



Bachelor's thesis
 Master's thesis
 Licentiate's thesis
 Doctoral dissertation

Subject	International Business	Date	1.7.2020
Author(s)	Muhammad Rahimuddin	Number of pages	26168+appendices
Title	Innovation Adoption of New E-Scooters Service in Finland On Consumer Perspective		
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ABSTRACT

The aim of the research was to understand the innovation adoption of new e-scooters service in Finland on consumer perspective. The changing world, the air pollution and the greenhouse gas emissions from the fossil fuel have led to the innovation of less polluting and more energy efficient sources of transportation. For this study, survey questionnaire was designed and distributed among the respondents. Different questions were asked from the respondents related to scooter purchase behavior, convenience, ease and whether they find it expensive or not. The findings revealed that people do not need any manual guide to use scooter, they think it will reduce environmental pollution, it is a new concept but is expensive to afford and they would want to have a tests drive before purchasing it. From the major analysis, it has been figured out that the youth are the most abundant user of this technology. The reason as indicated in the analysis is the living style and preference of the consumers. However, the findings also reflect a critical fact that almost 85 percent of the respondents prefer walking as the major mode of traveling. And only a 22.5 percent of the respondent indicated a positive attitude towards scooter as their favorite mode to travel. It is recommended that manufacturers and distributors need to create compatible and affordable new and innovative technologies and also, the company or dealer should interact or communicate information to the consumer or bring an innovative change in minds of consumers.

Key words	Innovation Adoption, e-Scooters, Consumer Perspective
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Innovation Adoption of New E-Scooters Service in Finland

On Consumer Perspective

Master's Thesis
in International Business

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June 25, 2020
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1 INTRODUCTION

1.1 Background

Many countries around the world are experiencing the fast paced growth in gasoline powered scooters that is a major shift away from the low emission modes of the transportation, which is leading towards the deterioration of the quality of air. Thus, in this regard, the scooter have great capabilities for major reduction in the air pollution, which is perfect alternative for the gasoline powered motorcycles, however they are need to introduce in many markets which results in the consumer adoption of the new product (Jones et al, 2013, 5).

In the context of Finland, three years ago, the idea of the e-scooters as the notable vehicle for the micro transportation raised many concerns among the general population. Regardless of that, the country welcomed Samoset Sharing to pilot-kicking scooter station projects, with the collaboration of Helsinki Business Hub and the Finland government. After a successful testing, the business has launched 28 scooter stations across the country and the consumers have started to welcome the initiative, which are now alive and kicking. The business is now planning to expand its operations, as it tries to hit the minds of the people, changing their perception regarding the e-scooters (Helsinki, 2019).

The study looks deep into the e- scooter services, with the needs of the services as the call of the hour in regard to the air pollution and environmental damage as a result of the fossil fuels as a source of energy. The study analyses the consumer acceptance is considered as an integrated index for the preferences which are subjective of the consumers for the products which depends over its properties, marketing, cultural hesitation associated with the use new material similarly it is also for the newly introduced technology in the market and specifically for the e- e-scooters.

Moreover, the study sheds light on the challenges that are being faced by the businesses in the regard to the barriers faced in the acceptance of the service and the ways that can influence the consumer perception. The modern era of innovation and technology is transforming the trend among the consumers as more people are moving towards eco-friendly products (Seebauer, 2015). The early purchasers of any innovative product are faced with the threat and fear of uncertainty. While, in case if the market growth was taken as the vehicle acceleration, then the e-scooter, which is the latest addition to the urban mobility, is to be taken as the Ferrari. Since the start, which was made by the US based Bird that was in the fall of 2017, the e- scooter services

are in hundreds of cities around the world, and with many more still to be launched in the coming months. Even the dozens of e-scooter startups have attracted funding of more than \$1.5 billion and it is estimated that the global market would reach about \$40 to 50 billion by next 5 years (Schellong et al, 2019).

The rapid trend of the shared mobility concept, whether it is for the ride hailing, the sharing of car service or public bicycle systems, have all laid the foundation or gateway for the e-scooters, which have filled the hunger for the cheap, convenient and flexible enough to move around in the congested cities. Apart from the rational element of the e-scooter, it offers a fun-filled aspect, for the user of the brand whether they are executive in suits or the college going kid in the jean; it offers equal excitement and joy to the end users (Sadek et al, 2019).

As per the Analysis in UK, the e-scooter service is the cash on service, the study assessing on different mediums of travelling compared the travelling time and costs, where 35% of the personal trips covers up the distance of less than 2 km, where the 75% of them would amount to less than 10 km. In case of the e-scooters, which are used for the trips of the 0.5 km to 4km, is equivalent to the regard of 5 to 45 minutes of the walking.

Thus, assessing the e-scooters, it can be used for the large proportion within the town travel. The service of the e-scooters fits for a number of reasons which are better for the consumers, as it is found to be cheaper than adopting the ridesharing service of any vehicle, whereas the consumers do not need to hunt for the parking space, where the consumption of e-scooters refrain from the sweating. The e-scooter services can be paired with public transport services too; they can be a handy solution for young people. Moreover, the e-motorcycles functions similar to the gas and petroleum powered motorcycles, but have the added advantage of the zero local tailpipe emission and totally works upon the battery power. (Trappey et al., 2012). Thus, the e-scooters are the potential solutions for reduction in pollution and the means of the energy efficiency as the other sources work on the energy usage of the fossil fuels, which are to be depleted or ended one day due to limited in quantity, whereas the battery-powered e-scooters is an efficient strategy to enhance the environmental performance of the transportation sector (Cherry et al., 2009).

However, the e-scooters have certain pitfalls, which is a major reason due to which consumers are hesitating to adopt this new technology before to the likes of the experimentation.

There is certain limitation of the e-scooters which are primarily that the e-scooters do not perform in the hilly areas, or the brick-lined streets, as well as they are not suited much for the harsh weather conditions, and these vehicles have no place for the riders to store their groceries or other possessions due to less space. There have been certain discussions with the manufacturers and other innovators such as Xiaomi and Segway, in order to address the increasing needs of the consumers, coupled with the need for the stronger engines and much of the durable construction (Schellong et al, 2019).

1.2 Research Aims and Objectives

In the light of the nature of the research, the main aim of the research is to understand the innovation adoption of new e-scooters service in Finland on consumer perspective. The following objectives are being devised which the research will aim to accomplish:

- To evaluate the challenges faced by the consumers in adoption of a new and innovative service
- To assess the consumer perception in regard to the e- scooter services.
- To analyze the barriers and contributors that pertains to the adoption of the e-scooter services.
- To recommend ways to change the customer's perspective so that they use e-scooter services.

The problem lies in the fact that the adoption process is a complex one which is directly influenced by the adoption behavior of the people in regard to the e- scooter adoption. People are generally resistant to new products and the businesses are striving hard to influence the consumer demand, and develop new products and services in the context of Finland. The brands are investing to impact the sales to the consumers, but the problem lies that product is still new and not much of the research is conducted on the selected issue.

According to an estimate by Schellong et al (2019), the global market for the e- scooter services is potentially numbered to \$40 billion by 2025, which is about 15% of the total size of the automotive based on demand mobility. Moreover, the e-scooters are generally used for the private mode and for consideration of the short trips, thus the market is likely to expand rather than eroding and negatively impacting the on-demand mobility market, but the problem arises despite of several advantages for the businesses. Primarily the problem lies in the mass adoption

as it is being very certain. There are many cities in Finland, which have population of less than 100,000, thus the consumer demand for it is not sufficient. The frequent users of the e-scooters find it much more economical and cheap to buy their own e-scooters, given that the cost of the scooters is around \$400 dollars (Vidal, et al. 2016). In terms of Finland, despite many big brands such as Samocat and Helsinki backing it, the reactions from the audience are mixed and variety of the problems have arisen for the state to deal with such as the right-of-the way rules, public safety, parking and liability (Patil, 2009). Due to these reasons, many big cities have not yet welcomed the idea of the e-scooters.

Many of the consumers who are unwelcoming the change are of the view that e-scooters have some different costs to deal with, which are mainly regarding the operations and charging of the scooters. Every year, the problem arises for the consumers for the transportation to the central facility in order to charge the battery, and then transport them for maintenance and repairs and then collecting the next day (Farah and El Samad, 2018). Many of the consumers are hesitant to adapt to this change where the routine will be impacted and they need to go a mile ahead for saving the costs. Although the travelling cost is low, the additional costs tend to be incurring and substantial in regard. Although in Finland, the concept of crowd charging is being introduced, in which the users are being paid in cash and e- scooter minutes, to take the charging facility home and return it the next day (Vidal, et al. 2016). But the whole process of taking the e-scooters to the charging area is a hectic one and thus consumers are refraining to adopt the particular service.

Moreover, in terms of research on the e-scooters in Finland, there is limited research conducted on the e-scooters and the consumer perception regarding the adoption of the new model. The study of Bishop et al (2011) and Patil (2009) are inclined towards the e-scooters in developed countries with the former one being focused in terms of Finland. However, the research lacks the fact that it is either generalized or lack the consumer perception in the adoption of the new model. Thus, the following research will fill the void left by the previous researchers as it will explore the factors that are influencing the consumer perception and barriers that are in line with the research model, in the context of Finland.

1.3 Rationale

The rationale of the study is in regard to the context that is being developed, in terms of the changing environments. In modern context, with the changing world, the air pollution and the greenhouse gas emissions from the fossil fuel have led to the innovation of less polluting and more energy efficient sources of transportation, out of which the e- vehicles topping the list with major brands like Tesla developing and Audi jumping into this category and the cheaper e-scooters latest edition to the list. Moreover, the economic incentives are being taken at the state levels with efforts being made from the government, in various forms such as free parking for the e-scooters, high access to the occupancy vehicle lanes, fuel costs being subsidized, income tax deduction and waving off the sales tax (Jones et al, 2013).

In regard to such benefits being granted to the users of the e- brands and major support received from the government, the rationale for the study is to highlight the benefits that are being derived from the consumption of the e- e-scooters. Moreover, with the advent of every new innovative technology, there are mixed views where some of the people from the society welcome this thought while other backlashes the idea (Hartmann and Siegrist, 2017). Thus, the rationale of this study is to comprehend the consumer perception regarding the e-scooters and what factors are the major hindrance in this regard and how brands along with the government can influence the consumer perception to rather change it and inclined towards adoption of the environmentally and cost friendly innovation.

1.4 Significance of the Study

The study is significant in many regards and many segments of the mainstream population. Since the e-scooter is new phenomenon, it has attracted the attention of many different segments in regard to the benefits and the problems associated with this product. The study is significant to the academicians as there is limited research available on the topic and the research is important in this regard as it can help the future researchers to conduct the study in their respective geographical regions and industries. This study is conducted in the context of the Finland, a predominant region in Europe, thus the characteristics and features of the population can be applied to other European regions. Through this study, the researchers can extract information and data regarding the perks of using e-scooter as the energy source instead of the renewable fossil fuels, and consumer perception can be studied too.

Moreover, the study is significant to the likes of the brands and companies who are involved in this e-scooters introduction. These groups will be benefitted from the data, that will be acquired where the perceptions and views of the consumer will be derived and these businesses are able to study and analyze it, which can be used in the future products. The marketers of these businesses will also be benefitted as the future strategies will be based on the study where the consumer perception is highly regarded in terms of any marketing communications and campaigns, directly hitting the minds of the audience as the brands will intend to influence the perception in order to increase the sales of the brands.

1.5 Structure of the Study

The thesis follows a specific pattern of the study, where the thesis is divided into five chapters, with each serving a purpose and complementing to the likes of other chapters. Chapter 1 digs deep into the introduction of the chapter, where the researcher gives the background of the topic where the e-scooters' need and importance is identified and how the service is, being introduced in Finland. The researcher will set the tone and direction of the study, by devising objectives. Moreover, the researcher will enlighten the importance of the study and rationale behind choosing the study.

The chapter 2 contains the previous literature on this topic, where the past studies on the innovation and technology is discussed and how difficult it is for consumers to accept new ideas. The chapter sheds light on the barriers that are preventing the adoption of the new idea, assessing the consumer perception, in regard to the past theories proposed by the researchers.

The chapter 3 enlightens the methodology section, where the systematic explanation on the research process is given. The researcher sets the direction for the further analysis by mentioning the data collection method and instrument used to collect the data. In this chapter the data analysis technique will also be mentioned.

The chapter 4 is about the findings that are derived and the analysis based on those findings along with the discussion. This chapter is core in regard to the topic, as the specific findings based on the research methodology is analyzed, which are relevant to the topic, in order to further reach the conclusion and recommendation section.

The chapter 5 is about the conclusion and recommendations, where initially the summary of the findings will be given, with conclusion for the entire research. Finally, recommendations will be given regarding scooters whether they should be introduced in Finland or not.

2 LITERATURE REVIEW

2.1 Consumer Perception

Consumer perception is defined as the concept of marketing which helps in encompassing the impression of the consumer, consciousness regarding the company and the offerings that are offered by the company. The perception of the consumer is affected by the reviews of the public, advertising, public relations, personal experiences, social media and other channels. Consumer perception is affected by everything through which the product is positioned horizontally or vertically over the shelf along with the shapes and colours which are used in order to create the logo (Vidal, et al. 2016, 126-128).

The perception of the consumer is affected by the things that are present outside the control of the person that seems to be innocuous like time of the day when the interactions of the consumer with the brand take place. If the consumers come across the products as well as the niche while in a specific time in the day, they are able to build a positive perception regarding the brand of the company but it is expected that that they have negative perception while they are reviewing it on another time of the day (Schivinski, and Dabrowski, 2016). The consumer has dual perception regarding a single brand as it is possible that some people that are morning people hold the positive perception regarding something whereas some of the people who are not morning person holds a negative perception regarding that thing (Aschemann-Witzel, et al. 2018, 278-280). The company has to offer something different for such consumers. Some people are able to focus over the product in the morning whereas at night, they are not able to focus whereas there are some people that are able to focus in the night (Li, et al. 2017). In addition to this, there are people who are able to focus in the middle of the day so it is considered to be harmless to call the people at the wrong hour or to show the potential consumer the proper colour at the wrong time as well as at wrong place.

The perception plays a major role in initiating any business for which the idea which is behind the perception theory is capitalised with the help of haunted houses as well as amusement parks in which the people are forced that they should walk in dark that is regarded to be claustrophobic and pretty small. There are several attractions for the visitors in which the look and the sound of the visitors which are alike monsters, rodents and other related things are included. It is investigated that while building any business, the most important thing that should

be consider is the perception of the consumer in which the formation of amusement park or any other business is included (Sinesio, et al. 2019, 73-76).

The main responsibility of the business owner is to enhance the time which is spent by the consumers in the store. If the store is an online store then the owner wants the consumer to keep browsing and buy something by which they are able to enhance their sales (Hartmann and Siegrist, 2017, 124-125). The owner of the business should seek for the improvement for the experience that they are providing to the consumers by considering the perception of the consumers.

The organisations are able to use the perceptions of the consumers for their advantage in order to build the perception of the consumers properly; they should look in the things that are preferred by the consumers which can be used by them in order to attract the consumers. If the business wants to attract such consumers that are high-end then it is very important that the business owners should know how to play the things like cleanliness, quality, hygiene, and packaging as well as general details in the way the product and the services are presented to the consumers. The business owners should segment the consumers in the different groups of consumers in which they fall and use these groups for figuring the things that are important for every group along with the things that are presented in the different categories as well as consumers (Bilgihan, et al. 2016, 156-157). When the company is trying to improve the consumer perception of their products then they have to make efforts as the bottom line of the company would be reflected by the hard-won effort. The best thing any business can do is to make consumers feel the community as the part of their family as there is no any better option for developing brand loyalty (Hartmann and Siegrist, 2017, 200-205).

The consumer experience would overtake the product as well as price as by the development in the technology and other aspects of business. In modern world, the perception of the consumers has been shifting towards both the brands and the service quality which take precedence over the traditional competitive advantages like features, pricing or usability (Filieri, et.al., 2018). If the company is not investing over improving the experiences of the consumers and their perception then there is a risk of falling for the company (Farah and El Samad, 2018, 336-338). There are many businesses that are taking stock of services and support efforts and from the survey it was investigated that most of the people prefer investing over new

technologies and this is regarded as their one of the top most priority for next several years (Hartmann and Siegrist, 2017, 180-182).

The companies should focus over improving the consumer's perception and have adopted number of ways for improving it. The most valuable thing is that the company should have the valuable direction as excessive amount of protocols and processes can come in the way of the interactions among the human being (Farah and El Samad, 2018, 111-113). In order to ensure that the business is not getting in its own way, the companies have to take time to evaluate the approach that they use. The company should analyse that either they are being reactive and proactive while communicating with the consumers as these problems should be properly overcome or scrambled in order to collect the information that is necessary for the escalation of the problem (Yadav and Rahman, 2017, 62-68).

The organisations should strike the emotional chord with their consumers as the most effective way in order to enhance the value of the consumer and move beyond the expectation of the consumer's perceived expectations. Along with that, the companies should also connect with the consumers by developing an emotional level which taps in their fundamental motivation which fulfils the deep, unspoken emotional needs. It was analysed that the actions and words are considered to be very important for the consumers (Yadav and Rahman, 2017, 62-68). In order to build a strong bonds and for promoting the positive experience, it is necessary that the company should actively demonstrate such interest which is long term as well as commitment for the relationship with every touch point. In order to perform this task, it is required to dig beyond the surface which focuses over the needs and goals of the consumers whereas the information which is provided is detailed (Fatma, Rahman and Khan, 2016, 123-126). The consumer perception can be enhanced by leaning over the positive language with the consumers as well as by committing to the consistency.

It was also determined that the competition is becoming more intense in the global economy which makes it difficult for the services and the products to stand out in order to be differentiated from the offerings of the market. Even it was investigated that the production, sourcing, logistics as well as access to the information and the cost is also being raised due to this (Hartmann and Siegrist, 2017, 118-119). A number of products face competition from the outsiders of the industry or from bundles or offerings as well as substitutes. This results in

decreased prices as most of the companies have desire to win the heart of consumers by closing of differences in the product. It is investigated that the modern consumers are more likely to be considered as the mix (Aschemann-Witzel, et al. 2018, 200-205). It's being very sensitive with the prices and the modern consumers are constantly searching for the bargains and the discounts. They also look for the branded as well as luxury product constantly (Han, et al. 2017, 333-335). They are well aware as well as conscious of the powers that they possess being very well-informed (Farah and El Samad, 2018, 145-147). By this awareness, it enhances the expectations of the consumers from the companies.

These factors help in making more complicated for segregating the service as well as product by sorting traditionally with the pricing, quality as well as functions. In such situations, the only solution which is available for the business is strengthening the bond among the consumers and their companies. This helps in provision of better competitive advantage as it is regarded that there is no limited relationship with the aspect of the quality as well as price. The experience of the consumer has to be present at the different stages of interaction in the company like reliability, efficiency as well as speed of the process which increase the chances that the consumer would come back again (Singh and Rana, 2017, 211-218). A problem has been raised from the transactions that damage the relation for the long term. It is mandatory for the companies that they should take steps in making the consumers fully apprised regarding the offering of the company and the way by which the offerings are likely to enhance the consumer's life (Aparna, Krishna and Kumar, 2019). It is very important for the companies to ensure that they are convincing the consumers regarding the products that are offered by the company by informing them the benefits that their products have by comparing with the competitors (Sijtsema, 2016, 62-68). This expands the perception of the consumers in order to appreciate the finer aspects of the offerings of the company.

2.2 Service Barriers and Contributors Regarding Innovation Adoption Process

It was determined that there are specific four critical areas that are related to the implementation process of open innovation which needs to be addressed are procedures, cultures, skills as well as motivation. The barriers which lie in the same dimensions are confirmed by the researchers that also adds the trust dimension in people and in technology (Farah and El Samad, 2018, 200-205; Aschemann-Witzel, et al. 2018, 111-113). The activities of innovation are supported by measuring the performances as in the corporate performance system of metrics and their goals

and strategies. It is suggested that the potential risks are linked with the open innovation which are said to be the reason behind the belief of the companies that they should avoid opening up to the practices of innovation (Laukkanen, 2016, 336-338). Another factor that affects the adoption process of innovation includes the context in which the company is operated, thus there is an operating range for the barriers which limits the organisation potentially from adopting the innovation (Mergel, 2018, 62-68). In order to explore the barriers, it is important to investigate the context of the company, its culture, motivation, procedure, trust, strategy and the risk which is perceived.

There are number of contextual barriers which play a major role in the adoption process of innovation and affects in the different organisation. It is analysed that the internal organisation and the strategy of the company is considered as the major factor which come between the open innovations instead of the industry characteristics (Kowalska-Pyzalska, 2018). The sector in which the company is operating is also considered to play a major role in adoption process whereas there is a proper distinction among the approaches as well as practices which are used by the companies that prefer open innovation (Kowalska-Pyzalska, 2018, 118-119). It is investigated that there are different needs of open innovation for the different sectors; some of them have limitation by which their impact is restricted like traditional cultures along with the requirement of the secrecy in which strong regimes of IP are included. Thus by relying over these characteristics, the companies change their perception regarding the adoption of the open innovation process and started adopting more practices of innovation. There are five main trends that seem to be influential which concludes that the relative influence of technology have pushed over the sector of innovation (Smith, Sochor and Karlsson, 2019, 62-68). Other trends include the complexity and the length of the cycle of innovation in any sector and they are affected by the regulatory requirements, the approach that is used towards IP, the source of innovation which is preferred from the new sources and the processes of supply chain which already exists and the overall disruption as well as turbulence in the environment of the business (Laukkanen, 2016, 123-126). It was investigated from the report in which the survey was conducted with 144 companies of Europe in which the companies from all the sectors were included. It concluded that 78% of responses show that the clients are considered to be very important source for innovation in the companies whereas 61% shows that suppliers are responsible for this. Only

49% revealed that competitors play role in innovation adoption process (Smith, Sochor and Karlsson, 2019, 200-205).

The cultural barriers also play a major role in the organisations to open up to the process of innovation. The concern of culture is regarded to be dominant in the older firms along with the corporate values and norms that are predominant. Opening up to the process of innovation means that things would be done in different ways which may affect the level of cultures deeply. This includes the basic underlying assumptions that are considered to be very challenging. In the big organisations, it is likely to find the different sub-cultures which react differently towards the concept of open innovation (Joachim, Spieth and Heidenreich, 2018, 62-68). This is mainly due to the specific function that is open in the nature whereas the remaining is close as per their nature.

2.3 Challenges Faced by Consumers in Adopting an Innovative Technological Service

The rapid advancement in technological innovations has increased the attention of different businesses towards understanding consumer innovation adoption. According to the study of Reinhardt, Hietschold and Gurtner (2019). The notion of consumer adoption is often conceptualised as a series of phases through which consumer passes, including from early knowledge about new innovation to developing behaviour towards it, and reaching to the phase of approval decision. The better understanding of consumer adoption to new innovation is vital for companies, to address the challenges consumer faced while making purchase decisions. As mentioned in the study of Smith, Langlois and Lazau (2010), the adoption of new innovative technologies is a complicated and challenging task for consumers, which needs to be understood and addressed by companies that are offering innovative technological services to positively influence their target consumers.

In accordance with the same study of Smith, Langlois and Lazau (2010), while adapting to innovative technology consumers are often faced with the challenge of gaining precise information about new technology product or service. Similarly, as per the study of Bittencourt, Almeida and Araujo (2019), consumer are mostly relying on existing information to learn about innovative services or products that are newly introduced in a market, which eventually leads towards incorrect evaluation of new products and services. In this regard, a theory of analogical

learning implies that consumers are exposed to something unknown using known information to comprehend and understand new phenomenon.

The study carried out by Naor et al. (2015), has highlighted two major barriers and challenges that restrained consumers to adopt new technology, which includes psychological and functional barriers. Psychological barriers mainly arise from the conflicts with consumer's prior experience, involving image and tradition. On the other hand, functional barriers are mostly associated with consequences that consumers evaluate of technology adoption relative to product or service value, risk, and usage. As per the study of Schuurman, Mahr and De Marez (2011), there are two common factors that resist consumers to adopt innovative technologies, including consumer's characteristics and innovation characteristics. In this context, innovation characteristics are linked with affect and outcomes of new products or service on consumers, which eventually determines the level of consumer's resistance.

Innovation characteristics are mainly revolving around compatibility, relative advantage, perceived risk, and complexities that are associated with new technology products (Kahn, 2018). In contrast, consumer characteristics involve self-efficacy, motivation, and attitude towards existing products. According to Zhang, Liang and Wang (2016), the constant introduction of new products coupled with the complexities of new technological products, and related purchase decisions have increased frustration for consumers. This leads towards slowing down the adoption of new technology products (Martin, Gustafsson, and Choi, 2016). Service innovation, renewal, and adoption/rejection in dynamic global contexts.. Consumers are becoming more sceptical and cautious towards the adoption of new products, as they avoid buying into fads but make purchases of new products that are viable. In this manner, consumers are likely to delay their purchasing of new products or services as they want to seek more information to take more informed decision. Therefore, the unfamiliarity and high uncertainty that are associated with new technologies restrict consumers to adopt those technologies (Rosenzweig, 2017). Hence, it is important for businesses to develop better understanding of consumer's intention and challenges they face while adopting new technologies.

2.4 Diffusion of Innovation Theory

The Diffusion of Innovation theory was proposed by Everett Rogers in 1962 which highlights the way new innovations spread and perceived among consumers as well as adopters (Rogers 2003).

The diffusion of innovation theory suggested that the social science theory that unveil the discussion in concern the way with passing time certain idea can hold the momentum and spread among the social system and targeted population (Lyytinen and Damsgaard 2001, 173-190). Further, Rogers implied that diffusion is considered as the process that helps in spreading the innovation through different communication channels and social systems (Dearing 2008, 503-508). Rogers differentiated the concept of diffusion in thermodynamics from social sciences. The process of innovation can be considered inadequate if it is not accepted or embraced by the other people and society resulting in the failure of innovative idea.

For this purpose, diffusion of innovation among people and their positive reflection towards unique idea helps the innovation bring the notable change in society (Chang 2010, 1-4). The concept of adoption refers to the phenomenon of accepting the new change or behaviour of consumers towards new idea (Lundblad 2003, 50). In innovation adoption, perception of consumers plays the vital role in influencing the decision of people to accept the innovation or follow the similar conventional pursuit (Doyle et al 2014, 775-782). While proposing the diffusion theory of innovation, Rogers also proposed the concept of Adopters and divided them into five different categories such as innovators, early adopters, early majority, late majority and Laggards (Zhang et al 2015, 71). The categorisation of users done by Rogers while implying the diffusion of innovation theory helps to analyse the way product are required to pass through different stages and reaches to the final stage of success.

In theory of diffusion of innovation, Rogers defined innovators as the first individual that purchase the product immediately and willing to take risks (Karakaya et al 2014, 392-399). The people are considered as exclusive and trend setters that are flexible towards innovation regardless of any sort of shortcomings associated with it (Rogers, 2010). Innovators aims to experience the new product to take all kinds of risks and usually innovators are venturesome because they give preferences to new and innovative ideas rather than conventional approaches (Choi et al 2010, 170-177). Furthermore, while analysing the Rogers theory of diffusion of innovation the study conducted by Chang (2010, 1-4) implied that innovators must possess the sufficient financial resources and assistance that permits them to purchase the new innovative product immediately and bare the risks. However, Dibra (2015, 1453-1462) advocated that consumer perception and their level of interest towards certain innovative product plays imperative role in influencing their decision to purchase the product immediately.

Furthermore, Rogers highlighted the role of early adopters by representing them as the opinion leaders that possess the good social status and sufficient knowledge that enables to present their opinion regarding certain innovation which is followed by various people (Wolf, and Seebauer 2014, 196-211). However, if early adopters are compared with innovators, they are greatly bound with boundaries of system and norms of society in adopting the innovation (Dill and Rose 2012, 1-6). In Rogers's model of diffusion of innovation early adopter's act as the leaders to guide people regarding the potential and shortcomings of certain innovations. Moreover, research carried out by Gollust et al (2010, 22-30) implied that leader plays a vital role virtually in all the phases of innovation that includes initiation, implementation, deployment and success of idea (Sasaki, 2018). Therefore, being the leaders or guiders, the perception and behaviour of early adopters towards the adoption of innovation plays vital role in spreading the innovation among audience (Zhu et al 2012, 168-185). Generally, in regard to innovation adoption early adopters possess better capability to deal with the uncertainty and risks associated with innovations as compared to late adopters (Choi et al 2010, 170-177). Furthermore, implied that early adopters are always aware about the phenomenon that when and where changes are needed (Zenko and Mulej 2011). Therefore, they are always flexible towards innovations and do not show resistance towards unique solutions.

Early majority are referred as the person that tends to adapt the innovations after interacting within the social system and observing the success of innovative product properly (Lozano 2010, 637-644). Rogers advocated that to adopt the innovation, early adopters depends on the evidence to see that innovations works successfully and there is no risk of failure associated in purchasing certain product (Neo and Calvert 2012, 227-237). The study accumulated by Wani and Ali (2015, 101-118) asserted that early adopters have lack of potential to bare the risks and financial losses due to failure of product therefore they greatly success stories, evidence, social interactions and reviews to ensure about the innovation effectiveness and adopt the new changes after detailed calculation and analysis.

In process of innovation adoption, late majority the individuals respond to the innovations quite late after innovation product has been adopted and used by majority of the people in the society (Soffer et al 2010, 212-223). Rogers in the theory implied that late majority are the slowest person to adopt the innovation their response time to innovation is greater the early majority and require more detailed assurance from people regarding effectiveness of

innovation (Peslak et al 2010). Similarly, the study accumulated by Chang (2010, 1-4) highlighted that late majority are quite sceptical towards innovation and only adopt the innovation due to peer pressure and heavily rely on single trusted source to reach the final decision. To minimise the uncertainty and ambiguity regarding the innovation, late majority greatly relies on the advices gathered through their interpersonal networks and frequently persuade by their closest peers such as friends and family (Dingfelder and Mandell 2011, 597-609). However, the study also revealed that the low financial income and weak social network are some major barriers that hinder the late majority from adopting the innovations (Zhang et al 2015, 71).

Lastly, Rogers identified the laggards as the individuals that are quite resistant towards innovation and follows the traditional view closely. They tend to adopt the innovations more lately than late majority individuals and are highly resistant to the change (Karakaya et al 2014, 392-399). Rogers asserted that these types of people are tightly bounded with their traditional perspectives and are it is really difficult to influence the decision of laggards regarding the adoption of innovation (MacVaugh and Schiavone 2010). Furthermore, social system of laggards are quite localised that consists of limited number of people that belongs to the same category as them. Rogers (2010) advocated that laggards do not possess the leadership position in society due lack of adequate knowledge and social status.

Response time of laggards are quite lengthy and sometimes they reflect to innovation when the product is about to leave the market and consumer's demand regarding certain product becomes significantly low (Zhu et al, 2012 168-185). Rogers identified early majority, innovators and early adopters as earlier adopter whereas innovators and laggards were summarised as later adopters (Dill and Rose 2012, 1-6). In all the discussed categories of adopters, it can be observed that adequacy of financial resources and perception towards innovation of each individual plays vital role in innovation adoption process and risk is one of the major prospects associated with every unique idea.

2.5 Technology Acceptance Model (TAM)

Technology acceptance model was proposed by Davis in 1989 that revolves around the predictability of the acceptance of certain information system and the way people perceive it plays vital role in speeding the adoption process of technological innovation (Davis et al 1989,

982-1003). Technology acceptance model is considered as one of the most influential model that highlights the way perception of users plays imperative role in acceptance of new technological products (Surendran 2012, 175-178). The technology acceptance model based on two major concepts named as Perceived usefulness (PU) and Perceived ease of use (PEOU) (Wallace and Sheetz 2014, 249-259). For instance if certain individual perceives the specific technological or digital product as too difficult to use or take it as waste of time and money they will never accept that technological product (Evans et al 2014).

Davis defined the Phenomenon of perceived usefulness as the potential usage of certain technological product that urge the users to accept it with believe that certain product would be helpful to solve their problem (Wang 2014, 3725-3730). Whereas, perceived ease of use can be defined as the degree; the specific information system would be effortless and easier to use. Similarly, according to the study accumulated by Scherer et al (2019, 13-35) highlighted the adoption and acceptance of users towards new things significantly depends over the way they perceive it. Perception of users regarding innovation plays as one of the major barrier that results in their resistance towards adoption of innovation and makes them less flexible while embracing the new ideas (Silva 2015, 205-219). Moreover, in order to make any innovative idea successful and ensure its effectiveness it is mandatory that users perceive it in a positive way and remain flexible towards the idea (Martin, Gustafsson and Choi, 2016).

2.6 Synthesis

In this chapter in-detail discussion over different aspects of innovation adoption has been carried out to analyse the challenges and barriers regarding acceptance and adoption of innovation. In current era, world is following the pursuit of rapid development and advancement that has significantly made the environment and every field highly complex and competitive. Therefore, unique idea and solutions play vital role for organisations and individuals to create their firm position in dynamic environment. However, it is evident that most of the innovative ideas are aiming to enhance the productivity of the business and generate the substantial amount of profits. For this purpose, acceptance of users towards product or services and adoption of employee to new innovation such as within the organisation plays key role in ensuring the success of innovative idea. If the organisation in Finland adopt the innovative idea of launching scooters it can bring substantial profitability and success because people of Finland get the chance to

experience some different means of travelling. In this section of study, different barriers and challenges of innovation adoption has been highlighted such as technological barriers, perception, risk, financial barriers, economic and environmental prospects. Furthermore, five categories of innovation adopters has be included while discussing the theoretical framework to understand the way different type individuals responds to innovation. The research study refers to study initiated by Rantanen and Raitis, (2018), as analyzing the Finnish online the study confirm that it's a growing market and consumer have positive attitude about. The study done by Rantanen and Raitis, (2018) holds importance as it sheds light of the how consumer motive develop, how they can be shaped, what is the role impulsiveness played in it and if word of mouth exerts a positive or negative impact. The importance revelation to this study is that Finnish consumer are attracted to price and convince, it also reveal that Finnish consumers do have the tendency develop an immediate perception if a product appeals. By analyzing study proposed by Rantanen and Raitis, (2018), this study has been able to understand that importance of consumer perception. The study initiated by Rantanen and Raitis, (2018) has also been selected by as it is relevant secondary data that clearly addresses attitude and behavioral sentiment of the Finnish consumer.

The researcher has also referred to Puro, (2016) that strives of enlightening about the process through which technology develops trust, the study holds the opinion that trust can be built through communication channels, this study in particular help to examine how the factor of complexity, can create complication is embracing the change, it further also allows to examine the importance of Observability.

The research study initiated by Nokelainen, (2016) also holds the significance as it provides the relevant insights of the Finnish market. Since the study focuses on how to the emotional advertising can change the consumer perspective and the perception, it holds the importance to how consumer's sentiment towards the e- scoter can be change. It also reflect on how improving the product compatibility and Trialability, contributes towards the enhanced consumer experience. The study also reflects on how the people associate themselves with brands that provides them with the relative advantage. By reflecting of the previous research studies, this gathers a better insight of the Finnish market; it is able to conduct a better operationalization of the concept while increasing the subjectivity of the data.

3 RESEARCH METHODOLOGY

3.1 Research Approach

The research approach sheds light on the strategy the researcher adopted to proceed with the research study. Defining the approach of the research mainly talked about if it intended at providing broad or specific conclusion. The research approach involved three methods of reasoning the deductive, inductive and abductive method of reasoning. Following the deductive method, the research gathered the known facts and data, and then tested a theory to prove a hypothesis. This method in particular involved the developing and proposing the hypothesis, after which the research test the hypothesis. This let the research study to reach a specific conclusion with comprehensive data and objective findings. This method is more appropriate to the quantitative method or research design. On the contrary, the inductive reasoning referred to more of a bottom-up approach and was largely define as inverted funnel approach where though a specific set of data available, it proposed a broad conclusion (Woiceshyn and Daellenbach, 2018). The abductive approach was a form of logical inference which started with an observation or set of observations and then seeks to find the simplest and most likely explanation for the observations (Wilson, 2016).

In reference to this particular research, it deployed a deductive reasoning as it is quite appropriate and adequate to the primary research and quantitative data, allowing the research to easily test the statistical data using the proposed hypothesis. This mainly attempts to gather the consumer perspective in adopting the e-scooters services available in Finland. By using the deductive method the research would be able to offer a specific conclusion.

In reference to this particular research study, it deployed the quantitative data. It opened up the investigation from abductive approach. Moreover, this research strived to understand the social interactions as people would be freely opting for the e-scooters and showed the statistical relationship between the independent and dependent variable. As the research study collecting data from the close ended as well as the open ended question (Peltomäki and Nummela, 2006).

The research design referred to the nature of the data and how the research in particular intended to the gather it and through what sources. The research design encompasses of quantitative method. The quantitative data referred to the data available in form of text, word, and image. The purposes of the quantitative data are understood and analyze the social

interaction and observations. The data collected for the quantitative method is usually obtained from the open-ended questions, observations, experiments, focus groups and interviews. The quantitative data mainly focused on improving the subjectivity. The quantitative data make the results more particular and mainly focus less on enhancing the generalizability of the data; the common objective of the research using this method is to explore the variable and social interactions (Creswell, 2017).

The quantitative data is identified as being in numbers, figures and statistical form. By using the quantitative data, the research mainly focused on the improving the objectivity of the data. It further let the research build the statistical relationship this type of data is usually obtained from the validated instruments where the data is further processed through statistical software. The quantitative data usually let the research study the apply generalizability of the findings, this mainly allows the research to better explain and describe the variable (Creswell, 2017).

3.2 Data Collection

The research would be collecting the quantitative data from survey questionnaire. This particular study relied on the secondary research method, which referred collecting used or processed data. As the research strived to understand the consumer perception in the Finnish, about the introduction of the e-scooter service. In order to gather some previous information about the consumer perception and the consumer attitude.

The data collection is mainly about how the research intended to collect the data. Data collection can be categorized into two methods; the primary and secondary method of research. Primary methods mean collecting the data from first hand sources and it is the data has not been collected before. By opting for the primary method, the research relied on questionnaire. Conversely, the secondary method involved relying on the used data though annual report, statistical data and news publication. The research would mainly helped in adjusting to the biasness of data, if the primary has a greater margin of error the secondary will support in to reduce it. This research study would mainly be developing tools or scale to gather the respondent's responses and opinion regarding the adaption of the e- scooter services in Finland. Moreover, the questionnaire survey will be distributed to respondents for knowing their opinions of the same. Though the scale developed, the research would be building a statistical

relationship. In general the research study would be collecting quantitative data from survey questionnaire to build a statistical relationship of the variable (Arai, Et.al. 2020). The table below shows the operationalization table consisting of sub-research questions and themes of survey.

3.2.1 Operationalization Table

Research Question	Sub Research Questions	Operational Equivalents	Themes of the Survey Questionnaire
What is the idea of innovation adoption of new e-scooters service in Finland on consumer perspective?	What are the challenges faced by the consumer in adopting an innovative service?	What are the challenges faced by the consumer in adopting innovation?	Compatibility
		What are the challenges faced by the companies in providing innovative products?	Complexity Consumer Perception
	What is the consumer perception in regard to the e- scooter services?	What is the positive consumer perception in regard to the e- scooter services?	Observability
		What is the negative consumer perception in regard to the e- scooter services?	Relative Advantage
			Complexity Compatibility
	What are the service barriers and contributors in adoption of e- scooter services?	What are the service barriers in adoption of e- scooter services	Trialability
		What are the contributors in adoption of e- scooter services	Complexity
			Consumer Perception Relative Advantage
	How can the consumer perception be changed regarding the e- scooter services?	How can the consumer perception be changed regarding the e- scooter services?	Relative Advantage
			Trialability

Table 1: Operationalization Table

The operationalization table developed above highlights the main themes being followed such as relative advantage, compatibility, complexity, triability, observability and consumer perception. The themes are extracted through the process of operationalization where the questions have been divided in to sub research questions that are pertaining to the themes. It

further broken down into operational equivalents that address the barriers, challenges, and consumer perception about e scooter.

3.2.2 Data Sampling

The sampling technique refers to how the research intends to gather participants from the population. The systematic procedure of collecting the sample encompass of the probability and non-probability sampling. The probability based sampling is where every subject of the population has very known and equal chances of getting selected. To produce a sample size, the research study usually deploys the statistical technique of the obtaining the confidence intervals and margins of errors to better understand and validate the size of sample. The probability sampling is also known as random sampling style; it usually involves a range of many techniques such as the simple random, stratified, systematic, cluster and multi stage random sampling (Etikan, Musa, and Alkassim, 2016).

On the other hand, non-probability sampling is where there are no known chances of the subject getting selected in sample. Much of the subjects in the sample are selected at random where much of the participant selections are done of the bases of subjective judgments. None of the respondents have the equal chance of selection, the non-probability sampling encompass of range of methods such as the convenience, purposive, expert, quota and the snowball sampling (Pechal, Benbow and Crippen, 2017).

This research is particular goes for the non-probability sampling where the main advantage of using this method in particular is that it cost and time effective Fugard and Potts (2015).. From the non-probability method sub-categories, the research study opts for the convenience sampling which is about collecting the responses on the bases of the convenience. The main advantage it brings is its easy method which is less time consuming as it quickly allows the research to meet its sample size and further it is more economical. The main disadvantage this method has in particular is that a particular sample cannot represent the entire population. This research takes in to account the sample of 112 respondents (Boddy, 2016). The data was collected from the respondents through Webropol where they filled the survey questionnaire. The respondents were given time to understand the questionnaire and answer though they were allowed to skip any question if it violates their beliefs.

3.3 Sampling Issues

The sample size was 112 and it particularly did not represent the entire population, additionally due to the situation of COVID 19 the researcher had to use the webpropol in order collect the data. The webpropol allowed the researcher to conduct an online survey however it reduced the validity as respondent reaction and approach to attempting the questionnaire wasn't visible. The possible issues with the sampling method is that it leads come with some systematic bias that stems from sampling bias, additionally the perception of entire population cannot be generalized.

3.4 Data Analysis

The data analysis mainly refers to how the research study intends at processing the data. To process the quantitative data, research study would be relying on the descriptive statistics and inferential statistics. The descriptive analysis help in identifying the inclination towards the adapting the e-scooters in Finland. However, for the quantitative the research relies on SPSS that processes the data, and support to denote the impact of innovation on consumer perception (Yin, 2017). In addition to this, the graphs presented in analysis chapter are only restricted to bar graphs and not includes any pie or line graphs. This is because bar charts are easier to understand and interpret and they show the exact clear numbers of the questions without getting confused. Therefore, the researcher had restricted data representation to only bar graphs. They also helped in understanding the growing or declining trend or pattern.

3.5 Trust Worthiness of Quantitative data

To test the validity of the quantitative data the researcher deploys the internal validity method. Based on the existing studies, the criteria of assessing quantitative based researches involved evaluation of trustworthiness to know whether the validity issues of instrument are controlled or not. The research is further analysed with the help of statistical measures in order to find out the results and ensure the validity of the study (Zeng, and Zio, 2017). The internal validity of the study was assured through change that occurs in dependent variable due to any changes in independent variable.

On the other hand, for the following study, the researcher has also used external validity methods as well as method of objectivity (Pouryazdan, et.al, 2017). Reliability and validity of the research instrument is of utmost importance which is basically the extent to which the survey questionnaire scale is appropriate for the respondents to answer and whether it is able to achieve

the desired results or not. Reliability is an important part of ensuring trustworthiness of quantitative data. The aspect of trustworthiness refers to confidence in interpretation, methods in order to ensure quality of the overall study.

4 ANALYSIS & DISCUSSION

4.1 Demographic Analysis

The following section of the chapter has provided with the assessment of demographic analysis of the respondents that has been utilised for collecting and analysing the data. The research has addressed the respondents belonging to different age groups and different circles of life to gain the appropriate data for the offering of e-scooters in Finland. The sections that have been assessed under the section of demographic analysis are age of respondents, their gender, marital status, and years of using the scooters, perception and choices of commute, profession of the respondents, their nationality and the level of education they are in. All of these areas have been discussed under the heading for gaining the appropriate data regarding the respondents in order to understand their response for the use of e-scooters. The use of this demographic analysis is to provide with the feasible measures for understanding their perception for the use of e-scooters. The analysis has been provided as under;

4.1.1 Age

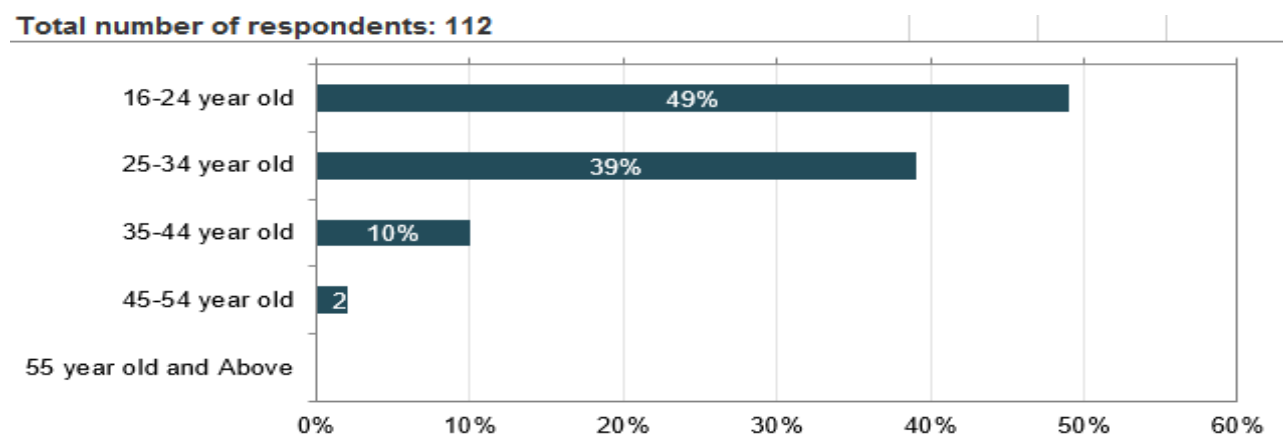


Figure 1 Age of Respondents

The first question within the demographic analysis was to provide with the age of respondent where it has been observed that among the total number of respondents that is 112, the majority of respondents who were selected for the research are belonging to the age group of 16-2 years old that is summed to be 54 respondents making it 49% of the total respondents who have participated in the research. Moreover, the second the greatest number of people who have participated in the research belonged to the age group of 25-34 years old having number 44 and

making the percentage of 39% of the total respondents within the research. Another group of respondents that has been selected for assessment belongs to the age group 35-44 years that are 11 and are having the total percentage of 9.91% among the total. Additionally, the age group belonging to 45-54 years are lesser and are only 2 in number who have already used the e-scooters. However, the people having age groups 55 and above were not selected for the research. Hence, the results gathered from these respondents have a higher application within the use of e- scooter in this regard.

4.1.2 Gender

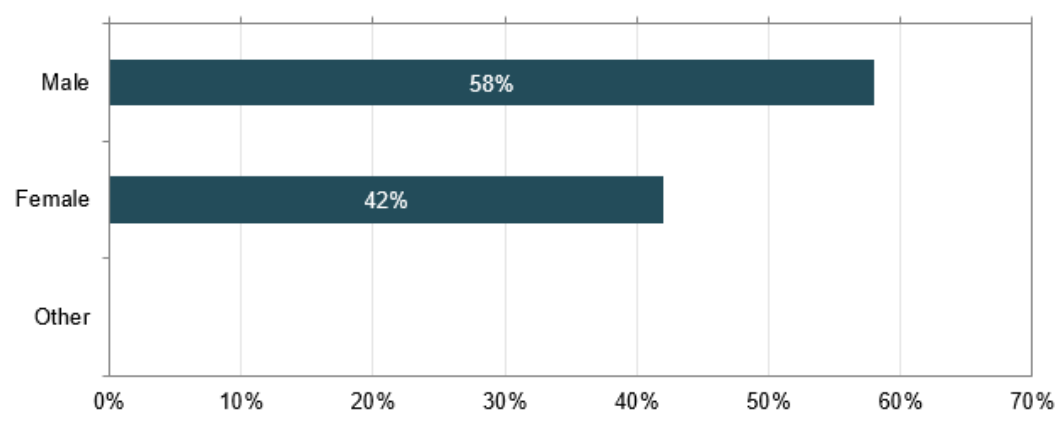


Figure 2 Gender

The researcher has collected the data from both the male and female members of the country who have been searched and has been targeted for the area of research. As the use of e- scooter may be more likely common within the male members of the society and may also be less attractive for the female members for e-scooters as compared to male consumers. Therefore, in order to gain the data for the likeness for the scooter, the researcher has collected the data from both the male and female respondents. Here, it has been observed that among the total of 112 respondents the number of female respondents were lesser as compared to the male respondents. The numbers of male respondents who have been selected for the area of research belong to 58% of the total number of respondents and are found to be 65 in number. On the other hand, the respondents who were female were having the total of 42% and were 47 in number among the total number of respondents selected for the research. Here, the researcher has selected and have

assessed the responses of both the genders and have evaluated the likeness for the e- scooter for the people in Finland.

4.1.3 Marital Status

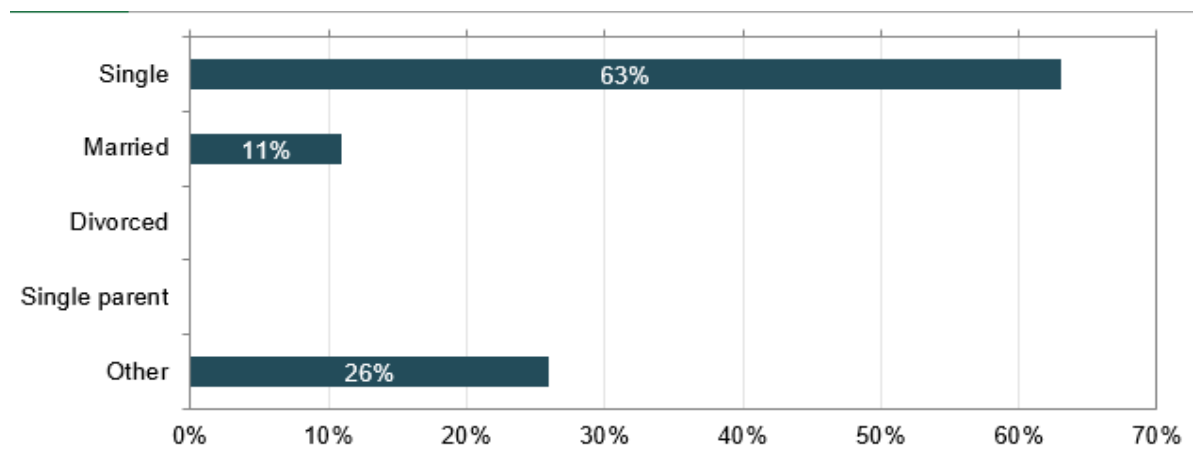


Figure 3 Marital Status

There are different kinds of people belonging to different situation and the marital status. However, their needs and demands may vary according to their requirements and the lifestyle that they follow. Therefore, in order to carry out the research for offering the e- scooter services within Finland, the researcher has gathered the responses from the people belonging to different marital statuses. They may be single, married, divorced, single parent and others who may need the scooter for their daily needs and requirements. Here, most of the responses have been gathered from the people who are single as the scooter services may be used by a single person. The number of people who were single and reposed for the following research was 70 and had the percentage of 63%. These numbers of people are most likely to be attracted for data gathering by the researcher. Secondly, the data has also been gathered by the married people who were 12 in number and had 10.81% in total. However, the least responses were gathered from others who do not belong to the following category. They may belong to different marital status. On the other hand, no responses were gathered from the single parents and divorced people.

4.2 Frequency Analysis

The study in which characteristics of the set of data is described quantitatively is known as the descriptive statistics. Frequency analysis is considered as the main part of descriptive statistics. Frequency is considered as the number of times in which an event is occurred. Frequency analysis is said to be very significant area of statistics which mainly deals with the number of occurrences which analyses the measures of dispersion, central tendency as well as percentiles (Pangbourne, et al. 2018). Frequency analysis is known as the study in which the letters are distributed in the text. The analysis of frequencies mainly plays a major role in decryption of the chippers that are situational based using the fact that there are some letter apparitions which are different in the language given. Median is considered as the value which takes place the most in set of data (Hensher, et al. 2020).

This study is mainly conducted to analyze the innovation adoption of e- scooter service in Finland from the perspective of consumers. For this the participants of the study were asked about several questions related to the topic of the study are e-scooters are mainly becoming popular in Finland. The respondents were asked that scooters will be great advantage for environment prospects of Finland, it is recorded that 7.21% have strongly agreed, 45.04% have agreed whereas 29.73% have neutrally responded. 16.22% have disagreed and 1.80% has strongly disagreed. The average response is 2.60 whereas 2 is the median which is recorded for this statement. It is also analyzed from the studies which are conducted previously that there is a major impact of scooters over the environment as well as climate of the country in which they are being used. There are several factors which includes the amount of energy which is used for propelling the shared scooter as well as there is some amount of carbon intensity which is required for production of the energy (Wan, 2019). The ways in which the scooters are collected, recharged as well as distributed among the area have also major effects over the environment of the country. In addition to this the emissions that are due to the manufacturing of the scooters also affects the environment and the way by which shared scooters are integrated also affects the environment in negative as well as positive both aspects (König, 2016). It is evaluated that scooters is considered as the form of innovation which mainly leaves positive impacts over the business. From the study previously discussed in the study it is evaluated that in current era, world is following the pursuit of rapid development and advancement which has mainly made the environment and every field highly complex as well as competitive (Cohen, 2019).

Therefore, there is a need of unique idea and solutions which play vital role for organisations and individuals to create their firm position in dynamic environment (Pöllänen, Utriainen and Viri, 2017). There are several trends like complexity and the length of the cycle of innovation in any sector and they are affected by the regulatory requirements, the approach that is used towards IP, the source of innovation which is preferred from the new sources and the processes of supply chain which already exists and the overall disruption as well as turbulence in the environment of the business (Laukkanen, 2016).

It is analyzed that on the above mentioned statement most of the people have agreed. On the statement that scooters are less expensive ride because no cost of fuel involved, 6.31% people have strongly agreed whereas 27.93% have responded with agree and 27.03%. It is observed that 34.23% people have disagreed whereas 4.50% have strongly disagreed so the average answers are 3.03 and the calculated median is 3. Majority of people have disagreed on this statement. It is evaluated from the researches that are conducted previously by different researches that the most inefficient thing related to the driving a car is itself a car. From some of the early years it is evaluated that e- vehicles as well as renewable energy have put great effort against the incumbent technologies which are cheap and use fossil fuels. Contrast to this, it is evaluated that scooters are considered to be cheaper for utilizing the alternatives as taxis, transit and personal cars. The main reason behind this is that the cost for fueling the scooter there is a little more than 1 percent of the cost of fueling even compared from such cars which have ability to deliver 28 miles per gallon. Over several months, weeks as well as years of commuting these savings can be add and make great money (Axsen and Sovacool, 2019). Efficiency is considered as the one of the things which makes scooters economically attractive.

It is observed that while asking about the role of scooters in reduction of carbon emission, 5.45% of people has strongly agreed, whereas 44.55% people have agreed and 29.09% people have responded neutrally. In addition to this 19.09% people have disagreed and 1.82% people have strongly disagreed. The average of answers is calculated to be 2.67 whereas calculated median is 2, 5. It is concluded that most of the people have responded with agree over this statement. It is evaluated from the previous studies that scooter companies have to tout their green credentials, which frequently reminds that every trip which is two-wheeled would help in reduction of carbon emissions as well as fight for the change for the climate but it is evaluated that the truth is very complicated (Schilling and Shankar, 2019). It is evaluated that while driving

a car is considered to be least environmentally friendly option so most of the people use bus and such vehicles which consumes diesel (Axsen and Sovacool, 2019). Riding on the scooter is considered to be better option as the options that least emits carbon emissions include walking or riding the bike, in which scooter is considered. Overall the greenhouse gas emission for every scooter mile travelled is 200 grams of CO₂. It is compared that the emissions for average automobile is 400grams of CO₂ so it is evaluated that riding the scooter have win the takeover riding the care (Jin and Qiu, 2019).

4.2.1 Relative Advantage

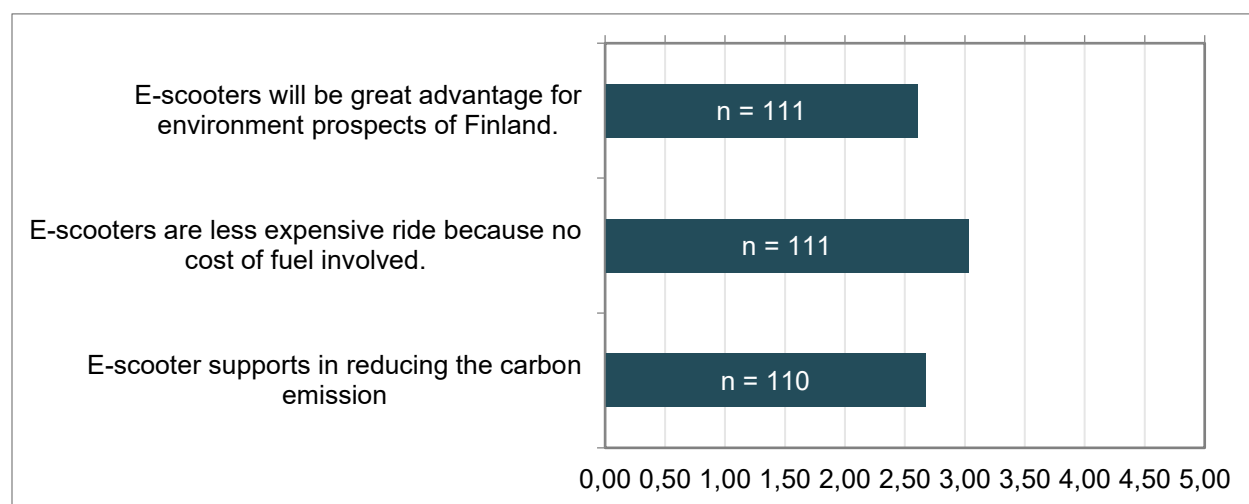


Figure 8: Relative Advantage

Further it is evaluated that on asking regarding the scooters that is it worth to replace existing motor e-scooters with scooters 3.60% people have strongly agreed whereas 21.62% have agreed. 29.73% of respondents have responded neutral. As per the responses it is calculated that 34.24% have disagreed and 10.81% have strongly disagreed. The average of answers has been calculated by 3.27 so the media of answers is calculated to be 3. It is evaluated that there are several of benefits of riding scooter which includes efficiency and effectiveness at the top so most of the countries have opted for scooters in order to use instead of motor e-scooters which consumes a lot of energy and emits CO₂ which is harmful for the environment (Figenbaum, 2017). It is evaluated that the scooters are cheaper as well as affordable as compared to motor e-scooters.

From the analysis it is calculated that most of the people disagreed by the replacement of scooters. In addition to this, on the statement that the battery of scooter cannot be charged remotely at any location like fuel, 14.41% people have strongly agreed whereas 32.43 people

have just agreed, 35.14% people have neutrally responded whereas 15.32% people have disagreed over this statement and 2.70% of people have strongly disagreed over this. The average of the answers has become 2.59 and the calculated median is 3. This should that most of the people have not idea regarding the statement so they have responded in neutral. There are several of benefits of scooter in which compatibility and reliability are at top, so it is evaluated that it is not difficult to charge scooter (de Jong, 2016). The scooters are compatible as well as reliable, there are batteries which can be used in case the previous battery is ended which ensures its compatibility (Lundqvist and Murati, 2020).

Further for the evaluation of the statement that scooter will support me to commute of daily basis, it is evaluated that 3.57% people have agreed over this statement, 33.93% have strongly agreed whereas 13.39% have responded neutrally over this. It is evaluated that 21.43% have disagreed and 27.68% have strongly disagreed which shows that majority of people have responded with agree over this statement. The average of the answers is calculated as 3.36 whereas 3 is considered as the median. It is evaluated from the study with the introduction of scoters most of the people have opted scooters to commute for their daily use as it is cost effective (Arias-Molinares and García-Palomares, 2020).

4.2.2 Compatibility

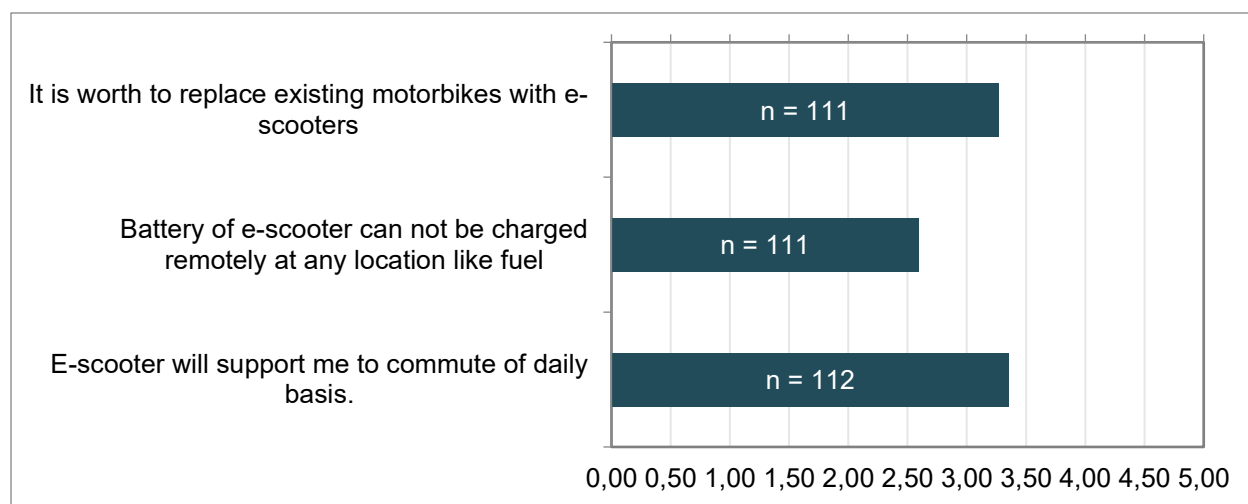


Figure 9: Compatibility

Furthermore moving to the nest section of questionnaire when the respondents were asked about the usability of the scooters it is evaluated that 34.82% people have strongly agreed whereas 46.43% people have just agreed, 14..29% people have neutrally responded whereas 4.46%

people have disagreed over this statement and 0% of people have strongly disagreed over this. The average of the answers has become 1.88 and the calculated median is 2. From the responses it is evaluated that no one have strongly disagreed to this whereas maximum amount of people has agreed to this. Furthermore, in addition it is evaluated that on the statement that It would be difficult to ride scooter on fast driving roads, 34.24% people have strongly agreed whereas 44.14% people have just agreed, 9.04% people have neutrally responded whereas 12.61% people have disagreed over this statement and 0% of people have strongly disagreed over this. The average of the answers has become 2.00 and the calculated median is 2. It is evaluated that for this statement, no one have strongly disagreed and majority of the people have agreed over this which makes both of these statements strong. It is analyzed from the studies that innovation of scooters would take transport industry to the profitability as number of people have opted for this because it is compatible and cost effective (Bergman, Schwanen and Sovacool, 2017).

4.2.3 Complexity

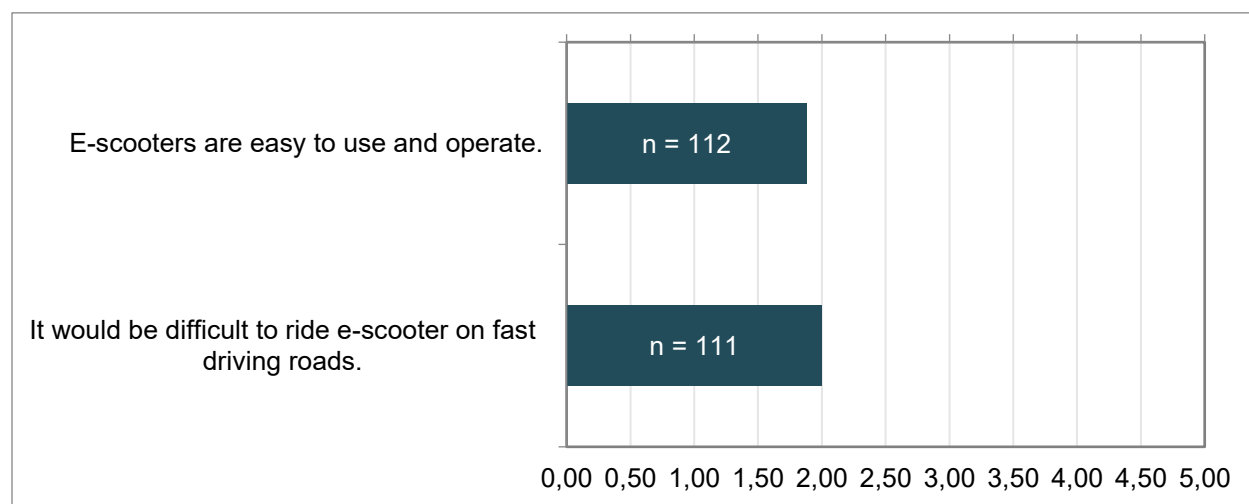


Figure 10: Complexity

On asking to the respondents regarding the use and purchase of scooter the statement which is used by the researchers is that either the consumers like to test drive the scooter before purchasing it. On which 50.45 % have strongly agreed, 43.24% whereas 3.61% have responded neutrally over this. It is evaluated that 2.70% have disagreed and 0% have strongly disagreed which shows that majority of people have responded with strongly agree over this statement and no one have responded with strongly disagreed. The average of the answers is calculated as 1.59 whereas 1 is considered as the median. In addition to this, for the statement that company is

allowing to try the scooter because they are confident with their products, 20.54% have strongly agreed and 50% of respondents have strongly agreed whereas 25.89 % have responded neutrally over this. It is evaluated that 3.57% have disagreed and 0% have strongly disagreed which shows that majority of people have responded with agree over this statement and there is no respondent which have strongly disagreed over this. The average of the answers is calculated as 2.13 whereas 2 is considered as the median.

4.2.4 Triability

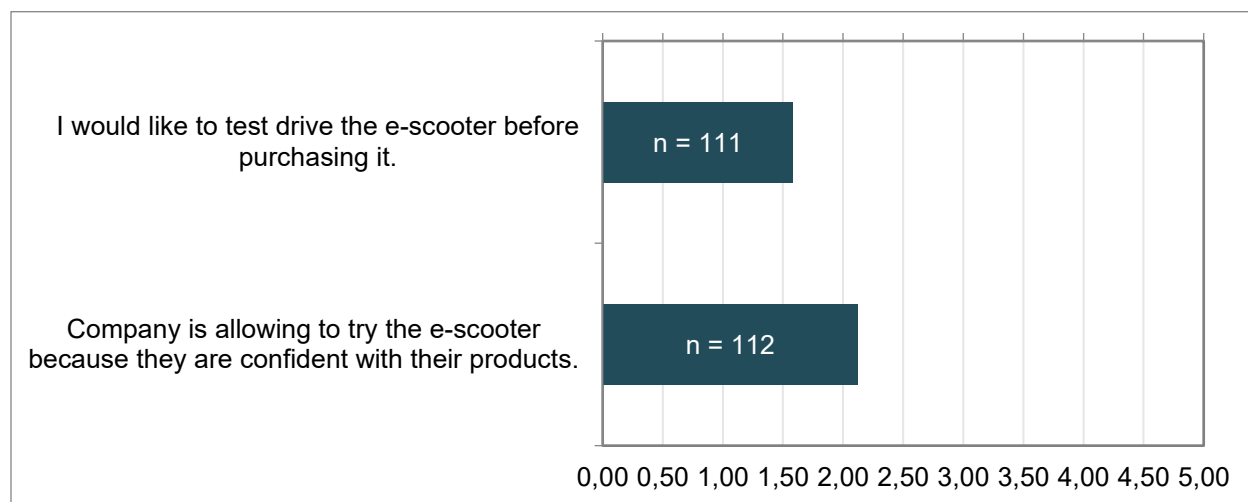


Figure 11: Triability

Based on the results shared above, the researcher had asked the respondents many different questions which were related to use of e-scooters or scooters in Finland. Despite of the fact that Finland is already an advanced country and they have abundant resources with advanced technology yet the country is planning to introduce e-scooters. This is so because there are many benefits of e-scooters for the citizens as well as for the environment. The increasing amount of pollution and environmental concerns can be prevented through the use of e-scooters which operate through e- batteries. The respondents were asked about their opinion regarding whether they would like to test drive the scooter before purchasing it. The purpose of designing this question was to know whether respondents were interested in going for tests drive before they could make any purchase decisions. Basically, scooters are not common nor the majority people have any idea about it so purchase decisions cannot be made easily without testing them physically. Since it takes time for people to settle with something, it is better that they try it and be satisfied. The results above revealed that total 111 people answered this question and out of

them, 50.45% strongly agreed, 43.24% agreed, 3.61 % remained neutral, 2.7% disagreed and none of them strongly disagreed. This is clearly evident from the results that most of the people agree that they should tests the scooter before purchasing it.

The next question was related with their opinion about company allowing them to tests the scooter because the company is confident about their product. To this question, 112 people answered. Out of these 112 people, 20.54% strongly agreed, 50% agreed, 25.89 % remained neutral, 3.57% disagreed and none of them strongly disagreed. This is clear and evident that people believe that companies give a chance to their consumers to try the new scooter because they are confident that their product is of good quality and will change the decision of user. However, fairly more people remained neutral also as they do not have much information about this question nor do they have any idea about why scooters are commonly tried by the company's despite the fact that they don't even know its usage.

4.2.5 Observability

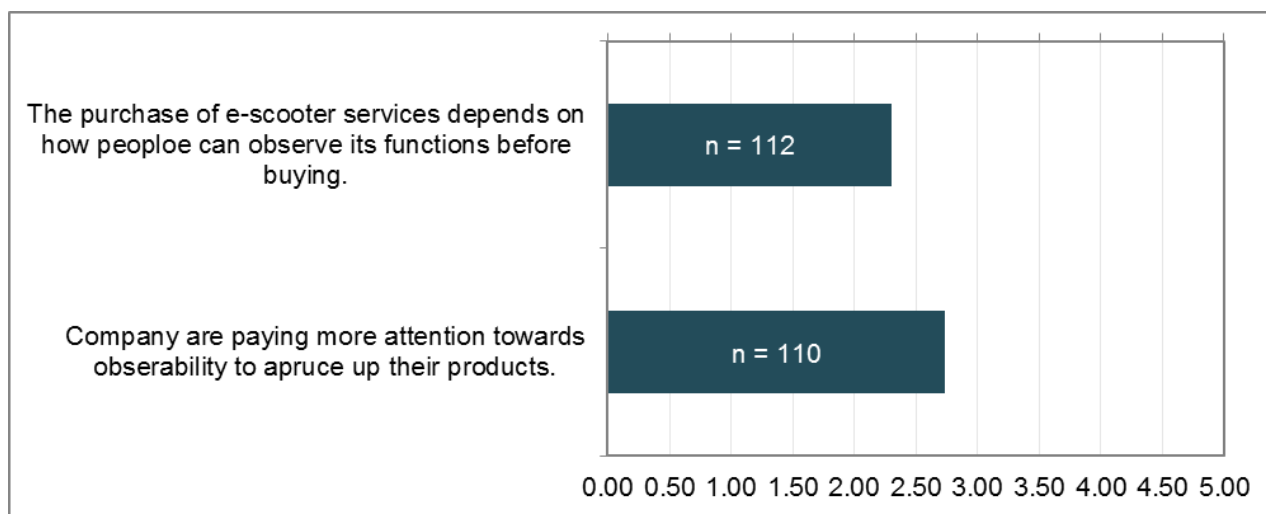


Figure 12: Observability

The next set of questions was related with whether purchase of scooter services depends on how people can observe its functions before buying it or not. To this question, 7.14% strongly agreed, 61.61% agreed, 25.89 % remained neutral, 4.47% disagreed and 0.89% strongly disagreed. This clearly shows that the company believes that purchase of scooter does depend on how people can observe its functions before buying it. The major reason behind this is the fact that people in past have not used this innovation before due to which scooter services are not common and people do not have any idea about its functions therefore, they would like to try it before making any

definite purchase decision. Also, the literature above had also supported that scooter is an innovation for protecting the environment. It is helpful for saving the environment from any kind of hazards. Also, the functions of using scooter would be entirely different from the normal scooter because it works on powered batteries so it is necessary that the people should be aware of its functions.

The next set of question asked from the respondents was related to whether company are paying more attention to towards observability to approve their products. To this question, 1.82% strongly agreed, 26.36% agreed, 69.09 % remained neutral, 1.82% disagreed and 0.91% strongly disagreed. This shows that out of 110 people who answered this question, more than half of them preferred to remain silent and neutral because they do not have maybe any information about it or they don't know what the intentions or plans of company are. It entirely depends on the plans of the company whether they are focusing on observability or not for improving their product in the market. Despite of the fact that scooter is an innovation in itself and it does not require by any mean ways of enhancing it but still the company wants to assure that it abides by the policies and applies all methods of creating awareness among people about the product. Also, it was found from the literature that here in this case, the concept of technological acceptance can be applied. This is so because the consumers are not aware of the usage of the product and they will take time to accept it and then purchase it. The purchase decisions are not made so easily especially when something new enters the market.

4.2.6 Consumer Perception

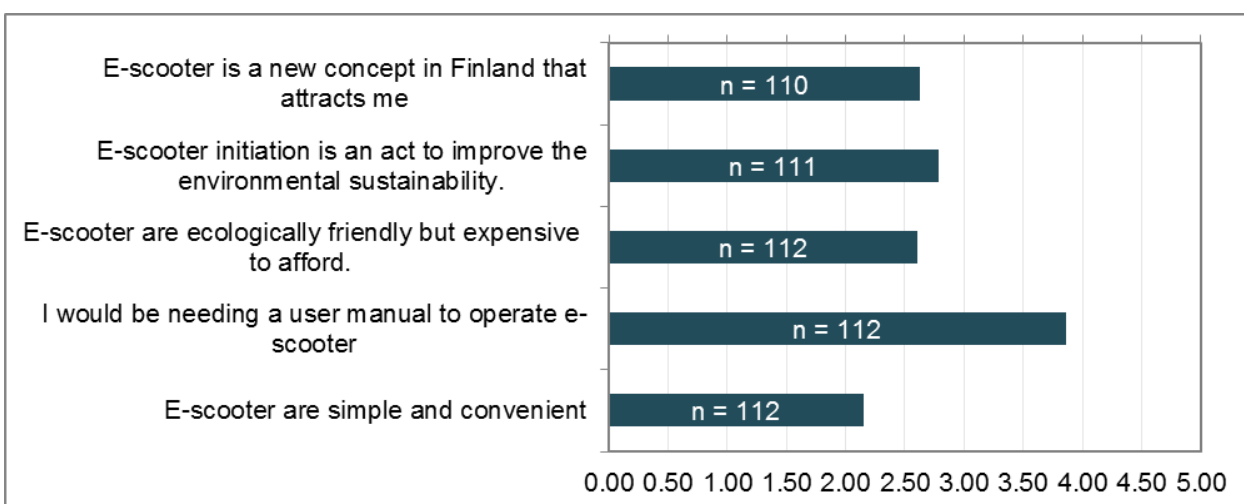


Figure 13: Consumer Perception

The next set of question asked from the respondents was related to whether scooter is a new concept in Finland that attracts people or not. To this question 110 people answered and out of which, 12.73% strongly agreed, 45.45% agreed, 14.45 % remained neutral, 20.91% disagreed and 6.36% strongly disagreed. This shows that most of the people have agreed that scooter is a new concept in Finland that attracts them to think about purchasing it. Those respondents who either remained silent or neutral or even disagreed seems it have other reasons which attract them to think about purchasing it. Though, it has been found from the study as well that scooters are not common in Finland and that they have not yet been introduced but if the people of Finland show a positive response so, they will be able to find ways to introduce it. However, this should be taken into consideration that scooters will only be purchased if the costs of batteries and powers are comparatively less as compared to fuel.

The next set of question was asked from the respondents related to what they think about whether scooter is an innovation to improve the environmental sustainability. To this question, 111 people answered and out of them, 4.5% strongly agreed, 43.24% agreed, 27.03 % remained neutral, 19.82% disagreed and 5.41% strongly disagreed. This shows that most of the people believe that scooter is an act improves the environmental sustainability. But many of the respondents also remained neutral and disagreed. This reason maybe that they are not aware of the environmental benefits of having a battery operated scooter or they do not know much about the functions of this scooter which is why they preferred to remain neutral or disagreed. The reasons for disagreement may also be because they think that it will help the people in other ways instead of improving environmental sustainability.

The next question asked from the respondents was related to whether scooters are ecologically friendly but expensive to afford or not. To this question, 112 people answered and out of them, 12.50% strongly agreed, 38.39% agreed, 26.78 % remained neutral, 20.54% disagreed and 1.79% strongly disagreed. This basically shows that most of them agree that scooters are ecological friendly but they are expensive to afford. Scooters are expensive to afford for the common people because of their various innovative features that are embedded to reduce battery usage and emissions of harmful gases like from traditional scooters. This is the main reason why they are expensive because the company needs to get their costs of production or manufacturing back from the consumers and in return offer them better product. Those respondents who have not agreed and remained neutral or disagreed shows that they either have

limited information about the price of scooters or they do not know about its environmental benefits.

The next question asked from the respondents was related to whether scooter is needed a user manual to operate it or not. To this question, 112 people answered and out of this, 0.89% strongly agreed, 16.07% agreed, 8.93 % remained neutral, 43.75% disagreed and 30.36% strongly disagreed. This basically shows that most of the people do believe that they do not require any user manual to operate the scooter. This is interesting to know because most of the people do believe that scooter is an innovation and new in the market which is not operated like the traditional scooters but at the same time, it was also found that people have disagreed to it which means that they know how to operate it or by taking the test drive once, they were satisfied with its usage and no longer need anything such as manual to help them. There are also people who remained silent or neutral because they did not had any idea about its usage.

In addition to this, the last question asked from the respondents was related to whether scooters are simple and convenient or not. To this question, 112 people answered and out of them, 17.86% strongly agreed, 61.61% agreed, 9.82 % remained neutral, 8.93% disagreed and 1.78% strongly disagreed. This basically shows that most of the people do agree that scooters are not complex and can be easily used and are convenient too. There may be different perspectives of people while answering this question but it is for sure that they do have an idea that scooters will be less costly for them to maintain nor will it be too difficult for them to handle.

4.3 Discussion

In the forthcoming section, the analysis pertaining to the innovation adoption of new e- scooter service in Finland was taken place. However, the paramount concern of this chapter is to present the discussion. Therefore, in this section a discussion is presented in which the main findings of the analysis are discussed in an in-depth manner, and they are also triangulated with the findings of the literature. There have been unique insights discovered on the innovation adoption of new e- vehicles in Finland in the section of analysis.

It has been analyzed that in Finland, as compare to the car, bus, and bicycle, the inclination of the people of Finland towards scooter is quite low. In Finland most of the people prefer to adopt the service of Bicycle, while the inclination towards car is also relatively high. These findings are very important and considerable. The reason is that in the present study,

majority of the respondents are student, and it is a fact that as compare to other professions, such as businessman, government employees and others, the inclination of young people towards the adoption of scooter is high. Nevertheless, the results of the present study suggest that in Finland, there is more inclination towards the car, bus, and bicycle.

4.3.1 Objective One: Adoption Challenges in New and Innovative Service

This is first objective of the study that highlights the challenges that the consumers face in the adoption of the new innovative service. When it comes to the challenges in the adoption of new scooter service, there are various studies that have highlighted these challenges. However, it has been observed that there is diversity in these challenges, in some studies the challenges are highlighted that are very different form the other studies. For instance, there is study conducted by Rajper and Albrecht (2020) highlights that in there is high cost of infrastructure involved, which is considered the most important challenge in a way of adopting new innovation, such as e- scooter service. Moreover, it has been argued in the study that the availability of charging infrastructure is the most important component and intention to adopt e- scooter is affected by it.

In addition to the above information, in another study conducted by Nepal and Jamasb, (2013) demonstrated government policies as one of the most important challenges in the way adopting new innovation. It has been analyzed the study that that market for different and innovative products is created by government, and without the specified support of the government, the market for e- scooter cannot be created. However, it has been observed in the study that there are various developed and developing countries in which the support for the e- scooter is not provided by the government, which is considered the challenge in the way of adoption of this new innovation. It has been analyzed in the study that the attention of different businesses towards the advancement in technological innovation has been increased in the recent times, and there are series of phases through which the notion of consumer adoption is conceptualized. However, it has been analyzed that it is highly crucial for the companies to identify challenges that are faced by the consumer during the process of process of purchase decision making. The challenges are basically stumble blocks that create problem for the consumers to adopt the new innovation.

Consumers' perception regarding e- scooter service has been outlined as bio-dimensional from the literature. For instance, it has been denoted that consumer's perception is shaped up by

things that are out of control of the consumers. In explanation, a consumer that encounters a product as well as a particular niche simultaneously, he/she is able to compose a positive perception regarding the product being encountered. In contrast to this, if the same encounter ends up into a scenario where neither the consumer fits well nor the niche, the perception developed will be mostly negative (Aschemann-Witzel, et al. 2018, 277-278). From this perspective, the perception of a consumer has been figured out to be sensitive towards the practical encounter with the product or service being offered. However, another dimension of consumer perception associates it with experiences that are actually obtained by the consumption of a product (Li, et al. 2017). In addition, it has also been outlined from the literature that time of review and social surrounding both intensely influence the consumer's perception regarding a product or service. For example, a perception regarding breakfast restaurants would be differently preferred among the consumer based on the morning and evening time of the day (Sinesio, et al. 2019, 73-74). Altogether, the literature indicates a combined view of consumer perception depending on several determinants such as personal preference, functionality, time of the day, actual experience, social influence and affordability.

Among all these determinants, the current analysis explicitly supports them. To explain, almost half of the respondent agreed that they find e- scooter comfortable as it allows them to commute and reduce carbon emission simultaneously. This aspect supports the personal preference aspect of consumer perception. Next is the functionality of the product in regard to which 44 percent find scooter functionally essential for their routine tasks. Likewise, the time of the day has been proven by the age preferences among the consumers. The study finds scooter as highly adaptable among the young generation with a rate of 50 percent. This analysis supports the review time and day perspective of the consumer's preferences. Moreover, 50.45 percent of the respondents strongly agreed to get a test drive before purchasing the scooter. This practice has been indicated to exhibit the experience paradigm of consumer perception. If the test experience proves as satisfactory, actual purchase will take place. Lastly, 38.39 percent of the respondents agreed with the fact that scooters are eco-friendly addition to the society, but expensive to afford. This aspect reflects the barriers of adaption based on affordability and societal preferences of the consumers. Altogether, it has been outlined from the literature that consumer perception is an influential force that steers the purchase decision of individuals. This

paradigm has been explicitly supported by the practical implication in regard to consumer perception towards scooter services.

In the present study, it has been analyzed that gaining price information about the gaining precise information about the technology product and services is considered one the most important challenges in the way of adopting new technology (Langlois and Lazau, 2010) However, in this regard, it has been analyzed that study that the existing information is mostly used by consumers to learn about newly introduced innovative service or products in the market, and due to which the consumers are not able to correctly evaluate new product and services. Consistent with the information related to the challenges to the adoption of new technology, it has been analyzed in the study that physiological barriers are also considered a very important challenge in the way of adopting new innovative technology.

In relation to the above information, it has been observed that conflict with consumers' prior experience, involving tradition and image, cause to arise psychological barriers that prevent consumer to adopt new innovative technology. Along with psychological barriers, it has also been analyzed in the study that there are functional barriers as well that ward-off the consumers to adopt new innovation (Naor et al., 2015). In this regard, it has been analyzed in adoption of technology there are risk, usage and value associated with it, and the evaluation of the consequences of these aspects of technology by the consumer is associated with the functional barrier, and these functional barriers are also considered important challenge in the way of adopting new technology.

Furthermore, it has been analyzed in the present study that consumers' characteristics and innovation characteristics are also considered important challenges in the way of adopting new innovation. The effects and outcomes of the new products and services on consumers are associated with the innovation characteristics, and the level of consumers' resistance is also determined by it eventually (Zhang, Liang and Wang, 2016). In addition to this, it has also been analyzed that most of consumers want to have test drive before the purchase of e- scooter in Finland.

It has been analyzed that complexities, perceived risk and relative advantage of new technology revolve around the innovation characteristics. In this regard, it has been analyzed form the majority of the responses in the study that the purchase of scooter services depends on

how people can observe its functions before buying (Kahn, 2018). On the contrary, motivation, self-efficacy and the attitude towards existing products are included on consumer characteristics. However, it has been analyzed in the present study that the frustration for consumer's increases due to the introduction of new products coupled with the complexities of new technological products, and related purchase decisions. Resultantly, the inclination towards the adoption of new technology decreases.

4.3.2 Objective Two: Consumer Perception about e- Scooter Services

In this section, the discussion has been taken place related to the second objective of the study that highlights the perception of the consumer in relation to the e- vehicle services. The consciousness, awareness and impression of the consumers about the product or service are considered as consumer perception. In attracting new consumer and retaining the existing consumers, there is crucial role played by consumer perception. It has been analysed in the present study that the personal experience of the consumer, public relations, public reviews, social media and other channels play a crucial role in influencing the perception of the consumer (Vidal, et al. 2016, 126-128). However, it has been analysed in the study that consumer perceptions should be enhanced by the businesses. Given that if there is optimistic perception about the innovative product holds by the consumers, and then their inclination to buy those products will greatly be increased. Therefore, it has been analysed in the study that in order to make the consumers to adopt e- scooter services, there is a need for business to seek for the improvement for the experience that is provided to the consumers.

In addition to the above information pertaining to the perception of consumer about the e-scooter service, there are various driving forces have been analysed in the study that create the positive perception of the e- scooter services in the mind of the consumers and propel them to adopt the services of e-scooters. In this regard, it has been analysed in the study that there can crucial role be played by e- motors in ensuing the sustainability of the environment. The reason is that there are very minimal greenhouse emissions gasses are offered by the e- scooter. It has been observed that the policy makers are trying to reduce the CO₂ emission in the transport sector. However, in this regard, there is crucial role played by the services of e- scooter (Aschemann-Witzel, et al. 2018, 278-280). It has been analysed from the responses of the participants that the majority of the participants of the study agree that scooter in scooter initiation is an act to improve the environmental sustainability. Therefore, it can be deduced that

the aspect that scooter help to protect environment build an optimist image in the mind of consumer about the adoption of e- scooter services.

In addition to the above information, some other factors have also been analysed in the study that play a crucial role in developing the positive perception of the consumer about the adoption of scooter. For instance, in it has been analysed in the study that scooter is simple and convenient. Moreover, it has also been analysed that scooter is new concept in Finland that greatly entices the attention of the consumers. However, on the contrary to the aforementioned information related to the optimist perception about the adoption of scooter, it has been analysed in the study that there most of the people perceive scooter as ecologically friendly, but expensive to afford (Hartmann and Siegrist, 2017, 124-125). Therefore, based on the findings of aforementioned argument it can be understood the expensive cost of scooter is one the most important causes that stay off consumers to adopt the services of e- vehicles.

In addition to the above information, it has been analysed that most of the people in Finland perceive the services of motor is very useful and they think that easy to use, which is also another factor analysed in the study that helps to develop, the positive perception of the consumer about the adoption of the services of scooter. Furthermore, it has been analysed that for most of the users of scooter services in Finland, scooter support them to commute of daily basis, which is another positive point that contribute in the perception of the consumers. It has been observed in the study that positive perception of the consumer is able to be used by the organisation for their advantage (Bilgihan, et al. 2016, 156-157). However, in order to do this, it is very important for the organisations to consider all the aspects that can positively contribute in the perception of the consumer, and these aspects have been discussed earlier in this section.

4.3.3 Objective Three: Barriers and Contributors in Adoption of e- Scooter Services

This is third objective of the study in which the barriers and contributors pertaining to the adoption of the e- scooter services. The objective is both theoretical and analytical in nature which is successfully achieved by the researcher through reviewing different researches along with the analysis carried out in the form of survey questionnaire. However, in this sector an in-depth related to this objective has been presented. In relation to this objective, it has been analyzed in the study that it is difficult to ride scooter on fast driving roads, which is considered one of the most important barriers in a way to adopt e- scooter service. Moreover, it has been

analyzed that the battery of scooter cannot be charged remotely any location like fuel, and this is considered another most important barrier that prevent consumers to adopt the services of scooter. Furthermore, in finding of the literature, there are also some barrier found that negatively impact the inclination of the consumers towards adopting the services of scooter.

In relation to above information, it has been analyzed in the literature's findings that there is crucial role played by cultural barriers in the organization there is crucial role played by the cultural barriers to open up the process of innovation (Wolf and Seebauer, 2014). When it comes to the opening up to the process of innovation, it means the things should be done in different ways through which the level of culture might be affected deeply. The basic underlying assumptions are included in this that is considered to be very challenging. However, it has been analyzed that in the big organization, it is likely to find the different sub-cultures which react differently towards the concept of open innovation (Joachim, Spieth and Heidenreich, 2018, 62-68). However, it has been analyzed that in the big organization, it is likely to find the different sub-cultures which react differently towards the concept of open innovation

In furtherance, the findings from the literature review further revealed that culture barrier is the main challenge which can be faced by the company as well as the consumers (Abualrob and Kang, 2016). Furthermore, people belonging to different cultural backgrounds can react differently towards the proposition of e-scooters in the country. Since the culture of e- vehicles is not prevalent in the countries, this is the reason that the consumers will be hesitant to purchase the scooters for the ride (Schade, Krail and Kühn, 2014). This can also be evidenced from the analysis carried out in the questionnaire as most of the respondents were of the opinion that scooter is a new concept in Finland where a smaller number of respondents was in the favor of this question. In addition to the above statement, the literature review further highlighted that the e scooters are the cost-effective strategy to use for the short-distance trips, however, with the rash driving there are likely chances of the accidents because it can cause a collision sustained in the erect standing position which can result in serious injuries for the people. However, the analysis reflected that the people are willing to buy scooters due to its user-friendliness and cost-effectiveness. For the most type of scooters, it can be considered as a challenge that it has combustion engine mopeds which are often used for the cars and since the engines are powerful, their batteries are bigger.

This can result in high-power consumption which can absorb great amount of electricity for the purpose of charging e-scooters. The results of the survey, in this case, reflected that

scooter is the most comfortable and safe ride which ensures very smooth and a quick ride that also proves as the eco-friendly product. Also, there is a need of user manual for the consumers which can guide them on how to operate the scooter for the purpose of their ride. This can also be evidenced from the analysis carried out in the survey where most of the respondents were in the favor of the statement that they require manual for operating scooter. If the consumers are not provided with appropriate manuals, then there are likely chances of malfunction of the scooter of road accidents. According to the study of Schade, Krail and Kühn (2014), this has been highlighted that Psychological barrier mainly arises with the conflicts regarding the image portrayed, tradition and the experiences of the consumers. On the contrary, there is another barrier which is regarded as functional barrier which is related to the consequences of using technology for a particular product and service. Such type of challenge regarding the scooter manual can be considered as the blend of both psychological and functional barrier. Based on the findings of literature and analysis, it is evident that there are significant challenges and barriers which can hinder the adoption of scooter in Finland.

5 CONCLUSION AND RECOMMENDATION

5.1 Discussion

Adoption of any new technology is determined by the perception of consumer regarding that technology. As highlighted in the previous chapters of this report, consumer perception is considered as the impression embedded by consumers regarding a particular product or service (Smith, Sochor and Karlsson, 2019, 199-200). In association, adaption towards a new technology brings change in an individual's life and their living style as well. Therefore, it is essential for the individual to draw particular understanding regarding the change that will be brought along with the adopted new technology. Likewise, any adaption regarding new technology encounters certain challenges that limit the consumer perception regarding the benefits of the technology. These challenges are caused due to several factors depending on the type and use of technology.

In regard to the current study, the new technology is referred as e-scooters as initiated in different regions of Finland. From the major analysis, it has been figured out that the youth are the most abundant user of this technology. The reason as indicated in the analysis is the living style and preference of the consumers. However, the findings also reflect a critical fact that almost 85 percent of the respondents prefer walking as the major mode of traveling. And only a 22.5 percent of the respondent indicated a positive attitude towards scooter as their favorite mode to travel. From this point, the most critical challenge in terms of adaption of new technology is determined as the consumers' preference also shaped up by the consumer perception.

Here, consumer preference is denoted by their choice of traveling mode as indicated by most of the respondent. From analysis the key finding indicates that adaption to scooter is ranked as low to moderate among the people of Finland as per the sample examined. Next is the social status of an individual that steers oneself regarding their choices of lifestyles. The analysis section explicitly revealed that almost 70 percent of the respondents who claimed to be a rider of scooter are students. Moreover, half of the respondents are under the age bracket of 16-24 who ride scooter for both personal and professional use. The reason of involving social status and professional identity is dependent on the social roles of individuals as marked by the society they live in. For instance, the role of a man is defined as bread-earner whilst the role of a woman is associated with household stuff (Laukkanen, 2016, 124-126). Similarly, a synchronized appearance regarding the social status and professional identity of an individual is expected by

the society. This expectation exerts intense pressure on an individual and he/she shifts their preference on the account of the social influence. This fact is reflected in the findings of the current report where only 16 percent of the e-scooter users are business-oriented people with only 2 percent of people employed at government and private services.

Alongside the social status, another critical challenge that has become common at the contemporary stage is the environmental concern of individuals. Environment is the surrounding all living things are habitat at (Aschemann-Witzel, et al. 2018, 112-113). In association with the technological development, the natural composition of the environment is getting disturbed. For example, the natural composition of all the gases in the atmosphere is getting altered with addition of excessive carbon into it (Han, et al. 2017, 332-334). The use of technology such as travel vehicles, machinery and factories are the major cause of this destruction. In response, the new generation is tending to be responsible towards their environment and try to infuse destructive content to the environment in as much least manner as possible (Mergel, 2018, 65-67). This environmental concern has become crucial for addition of any new technology. This concern is exerting pressure on the producer of innovative technology. Consequently, products are produced with environmentally friendly contents. Such products are widely adapted among the environmental responsible consumers. For instance, 44.5 percent of the respondents agreed with the fact that scooters are supporting in the mission of carbon reduction. Another response of preferring walking (85 percent) and bicycle (58 percent) as the favorite mode of travel also reflect the responsible attitude of the people of Finland.

In association with the environmental concern, another essential challenge that limits the adaption of any new technology is its price. This is considered as essential because establishment of environmentally friendly products requires intense research and use of sustainable resources which are already too scares in the region (Smith, Sochor and Karlsson, 2019, 198-199). As a result, the producers suffer higher bargaining power of the supplier due to limited suppliers and quality of the material. This increased the production cost which in turn intensifies the selling price. Altogether, wider adaption of sustainable products become limited that also negatively affects the users who are able to adapt environmentally friendly new technologies. For example, 32.43 percent of the respondent agreed with the fact that their e- scooter limits their traveling due to limited charging resources. This limited exposure also acts as another challenge in adaption of new technology and consumers prefer to go with traditional solutions. In support, only 3 percent

of the respondent strongly agreed that their scooter support them to commute routinely whilst 27.68 percent disagreed with this point.

On behalf of the key findings regarding the challenges of adaption of new technology, consumer preference, consumer perception, social status and professional identity, environmental concern, price and limited support are some of the most crucial ones. All these challenges are somewhat interrelated in terms of influences on the consumer's behavior. Most importantly, the findings of the current study reflect a supportive analysis in regard to the theoretical discussion as indicated above. For example, only 11 percent of the examined scooter users were married whilst 63 percent were single with strong association towards the environmental benefits. Therefore, it is essential for the producers to develop affordable and compatible new technologies so that a wider adaption can take place and limitation to such products can be addressed as well.

It has been defined in the previous chapters that consumer perception is the concept of marketing that assists in encompassing the impression of the consumer, consciousness regarding the market offerings that are offered by any producer to them (Laukkanen, 2016, 125-126). Moreover, it has also been indicated that consumer perception is intensely stimulated by several factors such as public review, advertising, public relations, personal experiences, social media and other channels. Consumer perception is affected by everything. This aspect is essential to be outlined because; features of the product and determinants of the consumer's perception both together outline the adaption and acceptance of the new product in a new market. In association to this, it has been figured out from the findings that consumers' perception in regard to adaption of e- scooter services is centric to commutable benefits, environmental benefits and easy functionality.

First, the commutable benefits are considered as the most essential determinant that shifts consumer's behavior in support of scooter services. As it has been indicated that most of the scooter users in the study are students and professionals. Hence, they are obliged to travel for educational and professional purposes. In this regard, scooters assist them effectively to travel on regular basis. Not only travelling is assisted by scooter, the study also figured out that environmental benefits are also achieved by adaption of this new technology. For example, almost 33.9 percent of the participants strongly agreed with the fact that e-scooters are playing

vital role in reduction of carbon emission. This addition to the environment can positively assist the environment is maintaining its natural composition (Hartmann and Siegrist, 2017, 110-111). Lastly, e-scooters are relatively easier to use than the traditional scooters with fuel consumption and heavy functionalities. To support, it has been figured out from the analysis that almost half of the respondents agree with the fact that scooters are easier to operate so they have developed a positive attitude towards this product. Altogether, basic requirement, personal interest and functionality are highlighted drivers that shape up the consumer's preference regarding adaption of e-scooters.

In correspondence with the analysis of drivers of consumer perception, another important finding of the study is related with organizational performances. Briefly, the study figured out importance of emotional chord with the consumers. It has been outlined that consumer expectation is addressed through their experiences which leads to consumer satisfaction (Farah and El Samad, 2018, 337-338). Therefore, the producers of e-scooters must also strike the emotional chord of the consumers they are targeting with their products. This aspect is considered important because it allows the consumers to enhance the value that is being delivered to the consumer. This in turn will boost the brand equity and increase the ratio of profitability for the firm producing e-scooters. Along with this the study also figured out those companies can also connect with their consumers by developing an emotional level which taps in their fundamental motivation. Consequently, their perception in regard to a product will shift into positive attitude. In order to build a strong bond with the consumers and for promoting the positive experience, it is mandatory for the company to actively demonstrate such interest that can give rise to actual purchase and consumption of the offered product. In long-term this practice of the companies commits a stronger relationship with every touch point integrated to the consumers.

Besides the drivers of consumer perception, the current study has also analyzed the barriers and contributors that pertain to the adaption of the e- scooter services. In this regard, the study revealed four critical areas that are related to the implementation process of open innovation. These areas are procedures, cultures, skills and motivation. Additionally, development of these areas is centric to some barriers based on trust and technology dimension as presented in the analysis. The activities of innovation are supported by the corporate performance as rated on the basis of metrics, goals and strategies (Hartmann and Siegrist, 2017,

181-182). Moreover, the associated risk is also considered as crucial barrier into the adaption of such preferences among the consumer. The risk under this paradigm is configured as the limited exposure, new technology with no knowledge to use and critical after-effects of adaption. Due to similar reasons, companies tend to employ limited innovative practices under such paradigms (Chang 2010, 3-4). This fact also adversely affects the overall adaption practice of the targeted population and develops another set of barriers. These barriers are essential to be highlighted as it limits the organizations from performing in their full potential. Further the study also revealed that investigation of barriers of success and development of their solution enables the organizations to unlock its utmost market potential.

Along with functional barriers, there are certain contextual barriers as well that drastically influences the adaption process of innovative technology among the targeted population. Contextual barriers are related with internal environment of the producers (Zhang et al 2015, 70). In this regard, the internal organizational structure and strategy are outlined as the major stimulators of the adoption process. Another set of key findings also reveals the fact that internal strategic operations and structure plays a critical role towards the organizational preferences towards innovative solutions. Moreover, the size and type of the business is also indicated as critical barriers of innovative adaptations. This is because, the strategy and structure of any organization allows the decision makers to make decisions that are more worthy than risky (Han, et al. 2017, 330-334). In contrast to this, innovative technologies are always higher at risk due to lack of experience and absence of consumer preference. Practically, the companies with rigid structure and strategy tend to avoid adaption of technology and target the similar audience with same product for years until unless the targeted population is shift by another market player. On these grounds, the importance of competition is also highlighted by the study. In simple words, the organizations are obliged to react as per the market requirement and overcome the contextual barrier to sustain its market share.

Cities across the countries which are more developed are experiencing the e-scooters that are enhancing the perception of the adoption of the new technological innovation. People belonging to the underdeveloped states are more resistant to understand the adoption of the new technology and are more likely to block the perception of the innovation adoption of the e-scooter technological services (James et al., 2019). The mode of transportation is enhancing mostly in the developed economies and more urbanization and globalization in the industries has

made the investors and innovators to create digital transformation. More organizations are striving to update its technology to innovate their product of the e-scooters. However, transportation is considered as the main aspect and necessity of life and more people are seeks for the cheap mode transportation. As the e- automobiles are cheaper and efficient than the commercial mode transportation that enhances the consumer minds and perception regarding the adoption of the technology (Hardt, and Bogenberger, 2019). The technological development situation in the country matters a lot, as the wellbeing of the economy matters too. More, sustainable economy is likely to develop its product and can be able to innovate their product such as automobile products. High powered and cheap to consume is an efficient way of the transportation and mass people requires or seeks this mode of transportation service that could be effective as well as efficient. The early adopters can vary via the age and perception regarding the innovation. Young adults are more likely to accept the technological advancement and the revolution in technology are more accepted by the youth compare to the mature people who are more resistant to change.

Service adoption is a challenge for the people and now a days, more people considered as the barrier to the resistance to change. Innovation adoption is one of the biggest challenges for the firms that are providing new services and in order to minimize the gap of the change, multiple effective marketing campaigns and strategies were used by the companies in order to entice a large number of minds to consider the new technology. A new generation is more adoptable to the new methods of the transportation and, due to the early adopters; other people are considering to make the sustainable choices regarding the innovation (Tuncer, and Brown, 2020). The perception holds a significant value in the sales of the new product such as scooter and more the service of the scooter is likely to increase if the perception regarding the innovation can be changes and more awareness can be developed to enhance the mode of transportation in Finland. The barriers regarding the innovation adoption is a huge threat to the innovation providers or service providers. Consumer perception holds a significant value in bringing the adoption process for the innovation and people are more likely to resist the change. Widespread usage of the communication technologies has emerging information can be used to enhance and to develop effective means of the innovation adoption. The new technological adoption is essential to make the shared mobility and the development of the mode of transportation at

Finland (Painsi, 2018). The technological revolution is important parts to excel and to make the sustainable changes are the requirement for the economic and industrial growth.

The wellbeing of the people is dependent on the innovation adoption as the new technology invention are being introduced which are causing effectiveness and comfort in people's life. More people that are seeking to enhance their way of life are early adopters of the new technology and more people consider changing their way of life via mitigating the threat regarding the adoption of technology. The e- scooter innovation service could be used to develop the perception of adopting enhanced lifestyle (Jones, Harms, and Heinen, 2016). More people are now involved in enhancing the innovation and better understanding of the consumer perception and consumer buying behavior can be done via the testing of the services. The perception error can be determined in this way regarding the innovation adoption process and evaluation of the challenges to adoption can be done. A better understanding of the consumer perception can be done with the forecasting of the people's perception regarding the service or product. Moreover, the new product or service ideas continues to attract a significant level of the research regarding the originality and uniqueness of the service to value the consumer attention (Lowe, and Alpert, 2015). Extensive knowledge sharing in the innovation is essential for the companies and the innovation service providers as people in Finland are seeking a better opportunity or they are satisfied with the current technological adoption. To introduce the innovation of the e- scooter service, it is essential to carry out the research and development process in order to enhance the mass people and to reduce the people from the laggards, thus increasing the early adopter list (Saaksjarvi, 2003). The namely innovators are also present in the mass population who are showing to adopt the technology but not practicing it. Balancing the market requirement with the product or service innovation is one of the essential elements for the global companies and more people falls in the category of the early adopter could likely to increase the chances of the success innovation adoption process. The change of perception is significant for the firms to spread the awareness of the new inventions or innovations. Generating and accessing the consumer adoption process through consumer's innovativeness and people perception regarding the innovation is vital. The concept of brand innovativeness is widely utilized by the firms in order to enhance the consumer perception and to access the significant adoption factors of the consumers to position its new service into the minds of large target market (Alan et al., 2017).

5.2 Managerial Recommendations

It is important for the people to create an understanding concerning the variation that will lead an individual in adoption of technology. The other recommendations are related to the information of consumers which is provided by the distributors and the company through advertising and other marketing tactics. In addition, the consumer should try to integrate and understand the specific information required for the adoption of new technology with a proper time. Similarly, the company or dealer should interact or communicate information to the consumer or bring an innovative change in minds of consumers. Such as companies of Finland decided to launch the new and innovative e- scooter service in the native country. Prior to this launch company should inform consumers about the innovative services and products they launch. Therefore, to bring in minds of consumers about innovative services the company should aware consumers prior to launching of new e- scooter service especially to those people who do not understand the technicalities of an innovation.

In adoption of new technologies, the affordability of an individual is most crucial. Generally, it has been noticed that innovative product is much expensive as compared to normal products because of additional features. Therefore, manufacturers and distributors need to create compatible and affordable new and innovative technologies. Due to this the adoption of the product can be strengthened because of wider adoption and limitations related to certain products are also reduced such as cost and consumer affordability. This can enhance the benefits of e- scooters which are easy to use because their consumption is completely based on efficiency of energy. The other recommendation is that the companies implement the processes related to e- scooters which touch the emotional sense of the consumers. This can increase the delivery of the products which lead to the value added to the consumers.

The production companies should align the strategies of business and technology equally because both are equally important for the growth of a business. In addition, before going to integration of any innovation or investing and innovative products the company should perform the analysis of existing system. Likewise, the manufacture companies of e-scooters can intricate deployment of technology with the change management which leads to integration of effective strategies in accordance with the innovation capabilities. Along with the other factors the companies which are producing this type of innovative products must focus on price of the

products which is mainly considered at the time of purchasing. It has been noticed that the majority of consumers are not considering the benefits of the product over the price, but they are emphasising on price of products only which creates the differences in perception of consumers.

5.3 Theoretical Contributions

The following study was significant as mentioned in previous sections and the findings had revealed some great insights about the perception of consumers and the extent to which they are willing to use/try or purchase electric scooters. Theoretical contribution is basically theory development process and how a researcher is able to contribute in improvising existing theory or developing a new one. The current study focused mainly on consumer perspective in bringing innovative e-scooters in Finland therefore, the consumer behaviour has been focused as well as technology acceptance model. The researcher was successful in determining that consumers accept technology after gaining awareness about it, knowing its benefits or trying it out. The questions asked in the survey were relevant and revealed the perception of consumers. Therefore, this study contributed in further understanding the consumer behaviour theory and TAM in more practical manner.

5.4 Future Implications

Future implications of the research denote the influence that the research might have on upcoming research or rules and regulation or policy judgement or the appropriate field associated with interest of the study. Hence, the future implication indicates the influence of the research and recommendation which might be tangible actions or steps that is proposed by the research (Lin et al., 2018). This research is related to the innovation adoption of new e-scooters services in Finland on a consumer perspective which is mainly catered through the quantitative perspective which gives specific insights about the phenomena. Hence, this gives a detailed insight about adoption of innovation of new e-scooters services by comparing and contrasting this with literature or other different studies.

On the one side, the range and background of this study are specific which is only used for Finland. Therefore, this research could be undertaken on a global perspective. Because results of this research can be applied for innovation adoption of new e-scooters service globally. On the other side, this study has another specification which is that this research is conducted on perspective of consumers; therefore, this research cannot be as much useful for dealers, supplier

or other companies of new e- scooter service. Hence, this is only useful in perspective of consumers who are related to adoption of new e-scooters service in Finland. There is various determinant related to scooter services and modern technologies are present in literature which can be used to strengthen this research is a broader way. Such as in innovation the technologies like Internet of Things (IoT), data base systems and concepts like industry 4.0. IoT is a modern concept which involves objects connected with internet networks, things and another object which are capable to gather and exchange the information (Singh and Singh, 2020).

In light of research conducted by Kiangala and Wang (2018) which defines the concept of industry 4.0 and relate to the motor industry. It is the trend in direction of exchange of information and automation in manufacturing technologies and procedures which comprises IoT, industrial internet of things (IIoT), cognitive computing, cyber-physical systems (CPS) and artificial intelligence (AI). The implementation of this type of technologies in new e-scooters services is innovative which involves various and distinct techniques in order to provide uniqueness in the products and services in comparison to the competitive businesses of similar industry. Hence, in future, this research can be conducted by involving this type of factors in the study in order to attain differentiated findings from the other comparative studies. In last, the current research is focusing on only new e-scooters therefore outcomes of this study are only justifiable for the e-scooters. Likewise, this cannot be useful for the other products which are offered by the automotive industry such as e- cars and other e- vehicles. Because, this research is based on a consumer's perspective and the consumers of e-scooters, e- cars and other e- vehicles are different therefore findings are also different.

6 SUMMARY

In this contemporary world innovation and new technology plays a vital role in growth and development of any business or an organisation. Therefore, adoption of innovation and technology is defined by the consumer perception in consideration to usage of that particular technology. Likewise, it has been evaluated that the perception of a consumer in any business is significant because it is deliberated as an impression entrenched by the consumers towards the specific product or services. The perception of a consumer in regard to new services of e- scooter defined in literature as a multi-dimensional in which various dimensions are involved in order to meet the perception of consumers by integrating the technological and innovative aspects in the service of new e-scooters in a Finland. It has been examined that the goal of any company is to provide that product or services to the consumers which lead to the positive perception of consumers.

The findings related to challenges faced by the consumers in adoption of a new and innovative service are different because it relies on a nature of consumer. Some consumers are useful and satisfied with the product and services and certain consumers are complex which enhances their demands with the passage of time. Therefore, complex nature of consumers is facing greater challenges in adoption of new and innovative services concerning to e-scooters. The other evaluated justification associated with this is that innovation might originate a greater amount of change and alteration in daily or routine existence and disorder their established procedures. In contrast, the fast development in technological innovation has enhanced the focus of distinct businesses towards comprehending the innovation adoption of consumers. It also depends on attitude related to the adaptability of consumers towards the implementation of invitation in services of new e-scooters. Moreover, consumers could not interrelate or communicate with the employees of store to attain the helpful information which resulted in the lack of information about technological adoption. This information is most important because a consumer has to understand and learn how to leverage innovative services. Hence, one challenge is the inadequate information to consumers about the innovative services and other changes which creates the hindrances in a decision making of the consumers. The other reason of these challenges is that consumers are mainly considering the current information to learn about the new and e- services of scooters in Finland in comparison to product or services that are newly

presented in a market. This ultimately direct towards the conflicting information about the product or services.

In consideration of the resulted adoption of new technology and innovative services brings an important change in living standards of people. Similarly, the modern adoption of innovation contains a certain contest that confines the perception of consumers concerning the advantages of technology. To accomplish this, it has been evaluated that youth especially the young adults are the most frequent user of the innovative technology. In contrast, the majority of individuals in Finland prefer walking as travelling short distances apart from the use of cycle or scooter. Similarly, amongst the selected sample for analysis, it has been depicting that the adaption related to new e- scooter is graded between the medium and low amongst the population of Finland. Further, some people prefer new technology like e-scooters to fulfil the requirements of social status for the society. The rational of comprising social status and professional recognition has relied on the social characters of people as noticed by the society in which they live.

From the entire analysis, there are two common determinants are analysed which creates barriers in adoption of innovative technology. One is characteristics of consumers which define the extent to which consumers are prone to change. The second is characteristic of innovation which defines how effective the innovation the positive effectiveness leads to the enhanced integration towards the adoption of new e-scooters services. The other two major challenges are identified through the literature and quantitative findings which includes functional and psychological barriers. This type of challenges majorly comes from the differences between past and present experiences of consumers. Again, the psychological barriers are related to the nature of consumer which changes from thinking of one consumer to other consumers. This particular value can also be added with the transfer of effective information about the innovative products to the consumers. Likewise, it has also been formulated from the results that delivery of existing information about the innovative products or services is a major challenge in pathway of adoption of new e-scooters in Finland. Therefore, the value addition in all perspective is important because it enhances the perception, trust and awareness of the consumers about the products and services.

The other type of consumer who has an emphasis on the products and services which are environmentally friendly. The world is moving to the adoption of a green world environment therefore, to take notice of environmentally friendly products direct to addition in a better environment. Likewise, the adoption of environment friendly products requires an additional cost which is one of the major challenges for the people. This is due to increasing cost of resources and other equipment which involves greater cost. In conclusion, the producers grieve increasing bargaining power of the distributors and suppliers due to scarce material and limited availability of resource person. The result of objectives related to challenges of adoption of modern technology is evaluated which comprises consumer preferences, social status, environmental concerns, consumer perception, professional identity, limited support, increasing prices and social status of people. The entire mentioned challenges in the above mentioned statement are interconnected with the impact of consumer behaviour. In relation to adoption of innovation, the perception of consumer is most important because it is wisely stimulated by numerous determinants such as personal experiences, public reviews, public relation, social media and advertising. Hence, it is important for the adoption of innovation in new e-scooters service in Finland which is undertaken in consideration to perspective of a consumer.

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APPENDICES

Appendix 1

Survey Questionnaire

Age?

- 16-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55 years old and above

Gender?

- Male
- Female
- Other

Marital Status?

- a) Single
- b) Married
- c) Divorced
- d) Single Parent
- e) Other

Years of Using e-Scooters?

- 1 Year
- 2 Year
- 3 Years
- I haven't used/tried scooter
- I have tried it but do not consider myself as an user

What modes do you prefer to commute on daily basis?

- Scooter
- Walking
- Car
- Bus
- E- vehicle
- Bicycle
- Other

What is your profession?

- a) Student
- b) Businessman/woman
- c) Government Employee
- d) Retired
- e) Service Holder
- f) Other

Please fill the given questionnaire and choose the option according to the degree to which you agree or disagree with the statement.

[1 = strongly agree; 2 = agree; 3 = neutral; 4= disagree; 5 =strongly disagree]

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Relative Advantage					
scooters will be great advantage for environment prospects of Finland.					
scooters are less expensive ride because no cost of fuel involved.					
scooter supports in reducing the carbon emission.					
Compatibility					
It is worth to replace the existing motore-scooters with scooters.					
Battery of scooter cannot be charged remotely at any location like fuel.					
scooter will support me to commute of daily basis					
Complexity					
scooters are easy to use and operate.					
It would be difficult to ride scooters on fast driving roads					
Trialability					
I would like to test drive the scooter before purchasing it.					
Company is allowing to try the scooter because they are confident with their products.					
Observability					
The purchase of any new technological product is highly depends on person observability.					
Companies are paying more attention towards observability to spruce up their					

products.					
Consumer Perception					
scooter is a new concept in Finland that attracts me					
scooter initiation is an act to improve the environmental sustainability.					
scooter are ecologically friendly but expensive to afford.					
I would be needing a user manual to operate scooter					
scooter are simple and convenient					

Source: Ferreira (2016)