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MANAGING CUSTOMER SERVICE SATISFACTION IN SELF-SERVICE CARWASH ERGONOMICS IN ESTONIAN MARKET

Bachelor's theses
Programme TVTB, specialization Marketing

Supervisor: Andrei Špiljov, visiting lecturer

Tallinn 2018

I declare that I have compiled the paper independently
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ABSTRACT

Modern technology is moving towards self-service. New forms of self-service are conquering the market quite rapidly. Business owners implement new types of equipment and don't always think about standardized approach in terms of customer service. Self-service carwash is not an exception.

The aim of this research is to measure customer satisfaction level, determine what problems customers experience using self-service carwash equipment and suggest solutions, which might improve customer service and achieve greater customer satisfaction.

As a research method, the author used SERVQUAL, IPA, literature analyses, so quantitative research method. The questionnaire was conducted by direct contact with respondents on self-service carwash locations around Tallinn city, had two types of questions, where respondents gave a rating of 1-7 on a Linkert scale and made choices between the answers given by the author.

Key words: self-service carwash, SERVQUAL, customer service, customer satisfaction.

INTRODUCTION

In today's world self-service technology became highly-demanded. Self-service carwash is a good example of classical service evolving into self-service. Self-service carwashes became popular and widespread in Estonia for the last 6 years.

There are more than 20 self-service carwash stations in Tallinn and more than 60 around Estonia. In Europe there are more than 11,000 carwashes where client can wash his car by himself. Despite high popularity of such service, in Estonia there is no regulations and standardized approach in terms of client service.

The aim of this bachelor's thesis is to measure customer satisfaction level, determine what problems customers experience using self-service carwash equipment, and suggest solutions based on industry trends in the European market in order to increase the level of customer satisfaction in competitive market.

Self-service carwash owners and operators can use these results to organize and improve client service and ergonomics to ensure customer satisfaction. To obtain the aim, the author sets up the following tasks:

1) Explore the theoretical foundations of client service and its correlation with ergonomics, to get general knowledge for achieving customer satisfaction in self-service
2) Carry out a survey among people to measure satisfaction level and determine problems customers experience using self-service carwash equipment.
3) Analyze the results and draw conclusions and suggestions according to the results of the study.

As a research method, the author used SERVQUAL, IPA, questioning, literature analyses, so quantitative research method, the results of which are published as numerical results. The questioning was conducted by the author during direct contacts with respondents on self-service carwash locations around Tallinn. It had two types of questions, where respondents gave a rating of 1-7 on the Linkert scale and made choices between the answers given by the author. Sources of information were following: scientific articles, industry information from association, questioning results, and text-books.

Bachelor's thesis "MANAGING CUSTOMER SERVICE SATISFACTION IN SELF-SERVICE CARWASH ERGONIMICS IN ESTONIAN MARKET" consists of three parts. The first part deals with the theoretical basis of the client service, in marketing and ergonomics. Identifying the importance of these selection criteria to meet client needs and reaching customer satisfaction. In the second part author describes European self-service carwash trends and Estonian industry development. In the third chapter author describes sample and methods used during the research. Fourth chapter provides data gathered during the research, analyses, solutions and recommendations, based on European market tendencies and Estonian market conditions.

1. LITERATURE REVIEW: CUSTOMER SATISFACTION

Customer service is anything service provider does for the customer that enhances the client experience and satisfaction. “Customer satisfaction is the customer’s overall feeling of contentment with a customer interaction; it recognizes the difference between customer expectations and customer perceptions”. (Harris 2013, 3)

Examples of Customer service (Harris 2013, 2):

- Easy-to-use and functional equipment
- Accessible manuals and frequently asked questions online
- Well-explained instructions
- Accessibility when and where the customer wants it

1.1. Customer service in marketing

In an environment where competition is becoming more and more demanding, companies must be customer oriented and customer satisfaction represents a modern approach to high-quality business (Kotler 1988, 10).

Some impressive research findings and empirical values that come from different areas, all of which affect the company's economic performance on the basis of customer satisfaction. They show the importance of customer satisfaction, its meaning and its benefits to the company:

• A satisfied customer is 300% more likely to remain customer than not satisfied.
• The possibility that a highly satisfied customer is the best form of advertising is close to 100%.
• 25% of customers change companies if they are not happy with price or quality.
• It's 600% more expensive to get a new customer than keep your existing customers.
• 95% of not satisfied clients remain loyal if the problem is resolved in five days.
• 75% of customers turn to their competitors because they are not satisfied with the service

Based on these facts, companies definitely have a reason to follow if their customers are satisfied with the quality of service they provide. (Raab *et al.* 2008, 60)

Customer satisfaction can also be measured in order to find out how successful a company is at the moment, and can also make predictions for the future. What matters is not the current number of profits, but the satisfaction of customers. If the satisfaction is low, then customers will surely find other providers from whom they can get better products or services. This is one of the reasons why customer satisfaction information should be collected on a regular basis. If decision makers have comprehensive information on the current situation, they will know what should be focused on in order to remedy the situation. However, it should be borne in mind that customer satisfaction is always invitational and subjective, so the sample must be large enough to make decisions on this basis.

Customer service is how the organizations strengthens its positions on the market over the time, but quality is how company's offer stands out and gets extra value among the customers (Christopher, Payne & Ballantyne 1991). Therefore, customer service affects total customer satisfaction and helps companies to survive on the market (Kanovska 2009, 414).
Since customer satisfaction is deemed to be based on the client's experience in a specific interaction with services (Cronin & Taylor, 1992), this is consistent with the fact that the quality of service is the main factor in customer satisfaction, because the quality of service is based on service results from service providers.

Regarding the relationship between customer satisfaction and quality of service, some researchers have found empirical support for this point of view (Anderson & Sullivan, 1993; Fornell *et al*. 1996; Spreng *et al*. 1996), where customer satisfaction is caused by quality of service.

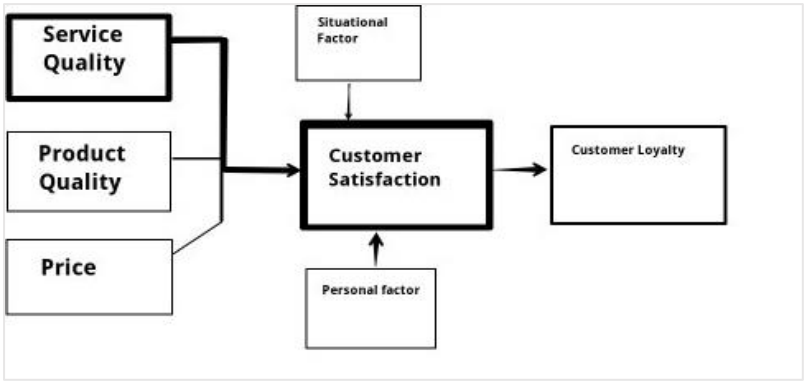


Figure 1. Customer perceptions of quality and customer satisfaction
Source: Redrawn by the Author from Wilson *et al*. (2008, 78)

The Figure 1 demonstrates the correlation between customer satisfaction and quality of service. The author highlighted a relationship in which quality of service is the one of main criteria in order to achieve customer satisfaction. (Wilson 2008, 78)

As previous studies on the quality of service and customer satisfaction have shown, customer satisfaction and quality of service are related to their definitions with their correlation with other aspects of the business. Some authors have agreed that the quality of service determines customer satisfaction. Parasuraman *et al*. (1985), in their study, suggested that when perceived quality of service is high, this will lead to increased customer satisfaction. Some other authors realized the idea of Parasuraman (1995), and they recognized that customer satisfaction is based on the quality of service provided by service providers (Saravanan & Rao 2007, 436; Lee *et al.* 2000, 226). Looking at Figure 1 referring to these views of the authors, it is obvious that the definition of customer satisfaction is related to the predicted and perceived service, since the quality of service is one of the factors affecting satisfaction.

1.2. Measuring customer satisfaction

In most consumer surveys conducted to determine their level of satisfaction, respondents are asked to evaluate the products, services and performance of the company according to a certain set of criteria, each of which must be assigned a certain score on the seven-level Likert scale. A five-point rating scale can also be used instead. Next, the average score for each characteristic is calculated. (Malhotra 2015)

Parasuraman, Zeitham and Berry demonstrated a tool called SERVQUAL to measure customer perceptions of service quality. This approach makes it possible to find out not only what areas of the company's activities are most satisfying to the client, but also which of them have the greatest importance for the client. The significance of the attributes is assessed on the Likert scale (the least important attributes are rated at 1, and the most important ones are rated at 7). This method is based on the assumption that the significance of individual criteria corresponds to the client's expectations regarding the effectiveness of the company in each of the evaluated areas of its activities. The quality of the assumed service is calculated for each claim:
Q = P-E
where:
Q - perceived quality of service,
P - performance
E - expectations.
The negative Q value indicates the quality of the service below the customer's expectations.
By contrast, a zero or a positive Q score indicates that the quality of the service is equal to or exceeds the customer's expectations.

The objects of improvement are, first of all, those of them in which there is the greatest discrepancy between the average satisfaction score and the average significance score. (Parasuraman *et al*. 1985)

Importance-Performance Analysis (IPA) is close to SERVQUAL. It is based on a graphical representation in which the space of assessments of the importance of signs and customer satisfaction is divided into four quadrants (Figure 2). The task is to identify the most important

aspects of the company's activities, in which, according to consumers, it works the worst. (Martilla & James 1977, 78)

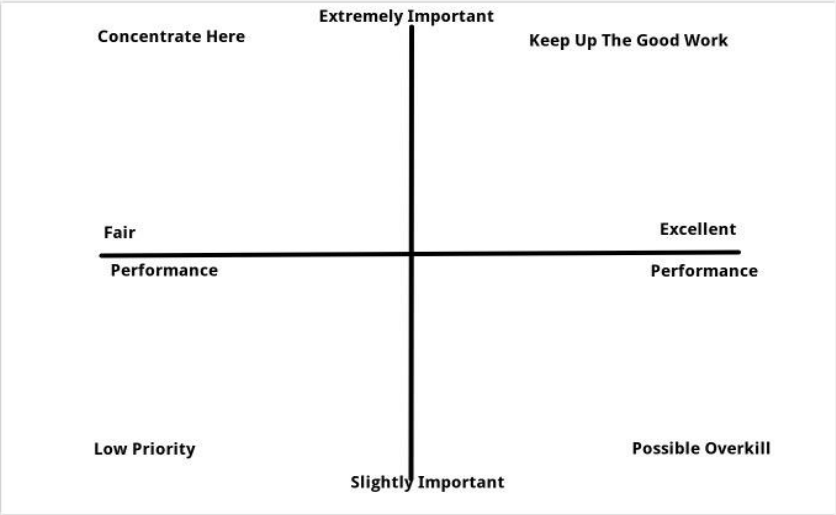


Figure 2. Importance-Performance Grid with Attribute Ratings
Source: Redrawn by Author from Martilla & James (1977, 78)

Improvements are assigned primarily in those areas of the company, to which the criteria that have received the lowest scores. As the IPA model is a cheap, easy and effective analytical tool, it is very suitable for identifying weaknesses in brands, products and services, and thereby increasing customer satisfaction levels. (Martilla & James 1977, 77)

1.3. Customer service in ergonomics

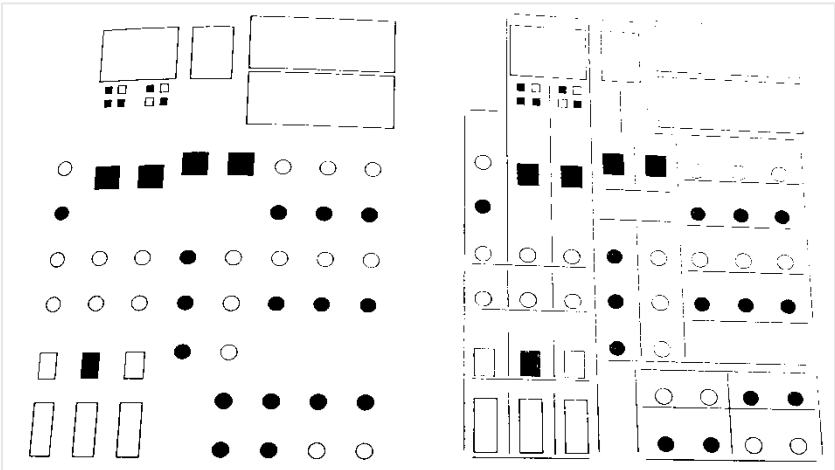
Interaction between human and machine depends on a two-way information exchange between the user and the system. Designers usually have detailed, explicit machine models and machine behavior which can be used to improve human-machine interaction. The general model of cognitive processes and cognitive behavior of the user is also necessary for: (Bridger 2009, 457-458)

- Provide knowledge of what can and cannot be expected from users
- Identify and explain the nature and reasons of problems

Despite the availability of recommendations for the design of the display, designers often ignore them. The color coding of the dials can reduce the load on the memory of routine reading test tasks (red for danger, green for safe, orange for caution). (Bridger 2009, 512) The controls must be designed to work in low positions and without static loading of parts of the body, in particular the fingers. The control panel dimensions should be determined using knowledge of the mechanical advantages necessary to enable the user to easily operate the control. (Bridger 2009, 524)

Malone in 1980 checked the control room at a nuclear power plant at nuclear station. Information required by operators was often considered non-existent, poorly located or difficult to read. The detectors were not color coded, and in one subsystem, 91% of the applicable human engineering standard for the display design was not found. In addition, in the control room 1900 displays were located on high vertical panels, 503 of which could not be accessed by an operator with short height. The labels on the panels were also not understandable - it was found out that the operators themselves had made 800 changes to the current panels to improve them.

An example of an ambiguous panel design is shown in Figure 2.a. The same panel, after improving the boundary, is shown in Figure 2.b. In (a) the original panel design is shown. In (b), the black tape is stuck on the panel to clear the true boundaries of the subsystem. (Bridger 2009, 512-513)



(a) (b)

Figure 3. Remedial ergonomics to improve panel design

Source: Bridger (2009, 513)

The study showed that it is easier to find memory for the attributes of the object, than to talk about the attribute and create objects that have this attribute. As a rule, objects should be accompanied by attributes. When writing a tutorial in the user guide, the approach of the object attribute may be best-to inform users that the various controls and commands allow them to do so. People tend to perform a task in which order they read about them. For example, instructions such as "Before completing this section, read note 3" will be more compatible if they are rephrased as "read note 3 before completing this section". The principles of using visual images as an aid to learning:

1. Both the cue and the element must be visualized
2. Images should interact
3. Signals must be self-generated
4. The semantic similarity between the replica and the element should be minimized
5. Unusual images are no better than obvious relationships

It is interesting that the images, apparently, are necessary only at the initial study of the new material. When using the search, it becomes automatic, and a person can eventually forget the image itself, even if the word can be remembered.

A good design is focused on being easy to understand at the initial collision with the material and subsequent readings. Memory for the meaning of the sentence seems to be independent of memory for its formulation, so phrases that are difficult to understand on first reading can remain difficult. Some people only remember the "essence" of things; they may not know that their memory of the meaning of previous instructions is incorrect. Unable to obtain a precise formulation of the source material, their initial, incorrect interpretation will dominate.

Phrases with negative elements are more difficult to understand than affirmative sentences, as in: "Is the room inaccessible?" To answer this question, many people should turn it into a positive question ("Is this room accessible?"), reply to it and then turn back the answer into affirmative form. As well negative meaning can be skipped through the quick reading.

Double negatives can be even more problematic, for example, "do not try to adjust this equipment if the technician is out." The alternative "Only adjust this equipment in the presence of a technician" is more understandable. The meaning of negative statements is the incorrect assumptions that readers read, or to issue commands, for example - Do NOT turn at people. To

protect the reader from a misunderstanding negative sentence for a positive, the word "not" can be marked, highlighted in bold or in uppercase or in a different color.

It seems that people are better at coping with complex syntax when the theme is specific or specific words are used. In the design of forms or instructions, unnecessary abstract words should be avoided, especially while using complex syntax.

Studies show that there is a percentage reduction in the number of people noticing (88%), reading (46%) and cooperating (27%) with warnings for various products. The perceived danger of the product is positively related to the probability of reading the warning. Therefore, labels should be designed to increase the perceived hazard of the product. Critical warning information can be placed on a significant portion of the product where they are likely to be visible and must be made from materials that will extend the life of the product under fair use conditions. (Bridger 2009, 586-590)

Wogalter *et al*., (1997) compared elevator user's compliance to four different signs. The signs were intended to improve the efficiency of using the elevator by urging people to use the staircase for short trips (one floor up or two floors down). The signs are shown in Figure 4.

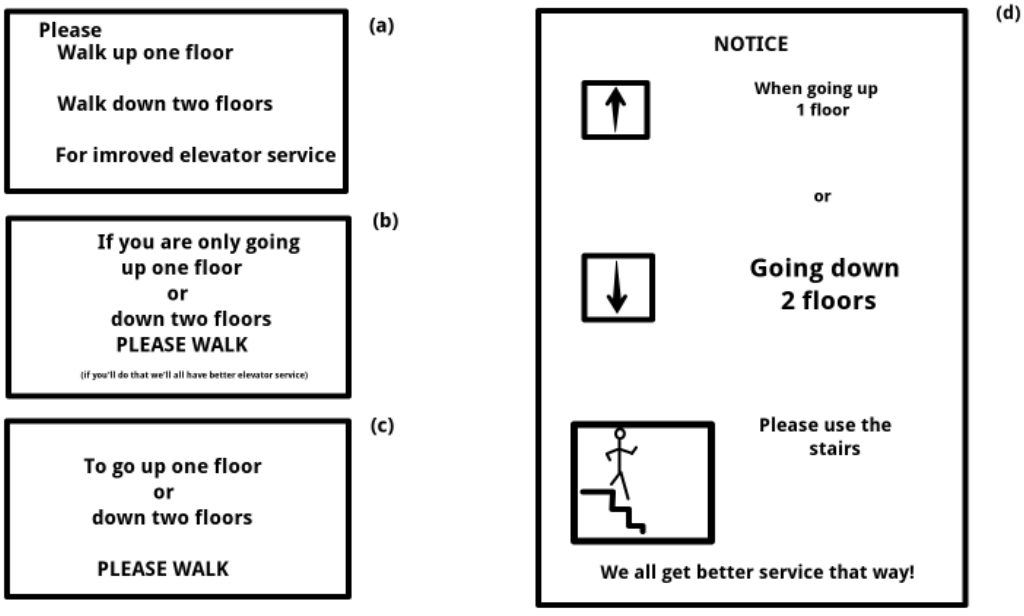


Figure 4. Composite sign

Source: Redrawn by Author from Wogalter *et al*. (1997, 181-187)

Subjects evaluated the signs in accordance to how understandable the signs were and their willingness to comply. Sign A was rated lowest on both criteria and sign D was rated as the highest. A field study confirmed that sign D was the most effective of all the signs – the proportion of people observing was 0,91 when sign D was placed outside all the elevators in a building compared to 0,67-0,77 for other signs. Thus, when poorly designed signs are used up to one-third of users may not correspond compared to one in ten when a better design is used.

2. SELF-SERVICE CARWASH INDUSTRY DEVELOPMENT

In first part of this chapter author provides relevant information about industry trends in Europe, in second part about industry development in Estonia.

2.1. European trends in self-service carwash industry

Despite the fact that no census or research was conducted on the specific size of the car wash industry, the International Association of Car Wash estimates that in Europe there are about 80,000 professional car washes. By the type of car wash these markets are organized as follows in the Table 1:

Table 1. European carwash market estimations
Source: International Carwash Association (2018)

Type	Europe location
Tunnels (all types)	8,000
Roll-Over / In-Bay	60,000
Self-Service	11,000
Total	79,000

The majority of car wash locations in the Europe are owned and operated by medium to larger sized petroleum companies. But the greatest growth is coming from independent car wash companies and entrepreneurs. More than 1 billion cars are washed each year in Europe. Car wash retail sales are approximately €5B in Europe. (International Carwash Association 2018)

Like all businesses, self-serve carwash operators and owners realize the necessity of adopting the newest industry trends and innovations that can help them attract more customers, improve their customers' satisfaction and increase revenue (Kleen-Rite Corp 2015).

Drew Dressler, director of sales and marketing from D&S Car Wash Systems, states that the next generation in self-service car washing technology was developed for the European market. The main idea was upgrading equipment design to achieve greater customer satisfaction in the global car service market. To interact with clients in the bay, both car wash control and the payment process can be provided by smart terminals. Some systems are constructed of stainless steel.

These terminal ports are fully automated and provide customers with a convenient interface through a large LED display and simple button design, Dressler states. (Wirges 2018) Modernization of LED lighting is one of the trends in self-service: they reduce energy consumption and produce bright white light, which makes car wash bays more attractive for night use (Kleen-Rite Corp 2015).

Operators have found that adding credit card validators to wash bays and vacuum cleaners can increase revenue for self-service. Credit / debit cards are convenient to use instead of cash, and today's younger consumers prefer to use plastic to pay for services. Some operators are experimenting with upgrading the air pressure and chemical concentrations in one of their bays in order to offer a “Premium Bay” with higher cost per minute. Many customers are attracted by increasing the water pressure for detergent rinse and wax applications, as well as by higher quality chemical formulas, and will spend extra for such improved service. More and more popular as an alternative to traditional triple foam detergents are polymer protective agents that add protection to paint and improve paint, chrome and glass. (Kleen-Rite Corp 2015)

European tendencies concentrate more on upgrading existing locations, then opening new once. This indicates the market maturity and high competition in Europe.

2.2. Estonian industry development

In 2012, the first self-service car wash in Tallinn was launched - Smartwash Autopesulad OÜ. "The business needs to be expanded," says Denis Grigoriev, Member of the Smartwash Board, based on the creation of new car wash stations (Aripaev 2014). In order to satisfy clients with the service and to reduce the waiting line of washers, Smartwash has plans to build two new self-service carwashes.

Smartwash Autopesulad OÜ was established in 2009. The main business of the company is to bring high-quality and affordable car wash service to the Estonian market. In 2009-2010, the activity was dedicated to finding the necessary surface for the car wash, and in September 2010, an agreement was signed with Mustamäe District Government to rent Sõpruse pst. 263

territories. The biggest cost was incurred in the 2011/2012 year, when the wash was built. The owners of the company are Aleksey Sovpenets and Denis Grigoriev.

Grigorjev thought that self-service car washes might be popular, the reception was better than he expected. "The price places the customer in the spot," he explained why customers prefer self-service carwash to automatic. According to him, self-service carwash is relatively inexpensive once - three to four euros per washing. "Self-service carwashes appear so rapidly, that at one point there would be too much of those, and then non-popular ones fall and only high-quality and consistent once remain", Grigoriev predicts the future of the self-service carwash. According to him, in Tallinn there will be not enough space for many self-service carwashes and more than twenty stations will not make sense in the capital. (Aripaev 2014)

G4S subsidiary Ühisteenused AS has started to conquer the market for self-service carwash, with the aim to create 20-30 car washes together with Alexela Oil.
Hendi Priimägi, the head of the Ühisteenused AS explained that his company has good conditions to grow into new business ideas where new smart solutions are emerging. He believs that in order to achieve sufficient brand recognition on the market and own a self-service carwash network covering the whole of Estonia, there should be 20-30 stations (Stadnik 2015).

Mündipesula belonging to ABCD Partners OÜ, opened its first self-service car wash in Haapsalu. In addition, 2 Mündipesula self-service carwashes operate in Tallinn. When the company began to operate self-service car washes, there were no such stations in Estonia, but in Europe they were already there, Mündipesula 's board member Jüri Vask explained the creation of washes. Vask believes that in the next two to three years there will be a dramatic expansion of self- service carwashes everywhere. After that, the market will stabilize and then the competition will be higher just for the provision of services. If, on his opinion, owners of self-service carwashes now see competition in finding places, then in the future, there will be a greater impact on quality, the number of services and customer loyalty. (Aripaev 2014)

Based on opinions of representatives of industry in Estonian market, it seems like market is saturated or soon will be. Self-service carwash service is on maturity stage of its product cycle. It is most competitive time when operators or owners should invest wisely in any marketing they undertake. They should take into account any modifications and improvements to service process which might give them advantage among competitors.

3. METHODOLOGY

3.1. Research object

The market of Estonia's self-service carwashes can be objectively assessed on the situation in Tallinn (the capital city), because in Tallinn the concentration of self-service carwash stations is the highest in comparison with other Estonian cities. There are about 50 self-service carwash locations in the whole country. There are about 25 self-service carwashes in Tallinn. For this research Author selected 4 largest firms by number of carwashes in Estonia: Nuttipesu (10 washes in Estonia), Myndipesula (8 washes in Estonia), Aqapesu (8 washes in Estonia), Linnapesulad (6 washes in Estonia). These companies fell into the sample size, because they have a self-service carwashes in the territory of the whole of Estonia and the number of stations objectively exceeds competitor's numbers: Jazz pesulad only in Tallinn 3 locations, Dibo only in Tallinn 2 locations, Smartwash only in Tallinn 2 locations, Isepesula 24 only 2 locations, Wash me only 2 locations, and other companies with less than 2 locations. (Data obtained by the author as a result of studying the websites of self-service carwash companies in Estonia)

To answer the research questions, the author conducted a survey among self-service car wash clients on 4 biggest self-service stations (by number of washing bays) in Tallinn city to get useful feedback on the issue and help carwash operators to improve ergonomics of car washes in order to increase the level of customer's satisfaction, knowing the consumer preferences. Examined carwashes are located at:

1) Myndipesula (4 bays) Paldiski mnt 96
2) Aquapesu (4 bays) Jarveotsa tee 20
3) Nuttipesu (3 bays) Peterburi tee 58a
4) Linnapesulad (3 bays) Veerenni 54

The survey was conducted by the author from 6 April 2018 to 13 May 2018 among clients of mentioned above self-service carwashes by face to face contact. The questionnaire consisted of 19 questions and was available in Russian and Estonian languages (English version of a survey is shown in Appendix 1). At the beginning of the questionnaire it was explained who is the author of the survey and why the questionnaire is needed. It also showed which data was used

and reported that the responses are anonymous and that individual results are not published. 293 participants took part in the research.

The research of the bachelor thesis was complicated by the lack of information about industry and information about customer's feedback. Open information wasn't full enough and more concrete researches are not available in free access.

3.2. Methods

The outline of research is shown on the Figure 4. Problem actuality and definition is described in the first chapter. As an approach to the research problem author had chosen SERVQUAL and IPA methods, due to high speed data can be collected, and with the reliable, repeatable information that quantitative surveys can provide, a trustworthy set of statistics can give confidence in future estimating.

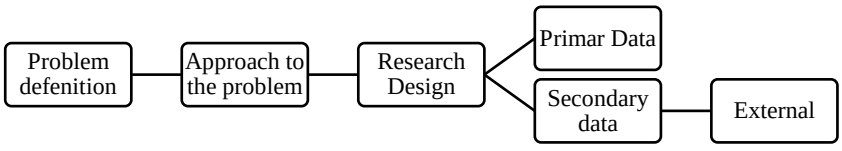


Figure 4. Research outline
Source: redrawn by the Author from Malhotra 2015

The data collection method was a standardized survey, which is presented in Appendix 1. Perceived service quality questionnaire was adapted from Malhotra and based on demographical, statistical questions and on two dimensions of SERVQUAL (Reliability and Tangibles) due to specificity of self-service. Questions for the questionnaire were formed by the author, based on the interaction of customers with the key elements of self-service carwashes and equipment instructions provided by self-service carwash operators (data obtained by the author as a result of studying the websites of self-service carwash companies in Estonia). The author investigated

age, gender and language of self-service carwash customers in order to apply improvements for particular segments of clients, which is described in context of future research in third chapter.

The questionnaire consisted from two types of questions, where respondents gave a rating of 1-7 on a Linkert scale, valued importance of various factors, satisfaction level and made choices between the answers given by the author. Survey results of the research are published as numerical results. The Microsoft Word environment was used to generate the questionnaire, and the author used the spreadsheet program Microsoft Excel to process the survey results and draw charts and graphs. The author collected data by direct contact with clients on self-service carwashes of Tallinn city (described in previous part of current paper). Visitors were briefly informed about the essence of this study and asked to answer questions from the questionnaire. Generalizations and conclusions have been made based on the data processed.

During the research, author found out additional useful information for the industry (secondary data provided by International Carwash Association), which is provided in fourth chapter.

4. RESULTS, ANALYSES AND RECOMMENDATIONS

In this chapter author provides research results, makes analyses and points out the most important aspects. In first part author provides results, in second part analyses, discussion and interpretation of the survey results, then author offers suggestions in third part.

4.1. Research results

During the research author investigated how easily clients interact with equipment, its instructions and satisfaction level. Following criteria were used:

1) Demographical and statistical

-Gender

-Language

-Age

-Washing frequency

-Average money spending per one washing

2) Tangibles

-Control panel display visibility

-Height of control panel

-Level of lightning

-Visibility of instructions

-Wind protection

-Size of the washing bay

-Noise

-Water splash

3) Reliability

-Clients opinion on washing quality

-Entrance and equipment instruction clarity

-Location of a self-service carwash

-Price

-Vacuum cleaner

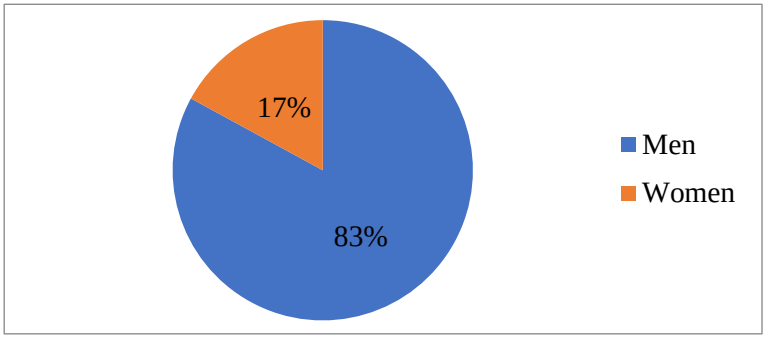


Figure 6. Respondents by gender

Source: author's calculations based on data from Appendix 1

Figure 6 shows that mostly men attend and use self-service carwash stations (83%). Only 17% of women were washing their cars by themselves.

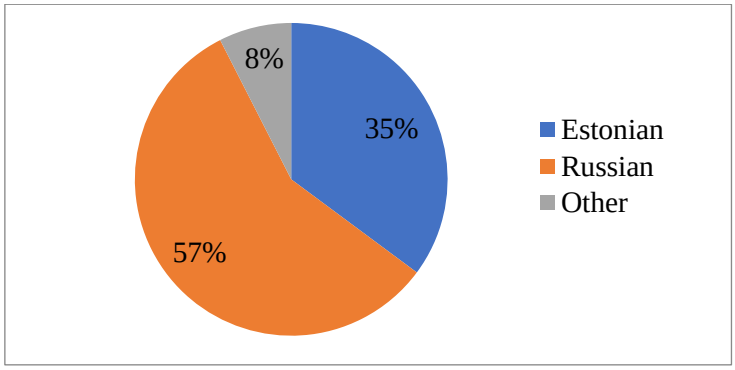


Figure 7. Respondents by language

Source: author's calculations based on data from Appendix 1

On the Figure 7 it is shown that mostly Russian speaking clients are using self-service carwashes (57%). 35% of clients are Estonian speaking. Minority of clients speak other languages (8%).

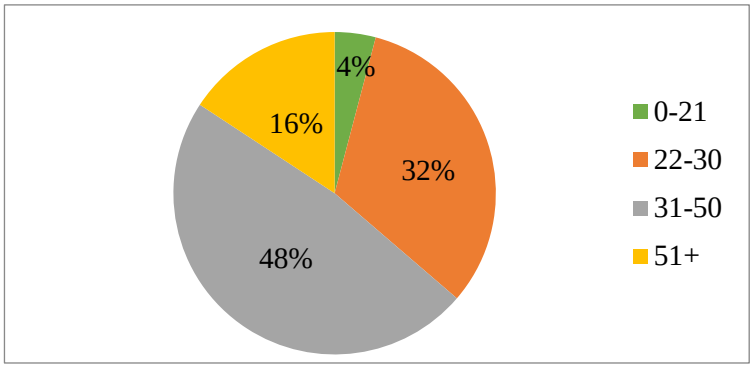


Figure 8. Respondents by age

Source: author's calculations based on data from Appendix 1

Figure 8 demonstrates that age group 31-50 is the largest (48%). Clients from 22 until 30 years old are second biggest group (32%). Clients under 21 and over 51 are the smallest groups (4% and 16%). Mostly people over 18 years old traditionally attend car washes due to lower age limit for getting a driver license. But there were several respondents under 18 years old, who came to wash their bicycles, so their opinion should be also taken into consideration.

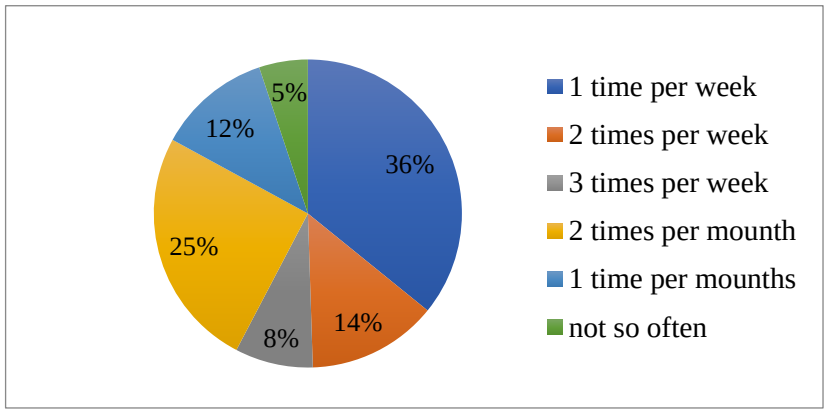


Figure 9. Self-service washing frequencies

Source: author's calculations based on data from Appendix 1

Data collected during the research shows that majority of self-service carwash customers (36%) wash their cars 1 time per week. It is shown on the Figure 9. 25% of clients use self-service washing not more often than 2 times per month. 14% of clients wash their cars 2 times per week and only 8% wash their cars 3 times per week. Minority of respondents attend self-service carwash 1 time per month (12%) or less often (5%).

On the figure 10 it is shown how much money clients spend per one washing (additional services, such vacuum cleaner, presoak and dryer are excluded). Majority (31%) spends more than 5 euros, 25% spend 4-5 euros, 20% can wash their car for 3-4 euros, 19 % spend only 2-3 euro and minority (5%) spends 1-2 euros, considering that average price in Tallinn is 1eur=100second (data obtained by the author as a result of studying the websites of self-service carwash companies in Estonia).

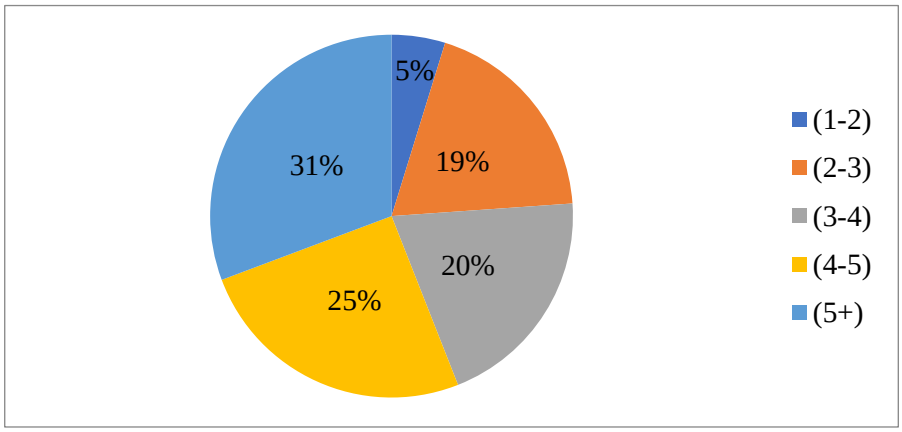


Figure 10. Money spending per one washing (EUR)
Source: author's calculations based on data from Appendix 1

In the questions 6-19 respondents were asked to rate various factors importance and satisfaction (identified by authord exploring self-service carwash manuals from Estonian self-service carwash web-pages) of a self-service carwash on a 7-point scale, where 1 was unsatisfying and 7 was highly satisfying. The factors evaluated by the client were distributed by the author of the SERVQUAL instrument adapted to self-service carwash. Figure 11 is showing the results. The least important factor was Entering instructions clarity with average rating 2,77. This factor is followed by next one Control panel height with rate 2,86. The most important factor was Washing quality with average rate 5,55. Next are factors with less importance – Size of the washing bay (5,13), Equipment instruction clarity (5,09) and Lighting level (4,40).

Looking at Figure 11, it means that the values are not very large: there are not very low or very high estimates. Therefore, it can be concluded that in the opinion of clients, for carwashes, there is no factor that would not be important at all, and which should be given less attention. At the same time, there is no critical factor, with an estimated value approaching 7.

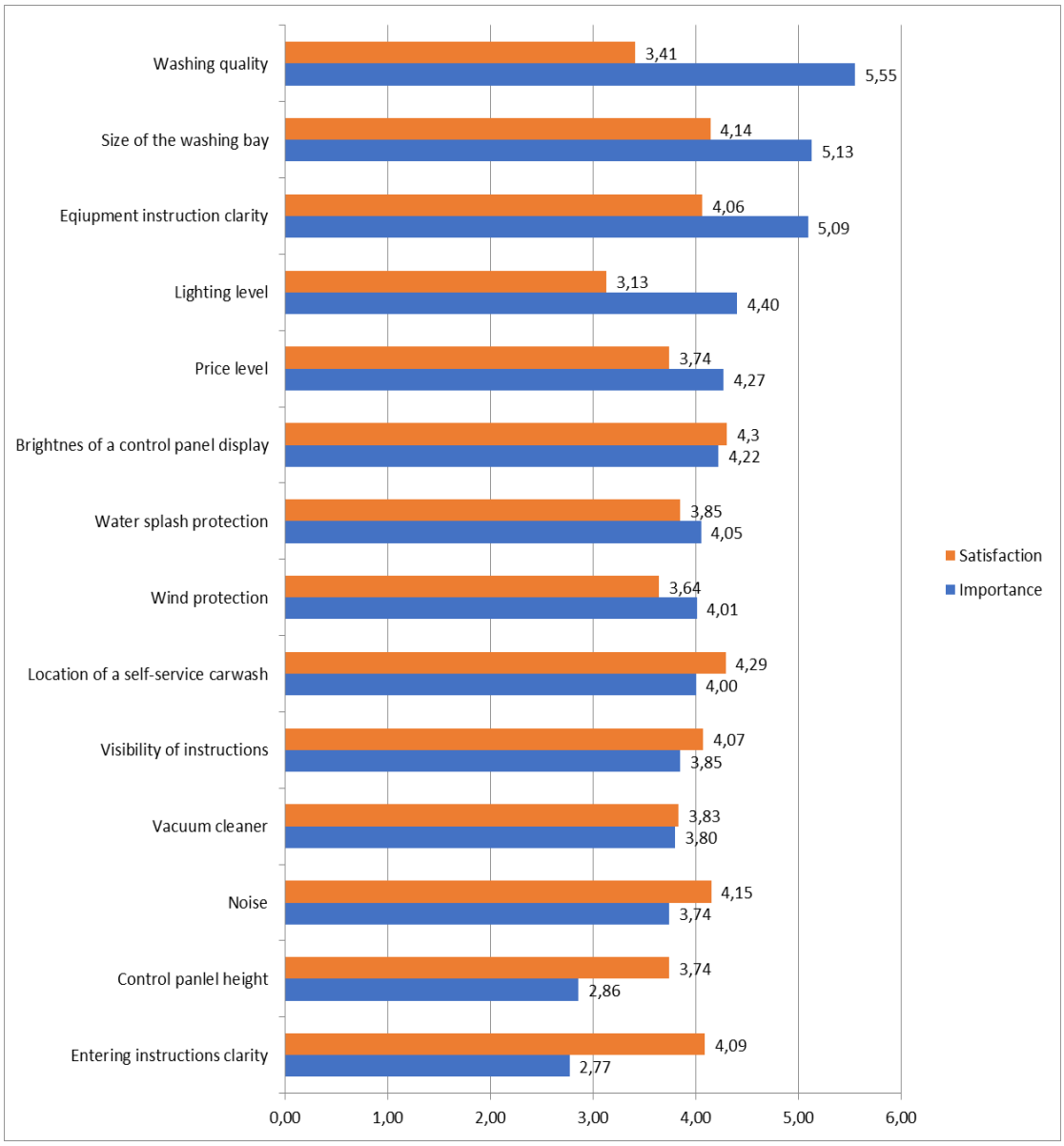


Figure 11. Mean factor values of importance and satisfaction
Source: author's calculations based on data from Appendix 1

Figure 12 shows the discrepancies between the estimates that customers gave to the importance of factors and their satisfaction with self-service carwashes. The minus labels are generated when the importance exceeds satisfaction, and, with the opposite sign, the satisfaction value is greater than the importance value. In the first case, we can call these discrepancies to be negative and in the second case positive.

Factor Washing quality has biggest negative gap (-2,14). Next relatively low factor is Lighting level with gap -1,27 and Equipment instruction clarity with -1,03. The biggest positive gaps are for the factors Entrance instructions clarity (1,32) and Control panel height (0,88).

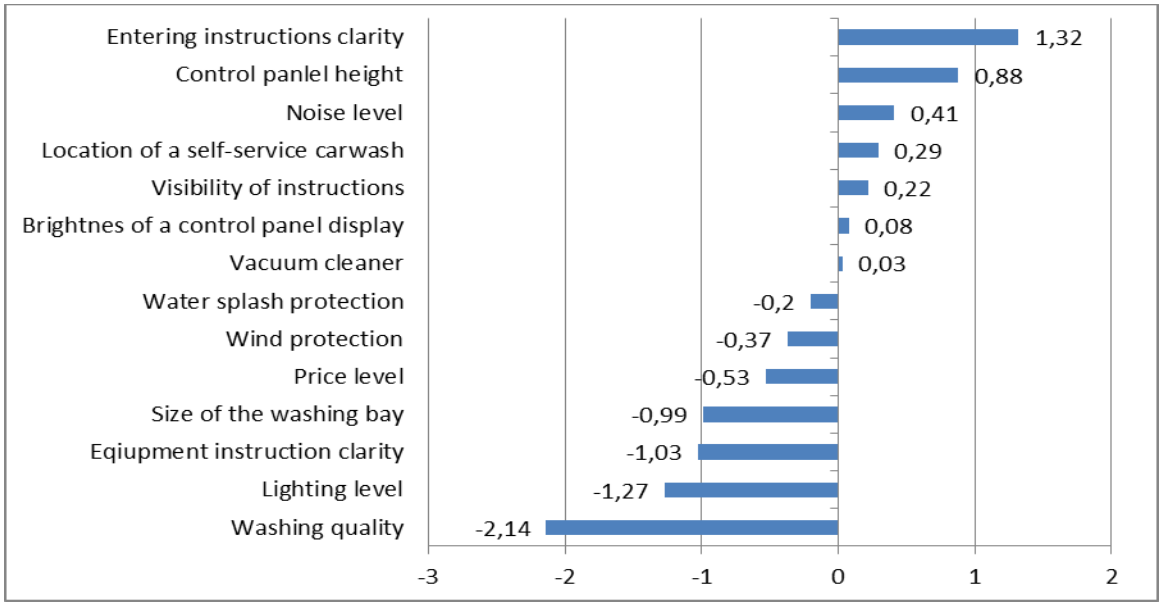


Figure 12. Importance and satisfaction rate gaps

Source: author's calculations based on data from Appendix 1

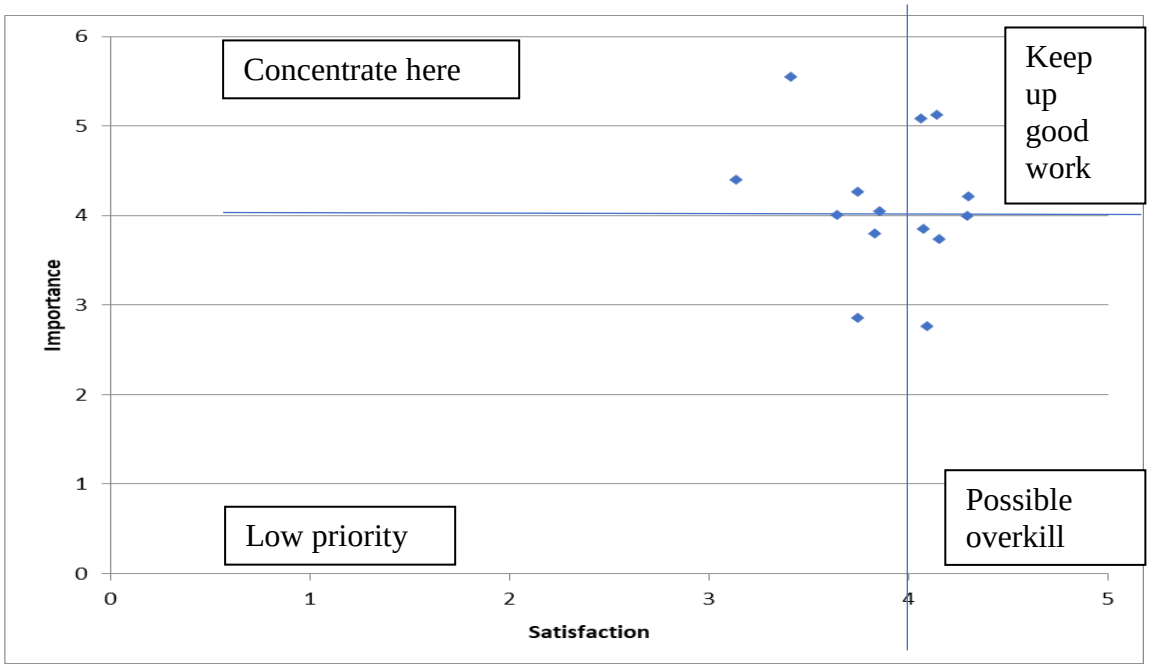


Figure 13. IPA importance-performance matrix

Source: author's calculations based on data from Appendix 1

Figure 13 makes it possible to figure out which factors are problematic, which should be given more attention and which are less problematic. There were 13 factors in the area of problem factors:

1) Tangibles

-Control panel display visibility

-Height of control panel

-Level of lightning

-Visibility of instructions

-Wind protection

-Size of the washing bay

-Noise

-Water splash

2) Reliability

-Clients opinion on washing quality

-Entrance and equipment instruction clarity

-Location of a self-service carwash

-Price

-Vacuum cleaner

Several factors got into the problematic area (Concentrate here) of the Figure 12. Lighting level and Washing quality according to IPA should be fixed in order to gather more customer satisfaction. Into the Possible overkill area got Visibility of instructions, which is relatively close to the low priority zone. Other factors are basically concentrating in the center, near to the boarder lines which means that the values are not very large: there are not very low or very high estimates.

At the end of a questionnaire, respondents had opportunity to leave their comments for additional options or improvements that should be installed on self-service carwash. The most frequent once are presented in Appendix 1.

4.2. Analyses, discussion and interpretation of the survey results

During the research author found out that self-service carwash customers mostly are not satisfied with the washing quality. It has biggest gap -2.14. Data collected during the research shows that majority of self-service carwash clients wash their cars quite often (1 time per week), which also shows popularity of such service among customers. Such low results of washing quality satisfaction may be reasoned by high popularity of service therefore too high expectation (Engel 1999, 226).

Research results are showing that clients are experiencing difficulties while operating carwash equipment. According to the SERVQUAL and IPA analyses the second biggest problem is lightning; gap between importance and satisfaction is -1.27. Due to operating 24 hours, self-service carwashes owners and operators should take into consideration that at night there should be an appropriate level of lighting.

Equipment instruction clarity with gap -1.03 is third important issue. Respondents poorly understand instructions and as a result might not use all the potential of washing options, which can be the reason of customer dissatisfaction. Self-service carwash instructions contain a lot text and don't attract customer's attention. On the other side is factor Entering instructions clarity with biggest positive gap 1.32 and Visibility of instructions (according to IPA analyses) in possible overkill zone. Might be reasoned by bright commercials combined with entering instructions, which are usually surrounding self-service carwash stations.

Such popularity of self-service carwashes and various difficulties clients experience while using equipment is telling about necessarily of standardized approach and focusing on client service. Self-service carwashes are experiencing maturity stage of product cycle. Currently local market is stabilizing, especially in Tallinn city, so decline stage should shortly start. At current moment service providers should focus on improving customer service in order to reach high level of customer satisfaction and attract new clients. Potential improvements are provided in details in the next part of this chapter.

4.3. Recommendations

Based on research data and according to European trends, “Premium bay” (described in second part of this paper) might be an option for Estonian market. If some groups of clients want to get high level of service, then carwash owners should provide such opportunity. “Premium bay” might attract new clients, who currently use other types of carwashes, but would like save time on self-service and get their cars as clean, as for example on classical carwash.

Problem with lightning can be easily solved with installation of new LED lights. They are more expensive than regular once, but the level of brightness and the longer lifetime period is strong advantage. LED lights might be also used in control panels in order to increase its brightness.

Self-service carwash operators and owners should pay attention on instructions and use simple and understandable language while creating texts. In the design of forms or instructions, unnecessary abstract words should be avoided, especially while using complex syntax. Instructions for warning labels can be improved by adding a personal pronoun and color coding. Interacting images might be applied.

Understanding customer’s similarities is necessary while creating a customer service strategy. When marketers provide a range of products or service options to meet the diverse interests of consumers, consumers are more satisfied, and their overall happiness, satisfaction and quality of life ultimately improve. (Schiffman, Kanuk 2007, 42) For improving customer service and attracting new clients more detailed industry research and customer segmentation is required. Lack of free access information didn’t allow author to make detailed industry investigation.

Since the 1990s, the International Carwash Association has made a national survey of US car owners about their car washing preferences. The last review focuses on four main areas:

- Home washing or professional washing
- Cost
- Obstacles
- Differentiation

The data were collected from an online survey conducted in October 2016 of 1606 respondents who own or rent a vehicle and are 18 years old or older. This is a full research deck of 352

pages, containing all questions, answers and demographic statistics. This report provides a detailed overview of:

- Age of car versus car wash frequency
- Recognition of the advantages of professional car washing ("less work", "less time spending", "better general quality", etc.).
- Use of digital / social marketing
- The type of car wash is most often used
- Washing frequency at car wash
- Frequency of washing at home
- Comparison of profitability beliefs in a home and professional car wash
- Key views and demographic data for full-featured, external, automatic, manual and self-service customers

The full study is available for $1000 and executive summary is available for $299. (International Carwash Association 2018)

The strategy of segmentation allows service providers to avoid head-to head competition in the marketplace by differentiating their offerings, not only on the basis of price but also through styling, packaging, promotional appeal, method of distribution, and superior service. Marketers have found that the cost of consumer segmentation research, shorter production runs, and differentiated promotional campaigns are usually more than offset by increased sales. (Schiffman, Kanuk 2007, 44)

The first step in creating a segmentation strategy is to choose the most appropriate bases which to segment the market. Nine main categories of consumer criteria provide the most popular bases for market segmentation. (Schiffman, Kanuk 2007, 45) Those categories include: geographic factors, demographic factors, psychological factors, lifestyle characteristics, sociocultural variables, use-related characteristics, use-situation factors, benefits sought, and forms of hybrid segmentation – such as demographic-psychographic profiles, geodemographic factors, and values and lifestyle. Hybrid segmentations formats use a sum of several segmentation layers to create rich and comprehensive profiles of particular consumer segments. (Schiffman, Kanuk 2007, 46-47)

One of the most common approaches to the marketing of life styles is the VALS method. VALS is generalized segmentation scheme of the American population developed by SRI International.

The original system was designed to explain the dynamics of social change, was based on social values, and was quickly adapted as a marketing tool.

The VALS method quickly and widely spread in marketing. Nevertheless, he has his limitations. The type of consumer's life style is never "perfectly clean". Everyone is inclined to do things that differ from the basic way of life. VALS is a proprietary development, and some researchers disapprove of the fact that they do not have complete information about this technique (Engel et al. 1999, 344-348; Schiffman, Kanuk 2007, 66-70).

CONCLUSION

Modern technology is moving towards self-service. Business owners implement new types of equipment and don’t always think about standardized approach in terms of customer service. Self-service carwash is one of the examples.

Self-service carwashes became popular and widespread in Estonia for the last 6 years. There are more than 20 self-service carwash stations in Tallinn and more than 50 around Estonia. In Europe there are more than 11,000 carwashes where client can wash his car by himself. Despite high popularity of such service, in Estonia there is no regulations and standardized approach in terms of client service.

The aim of this bachelor's thesis is to determine what problems customers experience using self-service carwash equipment, suggest solutions based on industry trends in the European market in order to increase the level of customer satisfaction.

To obtain the aim, the author solved the following tasks:
1) Explored the theoretical foundations of client service and its correlation with ergonomics, to get general knowledge for achieving customer satisfaction in self-service
2) Carried out a survey among people to measure satisfaction level and determined problems customers experience using self-service carwash equipment.
3) Analyzed the results and drawn conclusions and suggestions according to the results of the study.

As a research method, the author used SERVQUAL, IPA, literature analyses, so quantitative research method. . The questionnaire was conducted by direct contact with respondents on self-service carwash locations around Tallinn city and had two types of questions, where respondents gave a rating of 1-7 and made choices between the answers given by the author. Number of respondents reached 293 participants: men 83%, women 17%; Russian speaking 57%, Estonian speaking 35%, other languages 8%; 31-50 years old 48%, 22-30 years old 32%, under 21 years old 4%, over 51 years old 16%.

Bachelor's thesis consists of four parts. The first part deals with the theoretical basis of the client service in marketing and ergonomics. Identifying the importance of these selection criteria to

meet client needs and reaching customer satisfaction. In the second part author described European self-service carwash trends and Estonian industry development. In the third chapter author described object of research and methods used during the research. Fourth chapter provides data gathered during the research, analyses, solutions and recommendations for further research, based on European market tendencies and Estonian market conditions.

Based on the responses of costumers we can state that self-service carwashes are popular in Estonia on an example of Tallinn city, most of customers use self-service carwash 1 time per week.

Based on the responses of costumers we can state that lighting on self-service carwash stations requires improvements.

Based on the responses of costumers we can state that clients are not satisfied with the quality of washing.

Based on the customer's responses we can state that various aspect of self-service carwash environment can be improved in order to achieve greater customer satisfaction. This results and further research recommendations can help self-service carwash owners and operators improve client service in order to raise the level of satisfaction of current customers. The author hopes that the relationships found and the conclusions drawn from his sample size and the quantitative research can help not only the self-service carwash operators, but also carwash clients who are interested in high quality service.

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APPENDICES

Appendix 1. Research survey with data

Question 1.

Please select from the options. Your gender:

a. Men (83%)
b. Women (17%)

Question 2.

Please select from the options. Your language:

a. Estonian (35%)
b. Russian (57%)
c. Other (8%)

Question 3.

Please select from the options. Your age:

a. 0-21 (4%)
b. 22-30 (32%)
c. 31-50 (48%)
d. 51+ (16%)

Question 4.

How often do You use self-service carwash?

a. 3 times per week (8%)
b. 2 time per week (14%)
c. 1 time per week (36%)
d. 2 times per month (25%)
e. 1 time per month (12%)
f. Not so often (5%)

Question 5.

How much money do You usually spend per one washing?

a. 1-2 EUR (5%)
b. 2-3 EUR (19%)
c. 3-4 EUR (20%)
d. 4-5 EUR (25%)
e. 5+ EUR (31%)

Factor	Please scale by 7 points scale importance of those factors using self-service carwash: Not important 1 2 3 4 5 6 7 Very important	Please scale by 7 points scale your satisfaction of those factors using self-service carwash: Not satisfied 1 2 3 4 5 6 7 Very satisfied
6. Location of a self-service carwash	4% 7% 13% 10% 14% 20% 31%	3% 8% 26% 24% 26% 9% 5%
7. Entering instructions clarity	15% 30% 33% 10% 7% 3% 1%	11% 5% 22% 16% 23% 18% 4%
8. Visibility of instructions	4% 17% 26% 18% 21% 6% 8%	7% 15% 13% 27% 16% 10% 12%
9. Price	4% 15% 8% 24% 28% 15% 6%	3% 22% 18% 24% 24% 6% 3%
10. Equipment instruction clarity	2% 11% 28% 27% 16% 10% 7%	3% 11% 17% 23% 24% 17% 6%
11. Wind protection	14% 12% 12% 15% 23% 17% 8%	6% 22% 23% 23% 10% 9% 7%
12. Size of the washing bay	6% 4% 5% 13% 24% 25% 23%	11% 18% 15% 9% 13% 18% 16%
13. Noise level	11% 9% 13% 18% 13% 24% 14%	13% 28% 29% 7% 13% 8% 3%
14. Control panel height	20% 25% 30% 11% 6% 5% 3%	2% 18% 27% 25% 14% 11% 3%
15. Brightness of a control panel display	10% 5% 13% 29% 25% 8% 11%	1% 6% 23% 28% 22% 14% 6%
16. Lighting	13% 10% 23% 24% 13% 12% 6%	6% 10% 13% 33% 17% 14% 7%
17. Water splash	6% 8% 21% 25% 23% 11% 5%	9% 13% 25% 11% 24% 23% 5%
18. Washing quality	3% 1% 8% 11% 16% 29% 32%	15% 21% 24% 12% 11% 12% 6%
19. Vacuum cleaner	6% 12% 27% 24% 17% 9%. 5%	12% 17% 11% 23% 20% 8% 9%

Question 20. Please leave in open format Your suggestions, what may be better on self-service carwash You use:

Option:	Number of respondents
Improve vacuum cleaner suction power	15 (5%)
Install Coffee machine (vending)	12 (4%)
Install additional Wind protection	9 (3%)
Solve slippery floor in winter problem	8 (2%)
Install lighter washing guns	8 (2%)
Improve quality of detergents	7 (2%)
Make understandable payment instructions	6 (2%)
Make understandable washing bay numbering	3 (1%)
Make bigger size of washing bay	2 (1%)