability of the Variables (Cronbach Alpha)

The Cronbach Alpha for the collected data (calculated only for questions 5 to 20, excluding demographic profile questions Q1-Q4, and Q21 which was not mandatory) is at 0.807 level. A commonly-accepted rule of thumb is that an alpha of 0.7 (some say 0.6) indicates acceptable reliability and 0.8 or higher indicates good reliability. Very high reliability (0.95 or higher) is not necessarily desirable, as this indicates that the items may be entirely redundant.¹

Table 3 Reliability

Case Processing Summary			
		N	%
Cases	Valid	101	100.00
	Excluded	0	0.00
	Total	101	100.00

Table 4 Cronbach Alpha

Cronbach Alpha	
K	16
sumVar	14.417
Var	59.185
<u>A</u>	<u>0.807</u>

Cronbach Alpha calculated for this research is at 0.807 level which indicates good reliability.

¹ <http://www.real-statistics.com/reliability/cronbachs-alpha/>

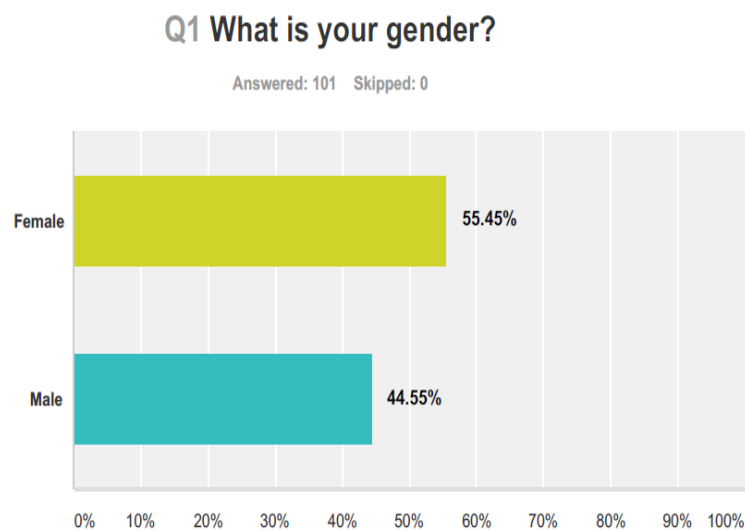
4.2 Demographic Profile of the Respondents

This section of the survey is composed of 4 questions to give the background information of the sample and profile of potential Electric vehicle rental consumers. Research believes that it's important to sample a wide range of nationalities, age and education level as the car rental consumer profile is very diverse, and mostly based on the leisure consumer coming to visit Ireland from different parts of the world, but also includes well educated, business consumers.

Question 1: What is your gender?

As mentioned in previous chapters One hundred and one respondents were selected randomly, from the population of 950 employees (Car Rental Professionals) of one on the Shared Service Centre in Dublin.

Figure 15 Q1 Survey



Answer Choices	Responses
Female (1)	55.45% 56
Male (2)	44.55% 45
Total	101

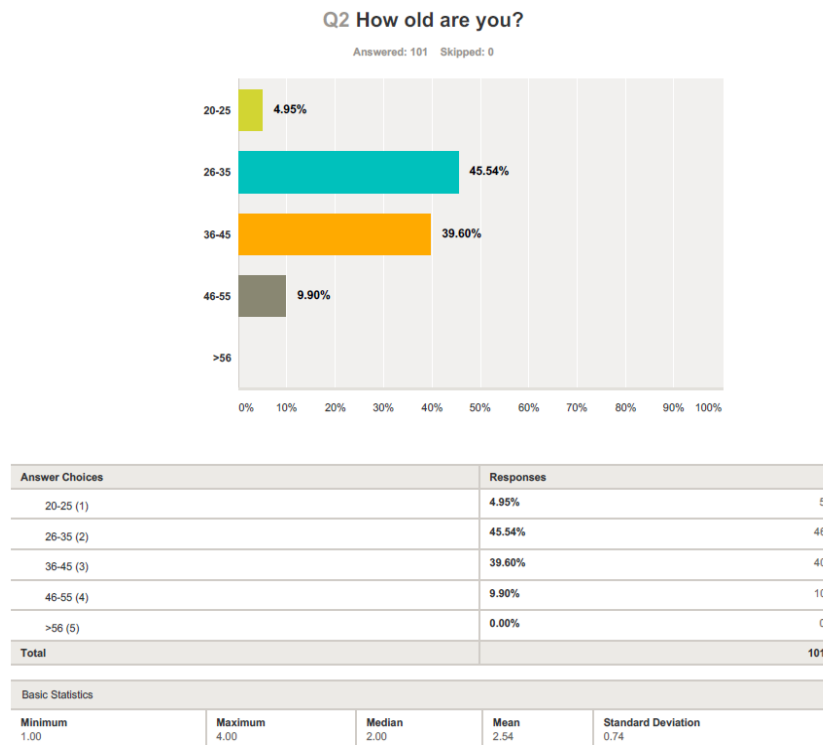
Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	2.00	1.00	1.45	0.50

Survey consisted of 56 females (55.45%) and 45 males (44.55%). No one skipped the question as it was hardcoded to mandatory. It was important for the researcher to get the responses from both females and males, as the both groups represent the Car Rental consumer in Ireland.

Questions 2: How old are you?

From the selected population, the highest number 46 (45.54%) of respondents, represent the age group of 26-35 years old. The smallest group of 5 (4.95%) was aged 20-25 years old. There were 40 respondents at age 36 to 45 years old (39.6%) and 10 respondents at age 46 to 55 years old. There were no respondents at age of 56 and over. Car Rental consumers are coming from different age groups, hence researcher aim was to have broad range of age representative.

Figure 16 Q2 Survey

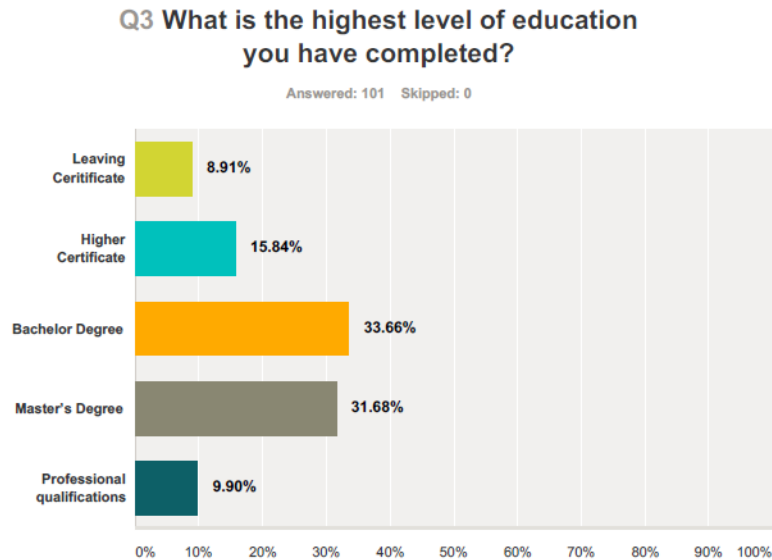


Question 3: What is the highest level of education you have completed?

33.66% of the sample has a Bachelor Degree. 31.68% of the sampled population has a Master’s Degree (Figure 17). Over 15% has Higher Certificate, and 9.9% has Professional

qualification. Based on below results researcher can see that most of the respondents are very well educated. Again Car Rental consumers can represent different education levels, hence researcher goal was to include those in order to have the broad educational profile of responders.

Figure 17 Q3 Survey



Answer Choices	Responses
Leaving Certificate (1)	8.91% 9
Higher Certificate (2)	15.84% 16
Bachelor Degree (3)	33.66% 34
Master's Degree (4)	31.68% 32
Professional qualifications (5)	9.90% 10
Total	101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	5.00	3.00	3.18	1.09

The highest number of people with Master's degree was among Italian (10), Polish (7) and Spanish (6) nationalities, as per below table;

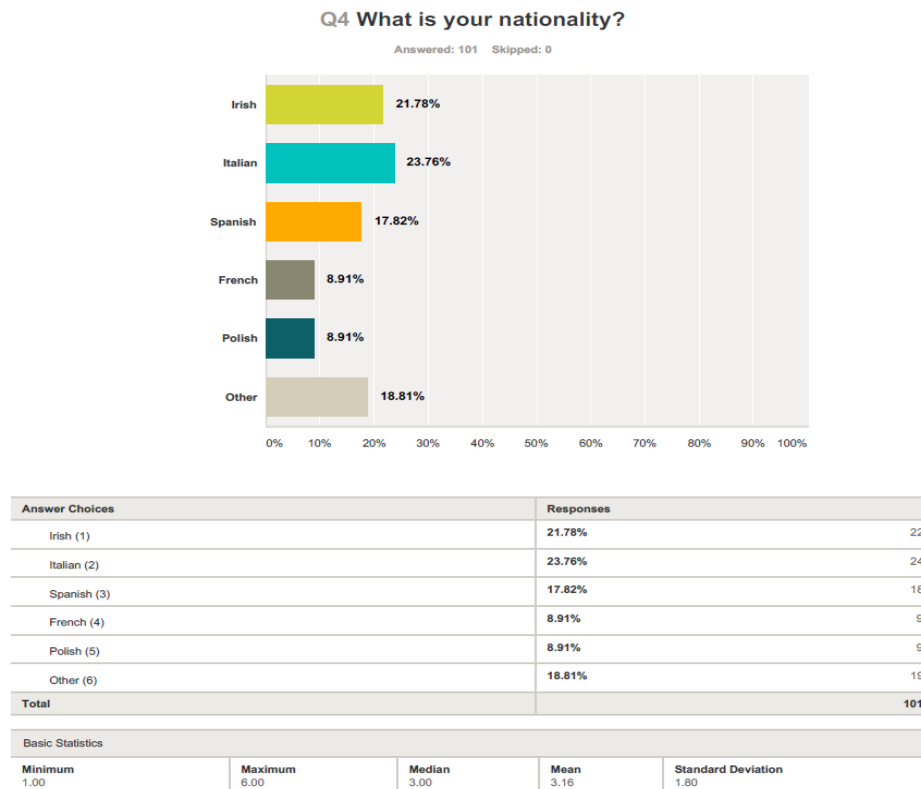
Table 5 Master's degree by nationality

Question	What is your gender?	4:
What is your nationality?	Master's Degree	your
Italian	Total	10
Polish		7
Spanish		6
French		5
Other		3
Irish		1
Grand Total		32

nationality?

Irish car rental consumer are mainly holiday makers, coming to visit the country. It was important for the researcher to show the nationality of the sample group, as each of the nationality could represent different behaviours and attitudes towards the environmental issues and possibility of rental an electric car in Ireland.

Figure 18 Q4 Survey



The highest number of respondents has Italian nationality 23.76% with Irish in second place at 21.78%. Spanish represents 17.82% of sample population with French and Polish at 8.91%. There were 18.81% of respondents which has nationality other to Italian, Irish, Spanish, French or Polish.

4.3 Electric cars portfolio and infrastructure in Ireland.

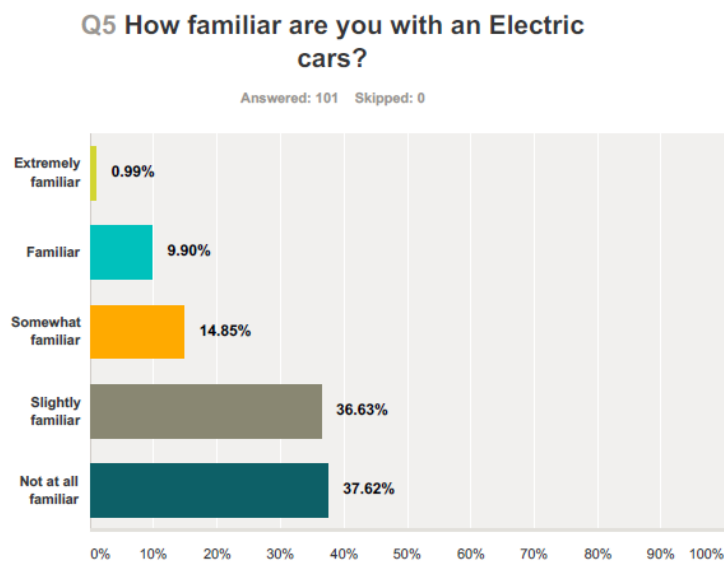
With significant growth of the market for electric vehicles in Ireland, many people are seeing the benefits, both financial and environmental, in such an investment.

The second part of the survey was design to test the knowledge of the sample population in relation to the electric cars portfolio and availability in Ireland, inducing EV cars infrastructure. This section contains 5 questions;

Question 5: How familiar are you with an Electric cars?

Over 37% of the sample population responded as they are “not at all familiar” with the electric cars. Over 36% has responded that they are “slightly familiar” with only one person from the whole population responding “extremely familiar”, a male from Italy, with Master’s degree education level (Table 5.). 14.85 % responded as they are “somewhat familiar” and 9.9% responded as they are “familiar” with an Electric cars.

Figure 19 Q5 Survey



Answer Choices	Responses
Extremely familiar (1)	0.99% 1
Familiar (2)	9.90% 10
Somewhat familiar (3)	14.85% 15
Slightly familiar (4)	36.63% 37
Not at all familiar (5)	37.62% 38
Total	101

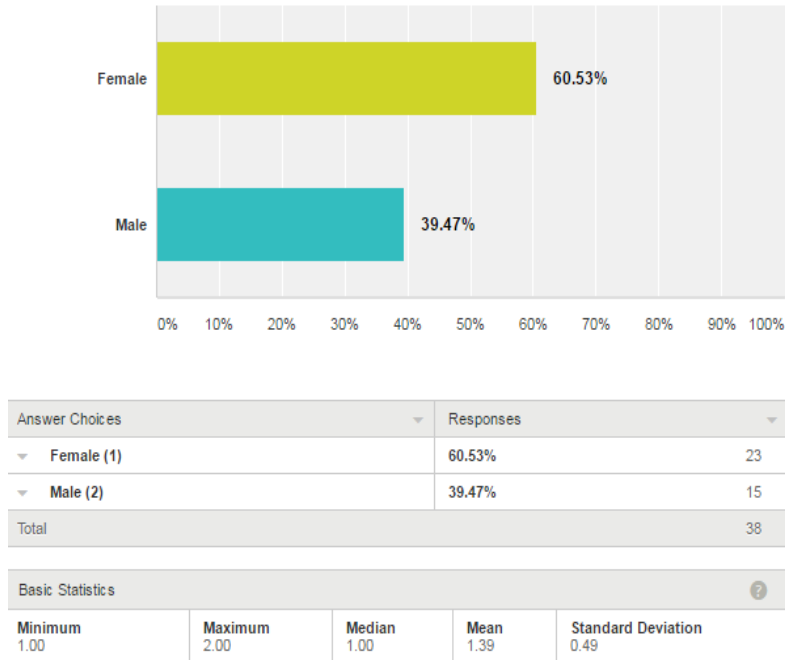
Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	5.00	4.00	4.00	1.00

Table 6 Q5 Profile of Consumer Extremely familiar with EV

What is your gender?	How old are you?	What is the highest level of education you have completed?	What is your nationality?	How familiar are you with an Electric cars?
Male	36-45	Master’s Degree	Italian	Extremely familiar

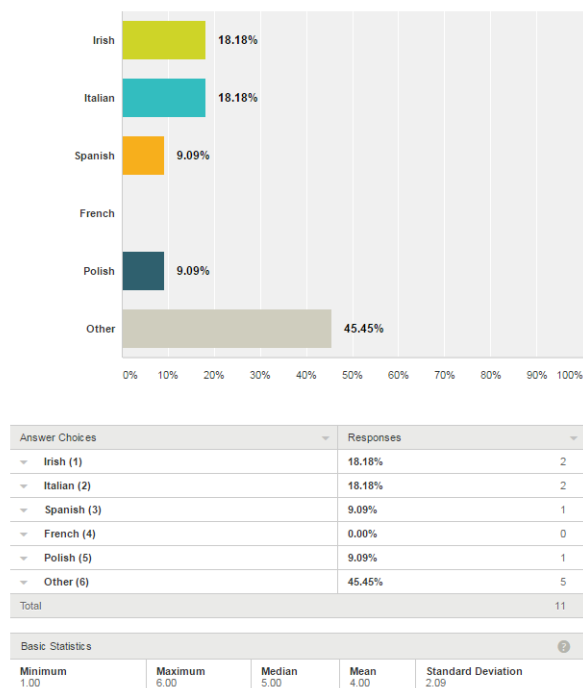
As per below *Figure 20*. 60.53% females and 39.47% males were not at all familiar with EV cars.

Figure 20 EV “no familiarity” by gender



The highest percentage of familiarity (“Extremely Familiar” and “Familiar”) with electric cars was noted among “Other”, Irish and Italian nationalities;

Figure 21 EV familiarity by nationality



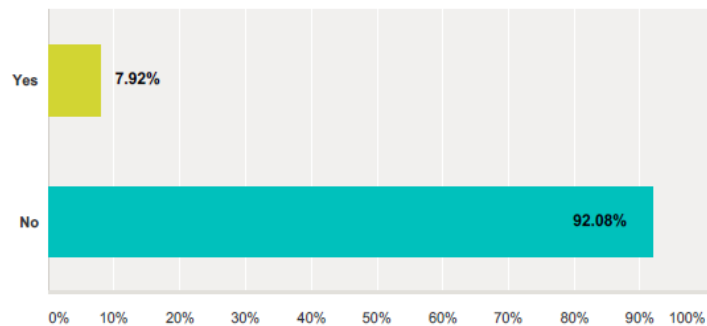
Question 6: Have you driven an electric car in the past?

From the selected sample of the population, only 8 (7.92%) respondents have driven an electric car in the past. Majority of the population have not driven an electric car 92.08% or 93 respondents, hence the standard deviation number is only at 0.27.

Figure 22 Q6 Survey

Q6 Have you driven an electric car in the past?

Answered: 101 Skipped: 0



Answer Choices		Responses	
Yes (1)		7.92%	8
No (2)		92.08%	93
Total			101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	2.00	2.00	1.92	0.27

Out of the 8 respondents who have driven an EV car, 2 are from Spain, 2 from Italy, 3 are “other” nationality and one French. 7 of them are male and only one female.

Table 7 Consumers with previous EV driving experience profile analysis

What is your gender?	How old are you?	What is the highest level of education you have completed?	What is your nationality?	How familiar are you with an Electric cars?	Have you driven an electric car in the past?
Male	36-45	Master's Degree	Spanish	Somewhat familiar	Yes
Female	26-35	Professional qualific	Spanish	Familiar	Yes
Male	36-45	Bachelor Degree	Other	Familiar	Yes
Male	46-55	Master's Degree	Other	Not at all familiar	Yes
Male	36-45	Bachelor Degree	Other	Somewhat familiar	Yes
Male	46-55	Higher Certificate	Italian	Not at all familiar	Yes
Male	26-35	Master's Degree	Italian	Slightly familiar	Yes
Male	20-25	Master's Degree	French	Slightly familiar	Yes

Only respondents from Poland and Ireland did not drive EV vehicle (Table 8).

Table 8 Mean Question 6.

Row Labels	Average of Have you driven an electric car in the past?
Irish	2.00
Polish	2.00
Italian	1.92
Spanish	1.89
French	1.89
Other	1.84
Grand Total	1.92

Hypothesis 1;

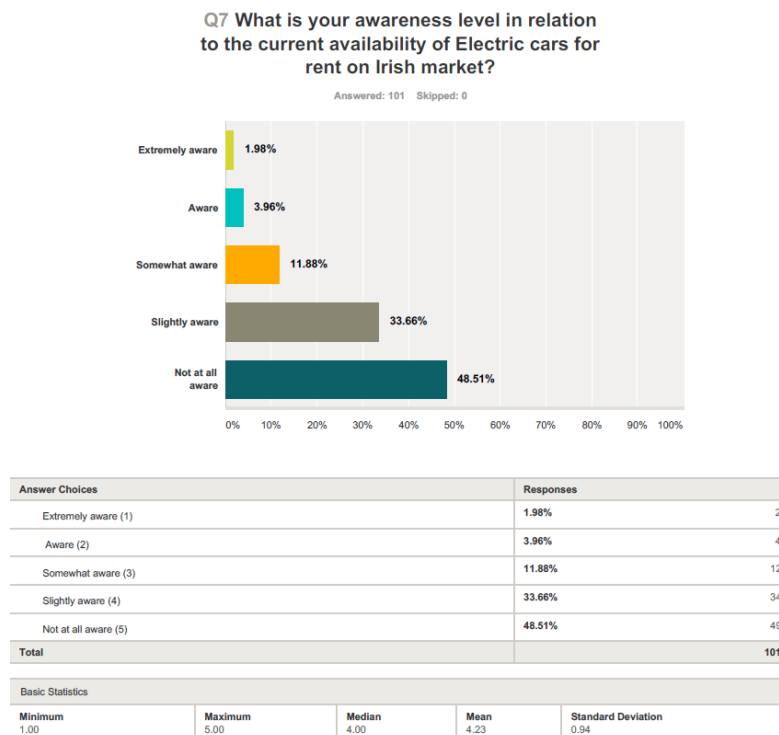
The consumer perception of electric cars in low.

Based on the above results of the survey, Hypothesis 1 can be accepted. Less than 8% of population has driven an electric car and over 70% of population is not familiar or only slightly familiar with EV.

Question 7: What is your awareness level in relation to the current availability of Electric cars for rent on Irish market?

Majority of the sample selected, has answered “not at all aware” 48.51% or 49 respondents. 33.66% are only “slightly aware” with 11.88% somewhat aware. Two respondents (1.98%) are extremely aware of current availability of EV, and 4 are aware (3.96%).

Figure 23 Q7 Survey



As expected respondents with Irish nationality were the top group answering “not all aware” Figure 24, as they also presented the lowest experience with rental in Ireland, Figure 25.

Figure 24 Awareness of EV cars for rent by nationality

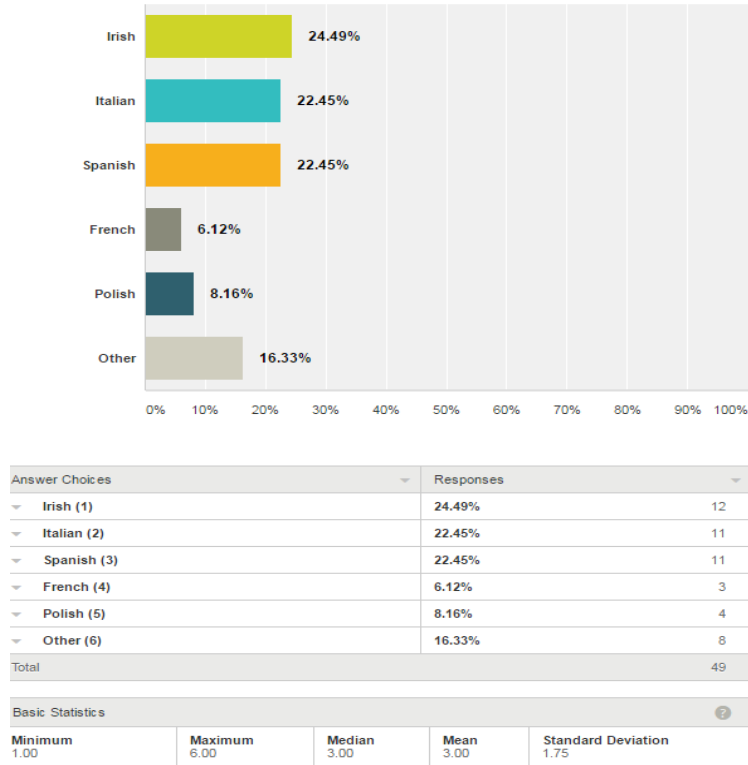
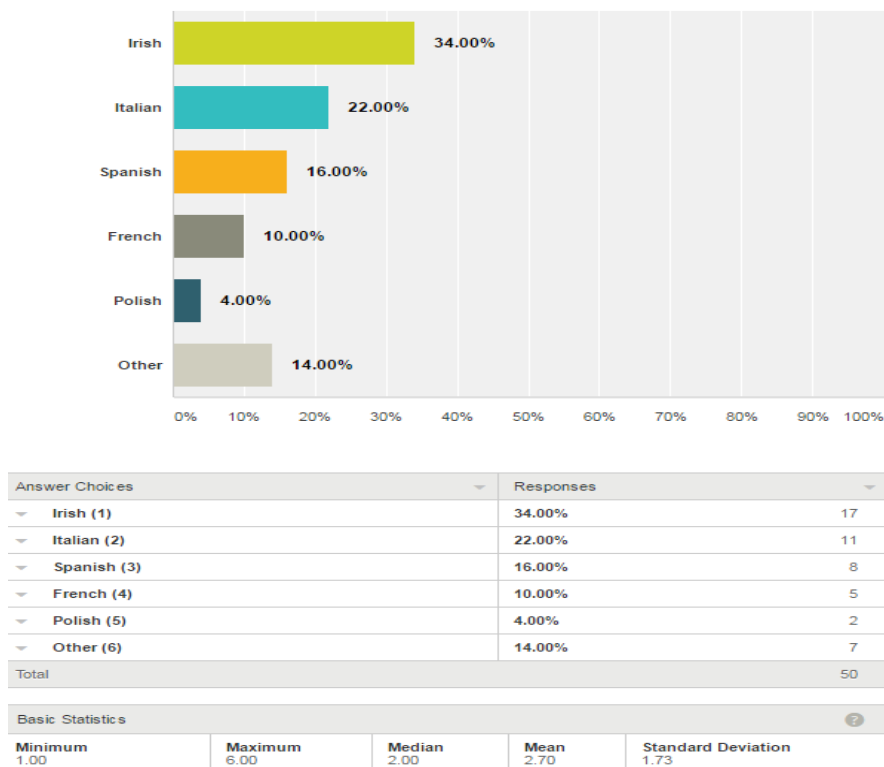


Figure 25 Rental experience in Ireland by nationality



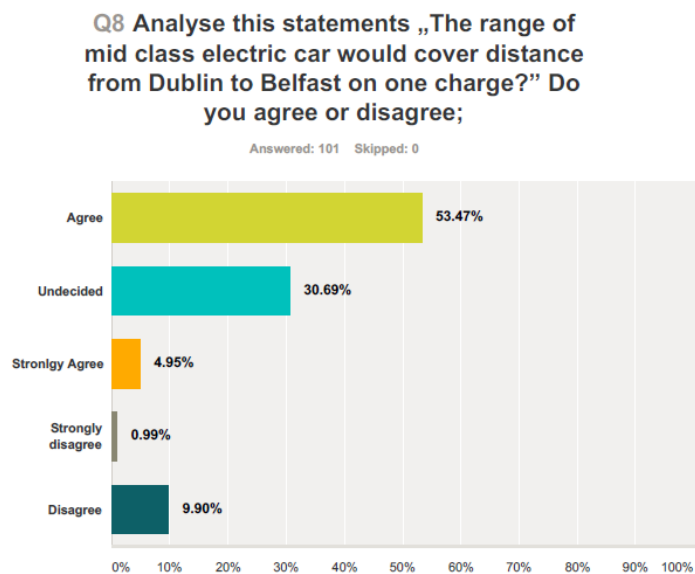
Hypothesis 2: The Irish Car Rental market offers wide range of electric cars to the customers

It could be assessed based on the above results of the survey and secondary data research, that Hypothesis 2 should be rejected. Currently none of the main Car Rental companies offers EV cars for rent, in addition sample group confirms this with majority answering as has no awareness or very little in relation to the currently availability of EV cars for rent in Ireland.

Question 8: Analyse this statements „The range of mid class electric car would cover distance from Dublin to Belfast on one charge?” Do you agree or disagree;

4.95 % (5) of respondents has strongly agreed and over 50% (54) has agreed with the statement, that the range of mid class EV car would allow to cover the distance from Dublin to Belfast on one charge. 30.69% (31) were undecided and 9.9% (10) disagreed with 0.99% (1) strongly disagreed, Table 8.

Figure 26 Q8 Survey



Answer Choices	Responses
Agree (2)	53.47% 54
Undecided (3)	30.69% 31
Strongly Agree (1)	4.95% 5
Strongly disagree (5)	0.99% 1
Disagree (4)	9.90% 10
Total	101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	5.00	2.00	2.49	0.78

Among the respondents who have answered “disagree” and “strongly disagree”, are respondents who also are not familiar with electric cars, and have never driven an EV car (apart from one male).

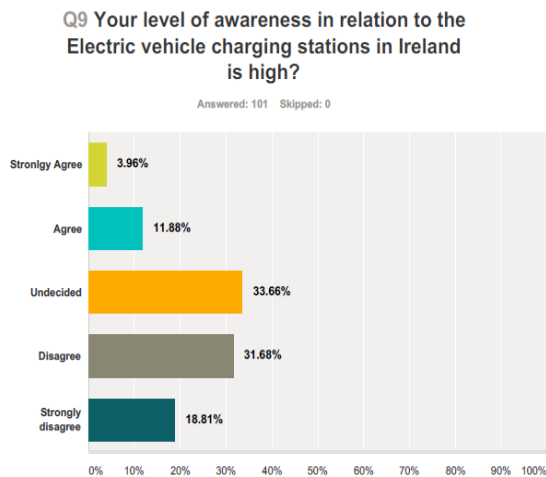
Table 9 Q8 Demographic analysis – “Disagree” and “Strongly Disagree”

What is your gender?	How old are you?	What is the highest level of education you have completed?	What is your nationality?	How familiar are you with an Electric cars?	Have you driven an electric car in the past?	What is your awareness level in relation to the current availability?	Analyse this statements „The range of mid class electric car would
Male	36-45	Bachelor Degree	Spanish	Not at all familiar	No	Not at all aware	Disagree
Female	26-35	Master’s Degree	Spanish	Not at all familiar	No	Not at all aware	Disagree
Female	36-45	Master’s Degree	Polish	Slightly familiar	No	Not at all aware	Strongly disagree
Female	36-45	Professional qualifica	Other	Familiar	No	Not at all aware	Disagree
Female	46-55	Leaving Certificate	Other	Not at all familiar	No	Not at all aware	Disagree
Male	46-55	Bachelor Degree	Other	Familiar	No	Aware	Disagree
Male	46-55	Master’s Degree	Other	Not at all familiar	Yes	Slightly aware	Disagree
Female	26-35	Master’s Degree	Italian	Not at all familiar	No	Slightly aware	Disagree
Female	26-35	Professional qualifica	Irish	Somewhat familiar	No	Somewhat aware	Disagree
Female	26-35	Higher Certificate	Irish	Not at all familiar	No	Not at all aware	Disagree
Female	36-45	Leaving Certificate	French	Not at all familiar	No	Slightly aware	Disagree

Question 9: Your level of awareness in relation to the Electric vehicle charging stations in Ireland is high?

The highest number of respondents has been undecided 34 (33.66%). 32 (31.68%) sample has disagreed with 18.81% (19) strongly disagreeing. Only 3.96% (4) has strongly agreed with the statements and 11.88% (12) has agreed.

Figure 27 Q9 Survey



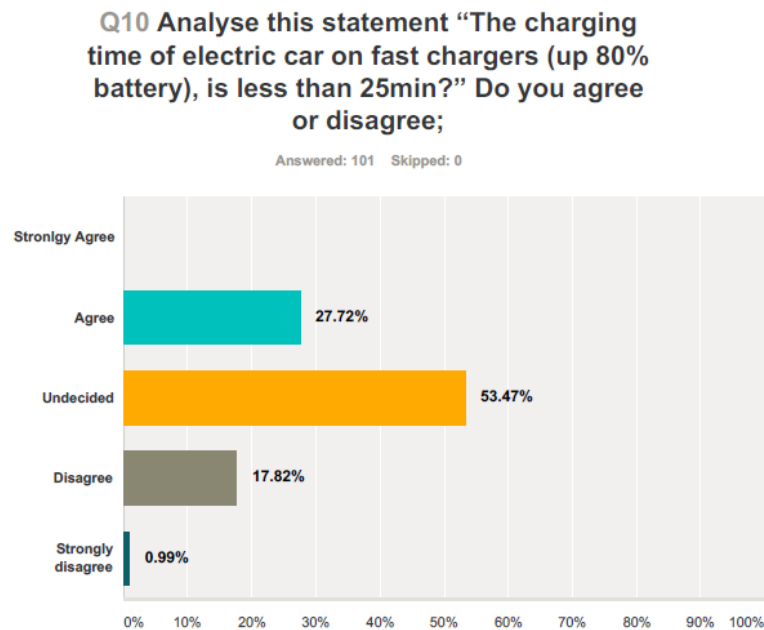
Answer Choices	Responses
Strongly Agree (1)	3.96% 4
Agree (2)	11.88% 12
Undecided (3)	33.66% 34
Disagree (4)	31.68% 32
Strongly disagree (5)	18.81% 19
Total	101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	5.00	4.00	3.50	1.05

Question 10: Analyse this statement “The charging time of electric car on fast chargers (up 80% battery), is less than 25min?” Do you agree or disagree;

Majority of the sample population was undecided 53.47% (54), with 17.82% (16) disagreeing and 1 (0.99%) strongly disagreeing. 27.72% (28) of the population has agreed with the statement.

Figure 28 Q10 Survey



Answer Choices	Responses
Strongly Agree (1)	0.00% 0
Agree (2)	27.72% 28
Undecided (3)	53.47% 54
Disagree (4)	17.82% 18
Strongly disagree (5)	0.99% 1
Total	101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
2.00	5.00	3.00	2.92	0.70

Table 10 Mean based on the education level

Row Labels	Q5	Q7	Q8	Q9	Q10
Bachelor Degree	3.88	4.32	2.26	3.41	2.91
Higher Certificate	4.31	4.19	2.81	3.31	2.94
Leaving Certificate	4.44	4.44	2.78	4.22	2.78
Master's Degree	4.16	4.22	2.41	3.53	3.03
Professional qualifications	3.00	3.80	2.70	3.30	2.70
Grand Total	4.00	4.23	2.49	3.50	2.92

Based on the data from Table 10. Researcher can see that respondents with professional qualification are the most familiar with the EV cars from the selected sample group. They have as well the best knowledge in relation to the charging stations in Ireland, and the charging time of the EV vehicle.

4.4 Car Rental experience of the sample group

Researcher main goal for this part of the research was to understand if previous rental experience could influence the decision in relation to potential rental of an electric car in future.

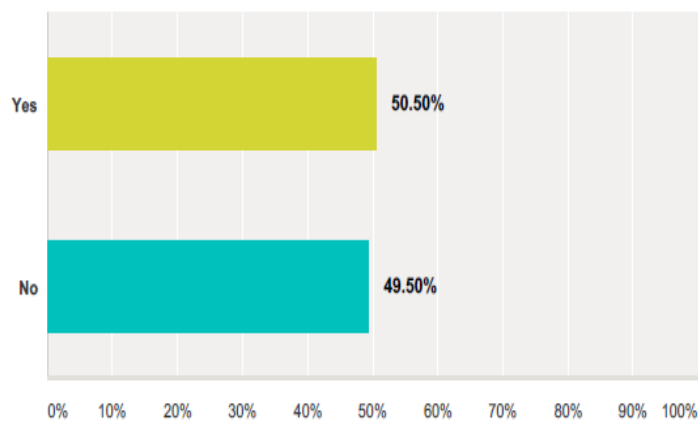
Question 11: Have you ever rented a car in Ireland?

50.5% (51) respondents has previous rental experience in Ireland with 49.5% (50) with no rental experience in Ireland. Among them, as expected Irish nationalities are the top number, Table 6.

Figure 29 Q11 Survey

Q11 Have you ever rented a car in Ireland?

Answered: 101 Skipped: 0



Answer Choices	Responses
Yes (1)	50.50% 51
No (2)	49.50% 50
Total	101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	2.00	1.00	1.50	0.50

Table 11 No rental experience by nationality

Have you ever rented a car in Ireland?	No
Count of What is your gender?	
What is your nationality?	Total
Irish	17
Italian	11
Spanish	8
Other	7
French	5
Polish	2
Grand Total	50

Based on the below data in Table 10, it's interesting to note that drivers with previous rental experience in Ireland were less in favour of potential rental of EV (Mean=3.18), comparing to respondents with not rental experience in Ireland (Mean=3.08)

Table 12 Previous Rental experience to potential rental of EV

Row Labels	Average of What is the probability level of choosing an electric car for your rental in Ireland?
1	3.18
2	3.08
Grand Total	3.13

When looking at the mean data by nationality, Polish are the top renters of the cars in Ireland Q11, based on the sample group, and Italians are showing the most positive attitudes towards rental of an EV Q12. Irish nationalities are showing negative attitude towards rental of EV car, Mean >3.5.

Table 13 Mean for Q11 and Q12

Row Labels	Q11	Q12
Polish	1.22	3.11
Other	1.37	3.16
Spanish	1.44	2.94
Italian	1.46	2.88
French	1.56	3.11
Irish	1.77	3.55
Grand Total	1.50	3.13

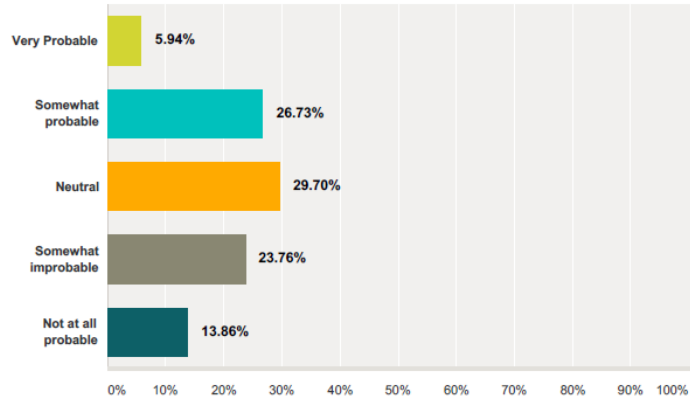
Question 12: What is the probability level of choosing an electric car for your rental in Ireland?

Only 6 respondents (5.94%) has confirmed high probability of selecting EV car as their next option for rental in Ireland. 27 (26.73%) has option for somewhat probable and 30 (29.7%) has answered as they are neutral to this option. 24 respondents (23.76%) has answered as this is somewhat improbable with 14 (13.86%) answering as this in not all probable.

Figure 30 Q12 Survey

Q12 What is the probability level of choosing an electric car for your rental in Ireland?

Answered: 101 Skipped: 0



Answer Choices	Responses
Very Probable (1)	5.94% 6
Somewhat probable (2)	26.73% 27
Neutral (3)	29.70% 30
Somewhat improbable (4)	23.76% 24
Not at all probable (5)	13.86% 14
Total	101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	5.00	3.00	3.13	1.13

Respondents who option for “not at all probable” are not so familiar with environmental issues and as well not all of them consider EV cars as “green products”, Table 15.

Table 14 “Not at all probable” EV rental, consumer analysis

What is your gender?	How old are you?	What is the highest level of education you have completed?	What is your nationality?	What is the probability level of choosing an electric car for your rental?	How familiar are you with environmental issues?	How would the environmental issues influence your choice of	Would you consider electric cars as „green products“?
Female	36-45	Master's Degree	Polish	Not at all probable	Familiar	Somewhat influential	Strongly Agree
Female	36-45	Master's Degree	Polish	Not at all probable	Somewhat familiar	Somewhat influential	Agree
Male	36-45	Bachelor Degree	Italian	Not at all probable	Familiar	Somewhat influential	Disagree
Female	46-55	Leaving Certificate	Other	Not at all probable	Slightly familiar	Slightly influential	Disagree
Male	46-55	Master's Degree	Other	Not at all probable	Not at all familiar	Not at all influential	Strongly disagree
Female	26-35	Master's Degree	Italian	Not at all probable	Somewhat familiar	Influential	Undecided
Male	26-35	Master's Degree	Italian	Not at all probable	Familiar	Not at all influential	Strongly Agree
Female	26-35	Leaving Certificate	Irish	Not at all probable	Slightly familiar	Slightly influential	Agree
Male	26-35	Bachelor Degree	Spanish	Not at all probable	Somewhat familiar	Not at all influential	Undecided
Female	26-35	Bachelor Degree	Other	Not at all probable	Extremely familiar	Somewhat influential	Agree
Female	26-35	Bachelor Degree	Irish	Not at all probable	Familiar	Somewhat influential	Undecided
Female	26-35	Higher Certificate	Irish	Not at all probable	Somewhat familiar	Not at all influential	Agree
Female	26-35	Higher Certificate	Irish	Not at all probable	Somewhat familiar	Slightly influential	Agree
Male	20-25	Master's Degree	French	Not at all probable	Not at all familiar	Not at all influential	Strongly Agree

Respondents who answered “very probable”, are also considering EV cars as “green products” and they believe that environmental issues can influence their choice of a rental car. They are also “extremely familiar” or “familiar” with environmental issues, Table 14.

Table 15 “Very probable” EV rental, consumer profile analysis

What is your gender?	How old are you?	What is the highest level of education you have completed?	What is your nationality?	What is the probability level of choosing an electric car for your rental?	How familiar are you with environmental issues?	How would the environmental issues influence your choice of	Would you consider electric cars as „green products“
Male	26-35	Professional qualification	Polish	Very Probable	Familiar	Influential	Agree
Female	46-55	Bachelor Degree	Other	Very Probable	Extremely familiar	Influential	Agree
Female	46-55	Master's Degree	Italian	Very Probable	Familiar	Influential	Agree
Male	46-55	Higher Certificate	Italian	Very Probable	Not at all familiar	Somewhat influential	Agree
Male	36-45	Bachelor Degree	Other	Very Probable	Familiar	Influential	Agree
Male	36-45	Master's Degree	Italian	Very Probable	Extremely familiar	Extremely influential	Undecided

Hypothesis 3;

The consumer attitude towards rental of electric cars is positive

Based on the results of the survey respondents Hypothesis 3, can be rejected. The highest number of votes of the sample population (38 votes) has option for “not at all probable” or “somewhat improbable” when asked for the probability of rental the EV car. Further discussion in relation to the potential reasons behind this trend can be found in chapter 5 and chapter 6 of this paper, and is mainly linked to sample population limited awareness in relation to the EV cars availability for rental and the EV infrastructure in Ireland.

4.5 Environmental issues – awareness level

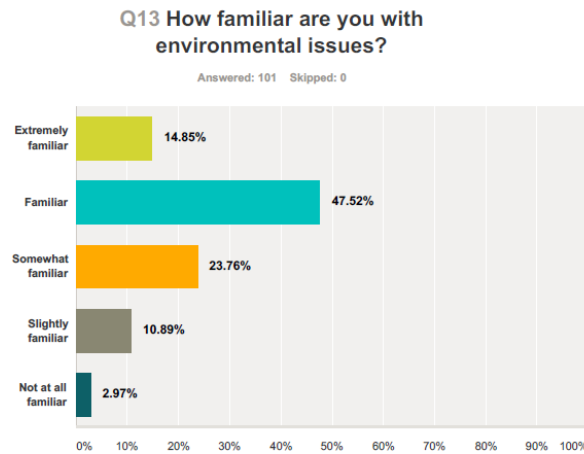
Environmental awareness is an issue of concern to many group of people. It is extremely important topic for both marketing practitioners and policy makers in today world. Not only because there are heightened concerns about the impact consumers’ buying and consumption behaviours are having on the environment (Johnson et al. 2008), but because businesses are facing increased pressure to incorporate environmental and social responsibilities into their corporate strategies.

According to secondary data, many researchers have looked at environmental knowledge when exploring green attitudes and behaviour. This is because environmental knowledge is frequently assumed to drive green consumption behaviour.

Question 13: How familiar are you with environmental issues?

Over 47% of respondents confirmed as they are familiar with environmental issues and 14.85% are extremely familiar. 23.76% are somewhat familiar and 10.89% slightly familiar. 2.97% confirmed as they are not at all familiar with the environmental issues.

Figure 31 Q13 Survey



Answer Choices		Responses	
Extremely familiar (1)		14.85%	15
Familiar (2)		47.52%	48
Somewhat familiar (3)		23.76%	24
Slightly familiar (4)		10.89%	11
Not at all familiar (5)		2.97%	3
Total			101
Basic Statistics			
Minimum	Maximum	Median	Mean
1.00	5.00	2.00	2.40
			Standard Deviation
			0.97

Among the respondents who option for “extremely familiar” and “familiar” are 31 females and 32 males. The highest number of respondents are Spanish nationalities 14, Italian 13 and Irish 12. In terms of the education level 23 of them have completed Master’s and 23 Bachelor degree.

Table 16 Environmental issues extremely familiar and familiar consumer profile

How familiar are you with environmental issues? (Multiple Items)				
Count of RespondentID		What is your gender?		
What is your nationality?	What is the highest level of education you have completed?	Female	Male	Grand Total
Spanish	Bachelor Degree	5	1	6
	Higher Certificate		1	1
	Master's Degree	3	3	6
	Professional qualifications	1		1
Spanish Total		9	5	14
Italian	Bachelor Degree		3	3
	Higher Certificate	1	1	2
	Leaving Certificate		1	1
	Master's Degree	2	5	7
Italian Total		3	10	13
Irish	Bachelor Degree	2	3	5
	Higher Certificate	1		1
	Leaving Certificate	2		2
	Master's Degree		1	1
	Professional qualifications	2	1	3
Irish Total		7	5	12
Other	Bachelor Degree	3	4	7
	Master's Degree	1	1	2
	Professional qualifications	1	2	3
Other Total		5	7	12
French	Bachelor Degree	2		2
	Higher Certificate	1		1
	Master's Degree		4	4
French Total		3	4	7
Polish	Higher Certificate	1		1
	Master's Degree	3		3
	Professional qualifications		1	1
Polish Total		4	1	5
Grand Total		31	32	63

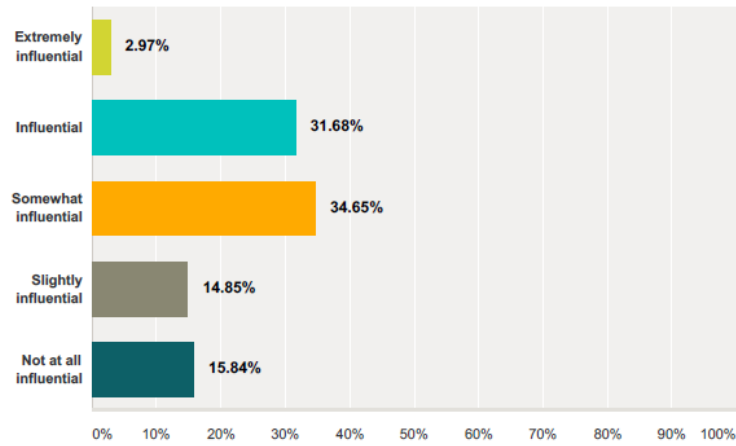
Question 14: How would the environmental issues influence your choice of rental vehicle?

Majority of the respondents confirmed that the environmental issues would “somewhat influence” 34.65% and “influence” 31.68% their choice of the rental vehicle. Only 2.97% respondents option for “extremely influential”. On the other end 14.85% of the sample population has answered as “slightly influential” and 15.84% “not at all influential”.

Figure 32 Q14 Survey

Q14 How would the environmental issues influence your choice of rental vehicle?

Answered: 101 Skipped: 0



Answer Choices	Responses	
Extremely influential (1)	2.97%	3
Influential (2)	31.68%	32
Somewhat influential (3)	34.65%	35
Slightly influential (4)	14.85%	15
Not at all influential (5)	15.84%	16
Total		101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	5.00	3.00	3.09	1.10

Respondents who consider environmental issues as influential or somewhat influential are mainly females (40 vs 27 males) with Bachelor and Master’s degree. Those respondents are also “familiar”, “somewhat familiar” or “extremely familiar” with environmental issues.

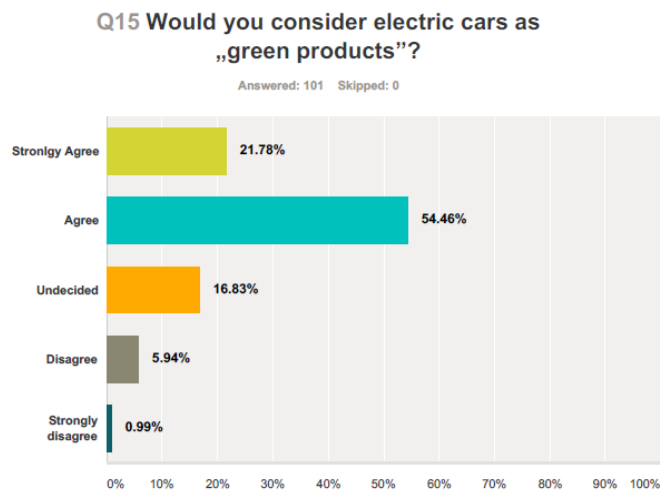
Table 17 Environmental issues Q14 respondents profile

How would the environmental issues influence your choice of rental vehicle? (Multiple Items)					
Count of RespondentID		What is your gender?			
How familiar are you with environmental issues?	What is the highest level of education you have completed?	Female	Male	Grand Total	
<input checked="" type="checkbox"/> Familiar	Bachelor Degree	7	6	13	
	Master's Degree	7	5	12	
	Professional qualifications	2	3	5	
	Higher Certificate	2	2	4	
	Leaving Certificate	1	1	2	
Familiar Total		19	17	36	
<input checked="" type="checkbox"/> Somewhat familiar	Bachelor Degree	2	2	4	
	Higher Certificate	2	2	4	
	Master's Degree	3		3	
	Professional qualifications	2		2	
	Leaving Certificate	1		1	
Somewhat familiar Total		10	4	14	
<input checked="" type="checkbox"/> Extremely familiar	Bachelor Degree	4	2	6	
	Master's Degree	1	3	4	
	Professional qualifications	1		1	
	Higher Certificate	1		1	
Extremely familiar Total		7	5	12	
<input checked="" type="checkbox"/> Slightly familiar	Master's Degree	2		2	
	Higher Certificate	1		1	
	Leaving Certificate	1		1	
Slightly familiar Total		4		4	
<input checked="" type="checkbox"/> Not at all familiar	Higher Certificate		1	1	
Not at all familiar Total			1	1	
Grand Total		40	27	67	

Question 15: Would you consider electric cars as „green products”?

Majority of the sample population sees the electric cars as “green products”, 21.78% strongly agree and 54.46% agrees. 16.83% of the respondents were undecided. 5.94% has disagreed and .99% strongly disagreed.

Figure 33 Q15 Survey



Answer Choices		Responses	
Strongly Agree (1)		21.78%	22
Agree (2)		54.46%	55
Undecided (3)		16.83%	17
Disagree (4)		5.94%	6
Strongly disagree (5)		0.99%	1
Total			101
Basic Statistics			
Minimum	Maximum	Median	Mean
1.00	5.00	2.00	2.10
			Standard Deviation
			0.84

Researcher has found interesting that the person who has “strongly disagreed” with the above statement was actually driving an EV car in the past, as well rented a car in Ireland. This respondent, unfortunately is not showing any environmental awareness neither adopt environmental friendly behaviours when selecting rental vehicle.

Table 18 Q15 “Strongly Disagree” analysis

Have you driven an electric car in the past?	Have you ever rented a car in Ireland?	What is the probability level of choosing an electric car for your rental?	How familiar are you with environmental issues?	How would the environmental issues influence your choice of your choice of green products?	Would you consider electric cars as green products?	When renting a car, what level of importance the CO2	When renting a car, what level of importance the Fuel	When renting a car, what level of importance the Engine	Analyse this statement „Renting an electric car instead of a	Would you pay premium on rental rate for renting an Electric car?
Yes	Yes	Not at all probable	Not at all familiar	Not at all influential	Strongly disagree	Not at all important	Of little importance	Somewhat important	Strongly disagree	Extremely unlikely

Based on the mean data from Table 19 females are seeing EV cars more likely as “green products” comparing to males. From the other hand males are presenting big environmental awareness.

Table 19 Mean for Environmental issues based on Sex.

Row Labels	Q13	Q14	Q15	
Female		2.46	2.96	2.00
Male	2.31	3.24	2.22	
Grand Total	2.40	3.09	2.10	

Hypothesis 4;

The consumer environmental awareness is high

According to the results of the survey, and in specific section designed to test the sample population environmental awareness, Hypothesis 4 can be accepted. Majority of the respondents (63) confirmed they high familiarity or familiarity with environmental issues by answering to the question 13.

4.6 Environmental friendly behaviours

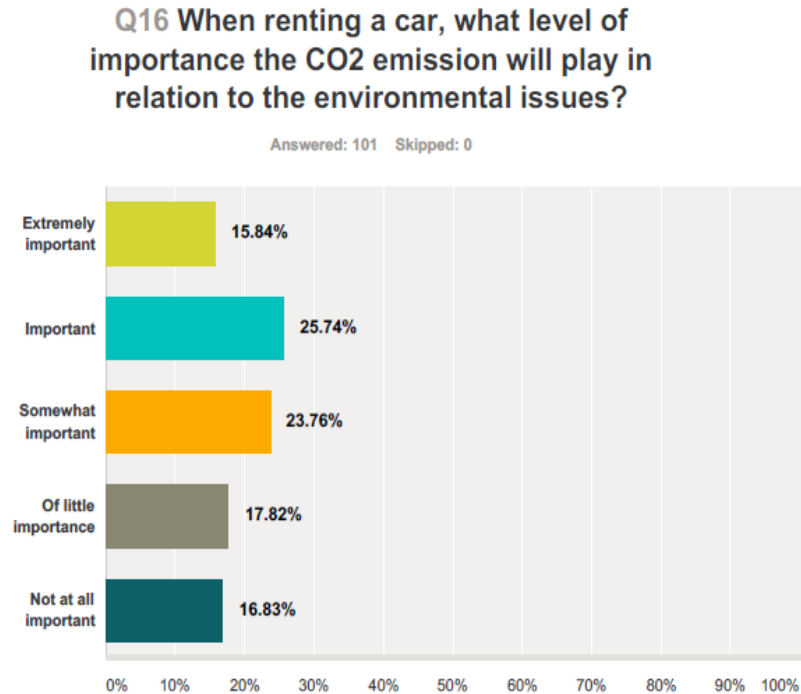
In this section of the survey researcher goal was to test if the sample population adopt environmentally friendly behaviours when selecting a rental car.

Question 16: When renting a car, what level of importance the CO2 emission will play in relation to the environmental issues?

On this question population answers were not consistent, and they were across all the options. The highest number of respondents 26 see the CO2 as important element of the rental car

selection. 24 people, see this as somewhat important. 16 respondents see this as extremely important and 18 has option for “of little importance” and 17 for “not at all important”.

Figure 34 Q16 Survey



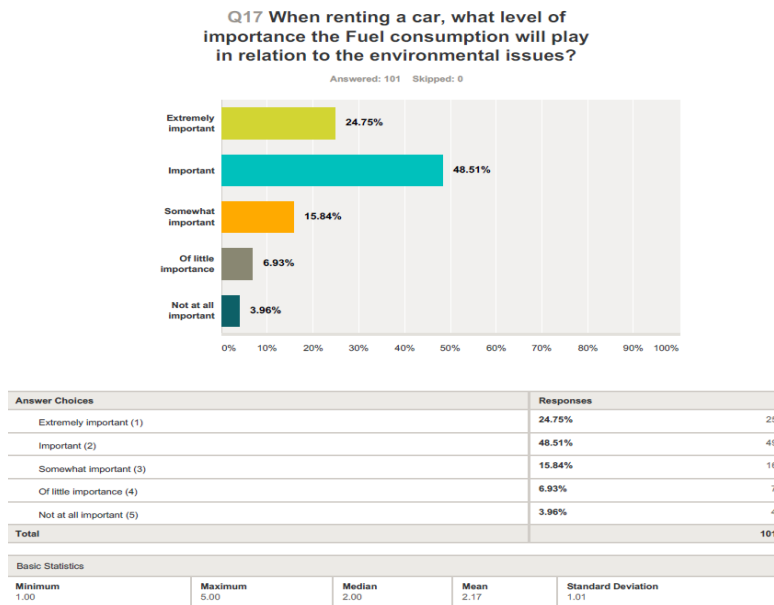
Answer Choices	Responses
Extremely important (1)	15.84% 16
Important (2)	25.74% 26
Somewhat important (3)	23.76% 24
Of little importance (4)	17.82% 18
Not at all important (5)	16.83% 17
Total	101

Basic Statistics				
Minimum	Maximum	Median	Mean	Standard Deviation
1.00	5.00	3.00	2.94	1.32

Question 17: When renting a car, what level of importance the Fuel consumption will play in relation to the environmental issues?

Based on the Figure 35. Researcher can see that “Fuel consumption” is extremely important (24.75%) or important (48.51%) for the over 70% of survey respondents. For 15.84% of respondents it’s “somewhat important”, for 6.93% is “of little importance” and for 3.96% it’s not important at all.

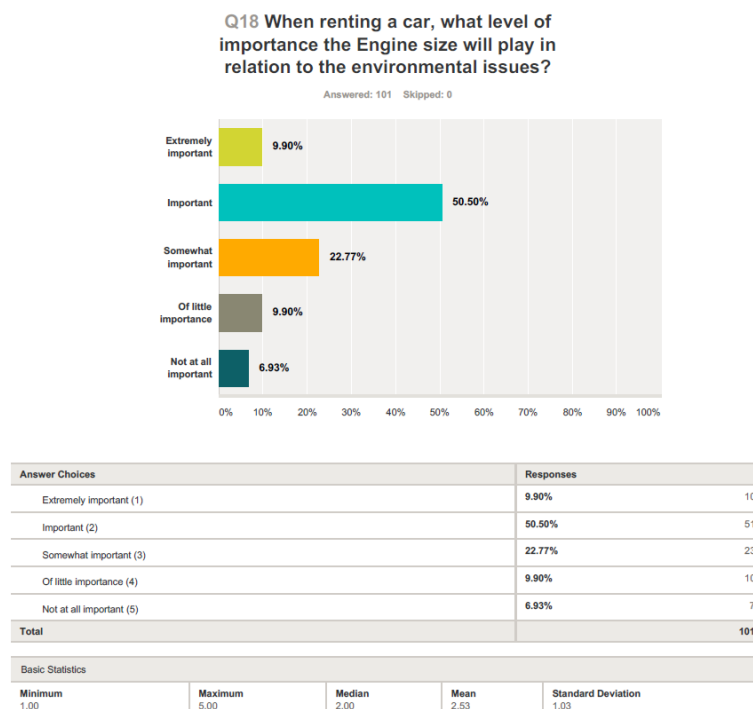
Figure 35 Q17 Survey



Question 18: When renting a car, what level of importance the Engine size will play in relation to the environmental issues?

Again similar to previous question, “engine size” is “extremely important” (9.9%) or “important” (50.5%) for majority of respondents over 60%. For over 22% it’s “somewhat important” and for 9.9% is “of little importance”. 6.96% respondents consider “engine size” as not important at all.

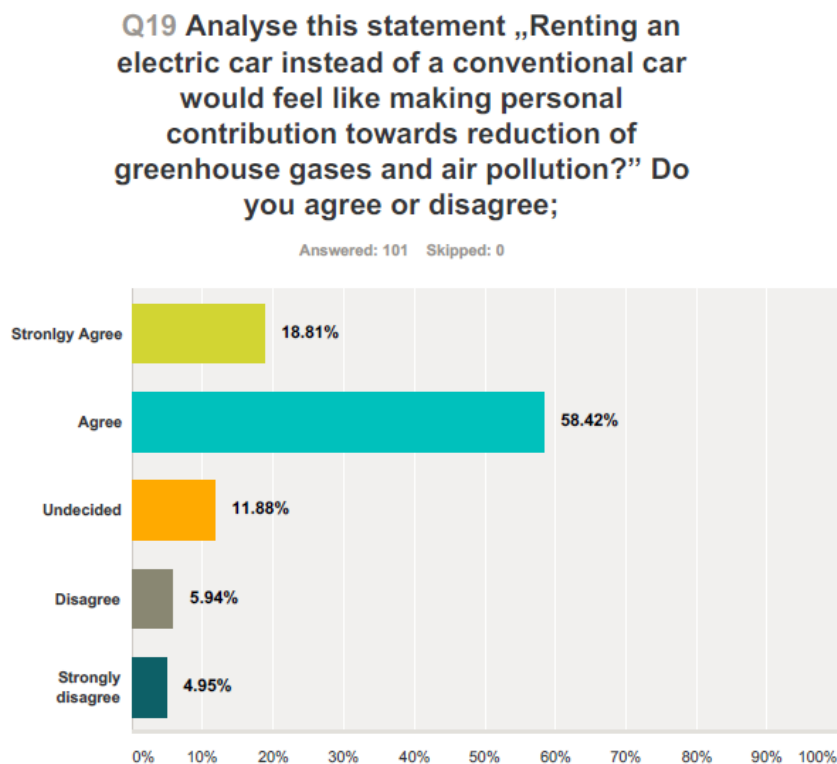
Figure 36 Q18 Survey



Question 19: Analyse this statement „Renting an electric car instead of a conventional car would feel like making personal contribution towards reduction of greenhouse gases and air pollution?” Do you agree or disagree;

Majority (over 70%) of the selected sample of the population has agreed (58.42%) and strongly agreed (18.81%) that actual rental of EV car would make contribution towards reduction of air pollution. 11.88% of respondents were undecided, 5.94% disagreed and 4.95% strongly disagreed.

Figure 37 Q19 Survey



Answer Choices	Responses
Strongly Agree (1)	18.81% 19
Agree (2)	58.42% 59
Undecided (3)	11.88% 12
Disagree (4)	5.94% 6
Strongly disagree (5)	4.95% 5
Total	101

Basic Statistics				
Minimum 1.00	Maximum 5.00	Median 2.00	Mean 2.20	Standard Deviation 0.98

According to mean data for the questions 16 to 17 and the age of the respondents (Table 20), it's interesting to see that respondents aged 20-25 are not concerned about CO2 emission of the vehicle, but they are the second group when it comes to the fuel consumption Q17. Group of the people aged 36-45 shows the biggest environmental friendly approach, when selecting the rental vehicle. Along all the questions they have presented the highest concern score in relation to the CO2 emissions, fuel consumption, and engine size. As well they strongly consider a rental of EV car as personal contribution towards reduction of air pollution.

Table 20 Mean data for Q16-Q19 and age of sample population

Row Labels	Q16	Q17	Q18	Q19
20-25	4.20	2.20	3.20	2.80
26-35	2.98	2.37	2.59	2.17
36-45	2.68	1.88	2.33	2.03
46-55	3.20	2.40	2.80	2.70
Grand Total	2.94	2.17	2.53	2.20

Hypothesis 5:

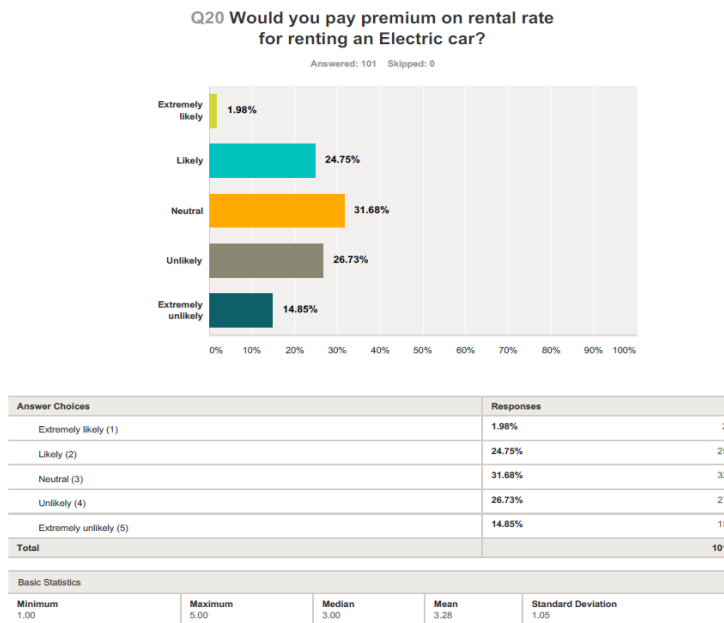
The consumer adopt environmental friendly behaviour when selecting rental vehicle

It could be confirmed that based on the results of the survey, in specific question 16 to question 19 (Table 19), sample population does adopt environmental friendly behaviours. Majority of the consumers consider fuel consumption and engine size as important elements of their decision when selecting rental vehicle. They also consider CO2 emission in some extent, and have positive attitude towards EV cars as a contributors to reduction of air pollutions.

Question 20: Would you pay premium on rental rate for renting an Electric car?

Another question was in relation to the premium price associated with the rental of the electric car. Only two (1.98%) respondents would “extremely likely” willing to pay extra with 25 (24.75%) “Likely” to accept premium. Majority of respondents 32 (31.68%) were “neutral” in relation to this question. 27 (26.73%) has responded as they would unlikely pay premium with 15 (14.85%) extremely unlikely.

Figure 38 Q20 Survey



According to mean data for the question 20 and the age (Table 21 Mean data for Q20 and age, nationality of the sample group), nationality. French people from the sample group at age 36-45 are the most likely group, which would agree to pay premium on rental an electric car in Ireland. In general French people from sample group are showing the best score in relation to the premium price on EV rental, and they are followed by Italian. We can also note that Irish people are against paying premium on EV rental, especially in group aged 20-25.

Table 21 Mean data for Q20 and age, nationality of the sample group.

Row Labels	Average of Would you pay premium on rental rate for renting an Electric car?
French	2.56
20-25	3.00
26-35	2.50
36-45	2.25
46-55	3.00
Italian	2.88
20-25	5.00
26-35	2.73
36-45	2.89
46-55	2.67
Polish	3.00
26-35	3.00
36-45	3.00
Spanish	3.06
26-35	3.20
36-45	2.88
Other	3.68
26-35	3.33
36-45	3.75
46-55	4.00
Irish	3.95
20-25	4.50
26-35	4.15
36-45	3.50
46-55	3.00
Grand Total	3.28

The question number 21 was not mandatory and was linked to the previous question 20.

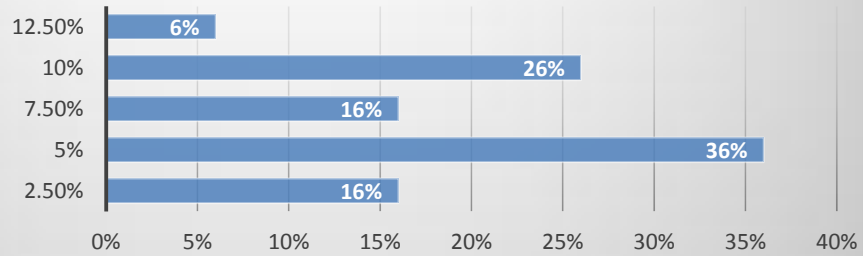
Question 21: If in question 20. You have answered likely or extremely likely, what premium would you willing to accept?

The respondents which had option for *likely* or *extremely likely* in question 20, where asked what premium they would accept of EV car rental.

In total 27 respondents have option for *likely* or *extremely likely*, one of them have not provided answer to question 21. Additional 22 respondents have answered Q21 but option for “*Unlikely*”, “*Neutral*” and “*Extremely unlikely*”, hence total valid responses were 26. 16% respondents option for 2.5% premium, with 36% going for 5% premium. 16% of selected sample population would accept to pay 7.5% of premium and 26%, 10% increase. Only 6% of the respondents would accept 12.5% increase.

Figure 39 Q21 Survey (not mandatory)

If in question 20. You have answered likely or extremely likely, what premium would you willing to accept?



	2.50%	5.00%	7.50%	10.00%	12.50%
■ If in question 20. You have answered likely or extremely likely, what premium would you willing to accept?	16%	36%	16%	26%	6%

5. Discussion

This chapter of the research will discuss the findings of the data analysis from the previous chapter 4, and research objectives, questions by discussing the findings of the primary and secondary research.

Throughout this research, the researcher analysed different attitudes and behaviours of selected sample group (Car Rental Professionals) in relation to the environmental issues, and potential rental of an electric vehicle in Ireland, but as well the basic knowledge around electric vehicles and EV infrastructure in Ireland.

Overall findings indicated that all respondents regardless of nationality, age or educational level, are aware of environmental issues, which is the answering one of the research questions.

The Environmental issues can influence the car rental process in a significant way, in some isolated cases. The respondents considered CO2 emissions, engine size and fuel consumption as important elements in regards to the environmental issues during their car rental decision process. Nevertheless, it was noted from the secondary research that attitudes act as a trigger

for purchasing process, and it's challenging to direct consumers purchase behaviours without firstly impacting their attitudes. As a result it's extremely important to understand how the consumer's attitudes towards electric cars could be impacted.

As noted in secondary data review by Fazio, Lenn and Effrein at al 1984, consumers who expect that they will need to deal with similar information at a future time will be more likely to start forming attitudes in anticipation of this event. If the consumers are lacking the basic information's around the products or events it's difficult for them to develop positive attitudes towards them. Moreover "attitudes are usually represented as being positive or negative, favourable or unfavourable to an object, idea, or other entity" (Foxall et al 1998), hence the results of our survey confirms neutral position of respondents in relation to the potential rental of an electric vehicle which is directly linked to the lack of knowledge. From the other hand sample population has shown positive mean in relation to the part of the questions which were not directly linked to the Irish market but more generally to electric vehicles, which again confirms the lack of the easy accessible information, available to the population in Ireland.

What is clear based on the survey data analysis of the chapter 4.3, is the lack of the knowledge among all respondents in relation to the electric cars availability, inclusive actual infrastructure in Ireland. Moreover the researcher was very surprised to see Irish respondents as the least aware of the EV infrastructure in their own country.

As explained by researcher during literature review, Salomon et al 20013 noted that, some of the issues can arise at any stage of the consumption process. One of the sub-objective of the research was to analyse consumer awareness in relation to the Electric cars and infrastructure in Ireland, as we can see, above results confirmed low awareness, and low awareness generate pre-purchase issue (Salomon, 2013), which can lead again to neutral position of respondents in relation to the potential rental of an electric vehicle.

The researcher also noted that sample population of the researcher has rejected or option for neutral position for the proposition of increased rate for electric vehicle. It's interesting to see that population is fully aware of environmental issues, in most cases is even adopting the environmental friendly behaviours, but is not willing to pay extra for the product which has confirmed as "green product". Respondents who would accept the premium, are mainly prepared to pay 5% and 10% extra.

Based on the data collected from the primary and secondary research, researcher can note that rental consumers are not ready for the electric cars as their first choice for the rental vehicle, this could be highly associate with the current situation where there is no electric cars available for rent today in Ireland, by any of the major rental companies.

6. Conclusions

The goal of this dissertation was to explore the attitudes towards the rental of an electric vehicle in Ireland. For this reason the specific objectives and sub-objectives were established in chapter 1 of this paper.

The first sub-objective was satisfied through secondary data research. The researcher clearly identified the behaviour, attitudes and the relationship between them. Models described in the literature re-view have demonstrated that attitudes act as predictor of behaviour, and moreover as a highly influential trigger of the decision process. A specific type of attitude which directly will impact the behaviours, is developed depending how consumers perceived a product or object. Consumers can only adopt two types of behaviours. They can like or dislike the product, hence this will drive the purchase decision. Consumers either will purchase the product in which they have interest or they will not, because their attitude is negative towards this specific product. The researcher has also proved in the primary research findings that attitudes have a direct influence on behaviour when selecting a rental vehicle. The topic of consumer attitudes and behaviour is widely investigated and access to the specific literature, journals or business reviews was easy for the purpose of this research.

In the secondary research, the researcher also identified environmental issues directly linked to the transportation and cars in particular. The connection between environmental issues and consumer behaviour was also explored. Environmental concern is extremely important topic for both marketing practitioners and policy makers in today world, because there are heightened concerns about the impact consumers buying and consumption behaviours are having on the environment. From the car rental business point of view this topic is also relevant as there is a cost pressure put on the business this days in relation to the CSR (Corporate Social Responsibility), and the aspect of rental of fleet of electric vehicles would for sure be seen as step in the more sustainable business model. For this part of the dissertation researcher has used specific business reports which were in details describing today's regulations as well plans for the Europe and Ireland for coming years in relation to the CO2 emissions.

The challenging part of the secondary data review was the part in relation to the Car Rental Market in Ireland, as there is very limited data available for general re-view. Even the researcher is currently working for one of the players in Irish car rental business, there was no response to his request in relation to the general information around market segmentation, volumes of transactions and demographic profile of consumers.

The primary data confirmed the strong relation between the attitudes and behaviours. The attitudes were negative towards rental of electric vehicle mainly due to lack of the knowledge around EV vehicles availability and the infrastructure in Ireland. General perception of EV cars as "green products" was high. Another valid point was that many respondents have presented environmental friendly behaviours during their decision process. They have considered CO2 emissions, engine size and fuel consumption as important elements in regards to the environmental issues during their decision process. Implication of premium prices was not seen as positive aspect of the electric car rental process, most of the neutral or against extra charge.

In summary this research has successfully answered the research question and fulfilled the objective. Electric cars technology is there, waiting for the customers, unfortunately based on the results of this project it seems like customers are just not ready yet, or more likely they are just not enough educated in relation to this new technology. It's important to see that people are associating electric cars with "green product", that they are aware of environmental issue, and that they are actually considering them when renting a vehicle.

Another positive aspect is that Ireland is really at the top of the list in Europe in terms of the infrastructure for the electric vehicles.

6.1 Recommendations

This research has focused on overall impact of the consumer attitudes and behaviour while purchasing car rental product. It was noted in the research that limited knowledge of the product and infrastructure in general has been responsible for pre-purchase issue, and as result neutral position of respondents in relation to the potential rental of an electric vehicle

6.1.1. Recommendation for the industry

The results of the research findings in the field of customer awareness and willingness of acceptance of new products, brings value to the Car Rental Industry in Ireland. Marketing people, product and brand managers working in the rental business can use the data of this research as a base for further analysis/research in order to successfully launch Electric vehicles in their fleet portfolio.

Research would also recommend a cooperation between Electric car manufactures and Car Rental Companies in Ireland in order to implement pilot programs. This could generate benefits for both parties, as many people would like to buy an electric vehicle but firstly they would love to live with it for a while, and this gap could be filled by Car Rental Companies. A program which would allow customer to rent a vehicle for a week, if he would not like the car, he would need to pay only for one week of rental rate, but if he would like it, he could purchase this vehicle. This program would also work as marketing tool, person which would drive the car for a week, would meet the family, friends, co-workers and the subject of the electric vehicle would travel around as well.

6.1.2 Recommendation “Consumer attitudes towards electric cars for rent”.

As noted previously in the research, consumer attitudes in relation to rental of EV vehicle in Ireland is neutral, and mainly driven by pre-purchase issues. This issues should be addressed by education of the consumers and promotion of the EV vehicles in general. As noted in chapter 6.1.1 this could be a general industry effort, maybe supported by Irish Government or Environmental Agency.

6.1.3 Further Research recommendation

Finally the researcher recommends a further investigation into this subject but based on the sample of the Irish car rental customers. Unfortunately due to time, and money limitation this was not possible to achieve during this project. The researcher believes that data collected from the customers of different car rental companies operating in Ireland would benefit the industry and hopefully recommend the EV cars for rental.

Self-Reflection

The MBA program at Dublin Business School provided me with full range of learning tools and allowed me to develop even further my academic and personal strengths, but at the same time challenged me in different ways, new to me. Actually, for a start writing in active voice using “I” feels rather special, after typing 20.000 words of dissertation in passive voice.

Writing this section means that I am at the final stage of my dissertation process, and I can stop and look back on the journey and reflect on what I have just accomplished, both intellectually and emotionally. A project which started almost 5 months ago with the approval of my proposal for this dissertation is coming to the end.

Selection of a topic for the research is considered as one of the most important decisions anyone will have to take in his academic period, including myself. MBA dissertation apart from being an academic research, is in a way a reflection of what the researcher would like to

achieve in his professional career. It's his personal academic portfolio which he needs to use as a selling point when progressing in professional environment.

Consumer behaviour is a complex, multi-faceted phenomenon of purchasing patterns and habits of the people, so why I decided to choose and link this with electric cars and rental market? "Green products" have been highly successful in many segments of economy, including car sales. The development of electric vehicles in last 10 years has seen significant acceleration, especially in US, where diesel has never been as popular as in Europe. Recent problems of number 1 car maker VW Group with CO2 emission on their diesel vehicles also helped to promote electric cars as great alternative to conventional combustion engines. Irish market in terms of electric cars portfolio and infrastructure looks very attractive. At the same time environmental awareness of people in general is improving year of year. More people understand the challenges of today's world in terms of the pollution and they tend to adopt environment friendly behaviours. I have been personally very interested to see how all these aspects could be put together and tested in the form of the research which would look at the consumer attitudes and behaviour in relation to new product which would be rental of electric vehicle. There is substantial difference in consumer behaviour when it comes down to spending money on given type of product, linked with the environmental awareness made it quite interesting for me to research.

As the subject was very interesting, I have soon realised that consumer behaviour is not as straightforward as my original idea was. A good example of how different behaviour each consumer can adopt are the words of Henry Ford "if I'd asked people what they wanted, they would have said a faster horse". Confused, I read more books on consumer behaviour from different authors like "Philip Kotler & Gary Armstrong (2011), Solomon et al, (2012) and Paul Baines et al. (2011)" to name a few, along with many journals. Another aspect of the research was the environmental awareness of the consumers and how this affects their purchase decision. Among different studies, there are two main reasons why consumers are going for the green cars; being economy (Diamond, 2009; Gallagher & Muehlegger, 2011) and concern for the environment (Ewing & Sarigöllü, 2000; Jansson, 2011; Koller, Floh, & Zauner, 2011). Which lead me to believe that Electric cars should be seen as desired products in Irish Car Rental market.

After a good few weeks of reading I have finished my literature review with some much appreciated idea of the consumer behaviour, including towards “green products” and environmental issues.

The next stage of my research adventure was selection of the research methodology. Specific skills are required to be able to select the correct theory and then to present and analyse the results of the research. As for this dissertation I have decided to use quantitative research model with self-administrated survey. I strongly believe that survey model allowed me to collect objective data without influencing the results of the questioner. The questionnaire was designed and administrated with the help of surveymonkey service, which was another learning experience for me, as I have never used this service before. Questions design process was very exciting and I had to link each of them to my dissertation objectives, which was not always straight forward but with the help my supervisor Mike, I was able to succeed.

Survey was then distributed within Shared Service Centre, where I currently work. Using my contacts I have emailed link to my survey to over 50 people including some of the supervisors asking them to distribute this further to their teams. I have manage to collect 101 response in less than a week which I was very pleased about.

Some of the results are very interesting. Personally I am pleased to see how many people is actually aware and concerned about our environment. Many of them tend to adopt environmental friendly behaviours which lead to a great gap in the market portfolio including car rental.

In conclusion, I have realised that MBA is a substantial investment both financially and time wise. The price which I had personally pay, but as well my close family, my wife and my little daughter was significant, saying that the successful graduation taste even better. This project confirmed my motto that “*hard work always pays off*” and that the road to the success is not always straightforward, but my goal is always to win the war not the single battle.

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Appendices

Appendix 1 Survey Email request

FW: Survey for my research - Message (HTML)

FILE MESSAGE

Ignore Delete Reply Reply Forward Meeting More
All

BB Team Email To Manager Done
Reply & Delete Create New

Move OneNote Actions

Assign Mark Categorize Follow Policy Unread Tags Up

Translate Find Related Select Zoom

Mon 25/07/2016 10:15

Michal Skadlubowicz
FW: Survey for my research

To Janos Szabo; Adriana Vavrova; Cecilia Fernandez; Celia Aranzazu Valdes Berki

Retention Policy International 5 year (5 years) Expires 26/07/2021

i You forwarded this message on 25/07/2016 15:53.
This message was sent with High importance.

FindTime

Hi Guys,

I am at the final stage of my MBA course, and currently working on my dissertation.

Below survey will allow me to gather my primary research data for the project, and along with secondary data already reviewed draw some discussion, recommendation.

<https://www.surveymonkey.com/r/XVVDHQ5>

Could you please take 5 minutes of your **break time** and answer the questions?

I really appreciate your help and input.

Michal Skadlubowicz
Senior Financial Accountant - Fleet Accounting – Italy, France, BeLux, Germany
Hertz Europe Service Centre Ltd. | Swords Business Park, Swords, Co.Dublin Ireland
Phone: 00353 18133372
mskadlubowicz@hertz.com | www.hertz.com

Hertz.

Appendix 2 Questionnaire



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

Welcome to My Survey

I am a MBA student at the Dublin Business School and the following data will be used to carry out the market research that I am doing to finalise my thesis.

Throughout this research, the researcher will attempt to understand how high is the environmental awareness of car rental consumer, and how this can influence the car group selection while booking the rental. Are the car rental customers willing to accept new technology?

Please take a couple of minutes of your time to fill out the entire form.

Thank you for participating in my survey. Your feedback is important.



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* 1. What is your gender?

- Female
- Male

* 2. How old are you?

- 20-25
- 26-35
- 36-45
- 46-55
- >56



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 3. What is the highest level of education you have completed?

- Leaving Certificate
- Higher Certificate
- Bachelor Degree
- Master's Degree
- Professional qualifications

* 4. What is your nationality?

- Irish
- Italian
- Spanish
- French
- Polish
- Other



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 5. How familiar are you with an Electric cars?

- Extremely familiar
- Familiar
- Somewhat familiar
- Slightly familiar
- Not at all familiar

* 6. Have you driven an electric car in the past?

- Yes
- No



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 7. What is your awareness level in relation to the current availability of Electric cars for rent on Irish market?

- Extremely aware
- Aware
- Somewhat aware
- Slightly aware
- Not at all aware

* 8. Analyse this statements „The range of mid class electric car would cover distance from Dublin to Belfast on one charge?“ Do you agree or disagree;

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 9. Your level of awareness in relation to the Electric vehicle charging stations in Ireland is high?

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

* 10. Analyse this statement "The charging time of electric car on fast chargers (up 80% battery), is less than 25min?" Do you agree or disagree;

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 11. Have you ever rented a car in Ireland?

- Yes
- No

* 12. What is the probability level of choosing an electric car for your rental in Ireland?

- Very Probable
- Somewhat probable
- Neutral
- Somewhat improbable
- Not at all probable



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 13. How familiar are you with environmental issues?

- Extremely familiar
- Familiar
- Somewhat familiar
- Slightly familiar
- Not at all familiar

* 14. How would the environmental issues influence your choice of rental vehicle?

- Extremely influential
- Influential
- Somewhat influential
- Slightly influential
- Not at all influential



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 15. Would you consider electric cars as „green products“?

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

* 16. When renting a car, what level of importance the **CO2 emission** will play in relation to the environmental issues?

- Extremely important
- Important
- Somewhat important
- Of little importance
- Not at all important



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 17. When renting a car, what level of importance the **Fuel consumption** will play in relation to the environmental issues?

- Extremely important
- Important
- Somewhat important
- Of little importance
- Not at all important

* 18. When renting a car, what level of importance the **Engine size** will play in relation to the environmental issues?

- Extremely important
- Important
- Somewhat important
- Of little importance
- Not at all important



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

* 19. Analyse this statement „Renting an electric car instead of a conventional car would feel like making personal contribution towards reduction of greenhouse gases and air pollution?“ Do you agree or disagree;

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly disagree

* 20. Would you pay premium on rental rate for renting an Electric car?

- Extremely likely
- Likely
- Neutral
- Unlikely
- Extremely unlikely



Can electric cars win their place in Irish Car Rental industry? - An investigation into consumer behaviours, attitudes in relation to the rental of Electric car in Ireland

21. If in question 20. You have answered **likely** or **extremely likely**, what premium would you willing to accept?

- 12.5%
- 10%
- 7.5%
- 5%
- 2.5%