

DOI: 10.1515/orga-2017-0025

The Use of the Kano Model to Enhance Customer Satisfaction

Laura JUŽNIK ROTAR¹, Mitja KOZAR²

¹ Faculty of Business, Management and Informatics, Na Loko 2, 8000 Novo mesto, Slovenia
laura.juznik-rotar@guest.arnes.si (Corresponding author)

² Gorenje, d.d., Partizanska cesta 12, 3320 Velenje. Slovenia
mitja.kozar@gorenje.com

Background/purpose: The interest of measuring customer satisfaction is reflected in its ability to gain customer loyalty, enhance favourable word of mouth, lead to repeat purchases and improve a company's market share and profitability. The issue of integrating the Kano model of customer satisfaction with other models and tools to support development or improvement of a product, or to determine market strategies, is relatively unexplored in the Slovenian sector. This research aims to construct the Kano model in order to enhance customer satisfaction in the case of home appliances.

Design/Methodology/Approach: Data was collected using an online survey amongst randomly selected individuals from the service interventions for an end users database. Principal component factor analysis was first used to identify the underlying factors of home appliance characteristics. In the next phase we calculated the derived and stated importance of customer satisfaction, which was then used to construct the Kano model of customer satisfaction. We further analysed which factors are the strongest drivers, or predictors, of repeat purchase using multiple regression analysis.

Results: In the study we identified the underlying home appliance factors. The results show that these factors are: sales environment, price, user features, design features and technical features. The results were then used to construct the Kano model where the analysis goes beyond the qualitative analysis by implementing two approaches, stated and derived importance approach. According to the Kano model, marketers should concentrate on delight characteristics such as: wider knowledge of the salesperson, professional skills of the salesperson, design of home appliance, brand of home appliance. What is more, factors called 'user features' are the strongest predictors of repeat purchase.

Conclusion: This paper links the Kano model with measuring customer satisfaction and presents a contribution for marketing research theory. Therefore, the results could be used to support optimization of business decision-making, as well as for further scientific research.

Keywords: *optimization; business decisions; Kano model; measuring customer satisfaction*

1 Introduction

Business decisions related to the market demand some ability to track and predict the behaviour of large groups of people. How can one predict only one person's decisions? If we go further, how can one predict the behaviour of many people? The effective approach can be expected through efficiently gathering data and connecting this data with statistical analyses. The procedures and methodolo-

gy of marketing research make it feasible to gather usable information, based on which we can make strategic decisions. The risk of incorrect decisions can also be lowered.

The purpose of market research is to gather information that can be used to identify opportunities, as well as problems, in marketing and to choose more effective actions in the marketplace. Marketing research uses information from all sources connected with marketing (company, competition, marketing mix, social and technological

environment), whereas market research gathers, edits and analyse data for a certain market or segment (see, for example Macdonald, Wilson & Konuş, 2012).

The purpose of market research is to link the customer to the marketer by providing information that can be used in making marketing decisions. Some believe that the link between the customer and market research is more important today than ever. Competition for the customer is growing every day, customers expect greater value. Companies have to learn insights from customers in order to keep them loyal (Burns & Bush, 2010). One way for companies to get insights from customers is to measure customer satisfaction (Šuster Erjavec et al., 2016). Customer opinions are often sought in the form of surveys asking questions about perceptions of quality, experiences with a brand or purchase, with the likelihood to come back and buy again or tell friends about their experience.

We are interested in the extent to which customers are satisfied or dissatisfied with home appliance product characteristics. One of the models to measure customer satisfaction is the Kano model of customer satisfaction (discussion on the Kano model is provided in subsection 3.1) which classifies product characteristics based on how they are perceived by customers and their effect on customer satisfaction. The theory of attractive quality offers insight into the dynamics of product and service attributes. This theory of attractive quality also deals with the relationship between the objective performance of attribute and customer satisfaction with attribute. According to the nature of this relationship, attributes are classified into one of five quality dimensions: attractive quality, one-dimensional quality, must-be quality, indifferent quality and reverse quality (see, for example Taifa & Desai, 2017; Fonseca, 2015; Nilsson-Witell & Fundin, 2005). There have been several applications of the Kano model, as well as adaptations of the Kano model. Dominici et al. (2016) apply the Kano model to find the drivers for achieving customer satisfaction with new product developments in smartcars exploiting the value potential of internet of things technologies. Being aware of reducing pollution emissions, more companies have started to focus on clean energy as well. Yang et al. (2015) use the Kano model to analyse customer needs for the battery electric vehicle in order to promote the adoption of such vehicles in Shanghai. Authors use four approaches to categorize the battery electric vehicle attributes as must-be quality, one-dimensional quality, attractive quality and indifferent quality. Furthermore, Shahin et al. (2017) provide revision of the Kano model and separating indifference attributes in order to develop satisfaction and dissatisfaction indexes and to apply such a newly defined Kano model in the presidential election, whereas Chang & Chen (2014) apply the Kano model with a modified customer satisfaction coefficient to reach effectiveness for a semiconductor wafer fabrication. Additionally, an adapted approach to the Kano model to identify patient needs

from different patient roles can be found in Gustavsson et al. (2016). Authors report that such an approach to viewing patients as customers and incorporating inputs from various groups and various stakeholders appear to help in the identification of a wide range of patient needs. In their study, Murali, Pugazhendhi & Muralidharan (2016) demonstrated the application of multiple regression analysis in studying the influence of after sales services attributes on customer satisfaction, customer loyalty and customer retention for three different products from the home appliances sector and based on the results, suitable strategies can be developed to improve customer satisfaction, customer loyalty and customer retention. The paper aims to help companies develop better understanding, as well as to highlight the importance of measuring customer satisfaction. The empirical part of the paper provides a means for companies to integrate the Kano model with other models and tools to support development or improvement of a product, or to determine market strategies in order to add value and to improve company performance.

The paper is structured as follows: after a brief introduction, we present a/the marketing system, we continue with the marketing management process, then present the concept of customer satisfaction and the Kano model. We continue with the empirical application and finally conclude.

2 Literature review

2.1 Marketing system

Marketing research grew out of the needs and demands of the marketing system. The marketing system represents a conceptual model in which marketing mix and situational factors are seen as independent variables (input) and cause behavioural responses and performance measures (Feinberg et al., 2013; Jobber, 2007) (Figure 1).

Independent variables in marketing research can be separated into situational factors (which cannot be controlled) and various decisions regarding marketing mix made by the organization. The environment to which the selling organization must adopt is represented by situational factors. These factors include availability of resources, actions of competitors, economic climate, market trends and government regulations. Although these cannot be controlled, they can be measured. Alternatively, numerous variables are difficult or impossible to measure, such as customer moods whilst shopping – they must be treated as unobservable. There are numerous other decisions and choices made under the control of the organization. Among the most important of these is marketing mix, which typically includes product, price, places and promotion. Combinations of different levels of these variables form alternative marketing programs or courses of action.

To understand market dynamics and customer behaviour it is realistic to view these as inputs or decision variables (Aaker, 2010; Aaker, 2005; Chernatony, 2002).

Behavioural response is influenced with both independent variables (namely marketing mix and situational factors), which include: purchases, buying intentions, preferences and attitudes. It would not be reasonable to believe that behavioural responses result only from independent variables. Actual behaviour is a combination of a variety of effects – some are controllable, some merely measurable and some unobservable. This on the other hand complicates the question of how to develop a marketing program that effectively handles a dynamic set of variables and behavioural responses (see, for example Burns & Bush, 2010; Aaker, 2010). Behavioural responses form the basis of an organization's monetary and non-monetary performance measures. Monetary measures include: sales, market share, profit, ROI, cash flow. Non-monetary measures, for example, are the organization's image and customer satisfaction, which is further discussed in this paper. In practice, business decisions are rarely driven exclusively by these input-output marketing models and formal statistical models. Rather they are a combination of managerial experience, judgement and intuition (Feinberg et al., 2013).

2.2 Marketing management process

The main task of marketing management is to comprehend the marketing system well enough to make decisions that affect that system in accordance with the organization's goals (Feinberg et al., 2013). The role of the informational feedback between the marketing system and the deci-

sion-making process, which is called marketing management process, is shown in Figure 2.

The decisions made by managers are aimed at influencing the performance measure in a predictable manner, based on information concerning the/a/their marketing system (see, for example Johansson et al., 2014; Strandskov, 2006). They are informed by past experiences and marketing research and can thus plan future actions by comparing performance against objectives (Aaker & Joachimsthaler, 2009).

2.3 Measuring customer satisfaction

We already mentioned that performance measures in marketing system are those which managers try to influence and can be divided into monetary and non-monetary performance measures. One of the non-monetary performance measures is customer satisfaction, which is further discussed in this paper. Customer satisfaction represents one of the key concepts in modern marketing theory and practice. Each company is trying to satisfy its customers in a way, that customers would repeatedly come back. Each company is striving for long-term customer loyalty (see, for example Gričar & Bojnec, 2013; Ažman & Gomišček, 2012; Čočkaló, Đorđević & Sajfert, 2011; Almquist, Senior & Bloch, 2016). In preliminary research involving the measurement of customer satisfaction, it was found that customer satisfaction was not only influenced by perceived product quality, but also by the whole shopping experience and expectations (Wen Wu, 2006). From that point, customer satisfaction has been defined in different ways and contexts. According to the literature review, we could define two different conceptualizations of customer

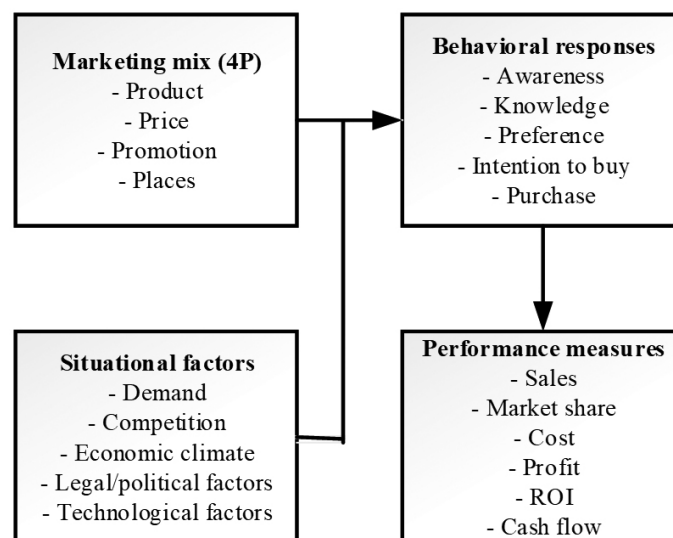


Figure 1: Model of the marketing system

satisfaction. Firstly, satisfaction is an effective construct based on feelings and emotions. Secondly, satisfaction is a dynamic construct that develops over a period of time. These two different conceptualizations are also called transaction-specific and cumulative satisfaction respectively (see, for example Anderson et al., 1994; Burns & Bush, 2010). According to (Gronholdt et al., 2000; Kobylanski & Pawlowska, 2012; O'Sullivan & McCallig, 2012) satisfaction is the customer's emotional and rational (cognitive) evaluation of experiences with a product or service. The standards that customers are using to evaluate their experiences are the basis for their judgement of fulfilment of promises. These could be personal goals, needs, expectations and experiences with competitive companies. Customer satisfaction has to be seen as one of the main goals of a company's managers and therefore the source of a competitive advantage. It is actually an investment which brings measurable business benefits. In such a manner it is reasonable to manage customer satisfaction and to monitor factors which influence business benefits that satisfaction brings. Influence on the successfulness of a company is namely derived from the following direct benefits which come from satisfaction: higher consumption, higher level of loyalty, willingness to pay more, greater expectations, lower costs, good reputation and positive word of mouth. Additionally, satisfaction also influences financial successfulness of a company. There are numerous studies that confirmed positive effect of satisfaction on return on investment and profitability of a company (see, for example Anderson et al., 1994; Omachonu et al., 2008;

Yeung & Ennew, 2000; Yu, 2007). The strategic meaning of satisfaction besides business benefits is also seen in how satisfaction represents such elements according to which basic business strategy has to be determined. In such a way, a company can follow strategy of specialisation, focusing on narrow, specific market segments ensuring high quality. Such a strategy leads to the above-average satisfaction, greater loyalty and higher price premiums. Second basic business strategy can be mass, undifferentiated strategy, where »average«, price sensitive customers are targeted. Somewhat lower satisfaction is acceptable with this strategy as companies are competing with lower costs or prices rather than with quality or differentiated supply. What is more, customers within the second strategy have increasingly greater expectations so the threshold of yet acceptable satisfaction is increasingly greater for them.

One of the models to measure customer satisfaction is the Kano model of customer satisfaction which classifies product attributes based on how they are perceived by customers and their effect on customer satisfaction (Chu, 2002; Di Paula, 1999; Grigoroudis & Spyridaki, 2003; Kano et al., 1984; Lilien et al., 1992; Južnik Rotar & Kozar, 2012). These classifications are useful for guiding design decisions – they indicate when good is good enough and when more is better (Kano Model Analysis, 2014; Spool, 2011).

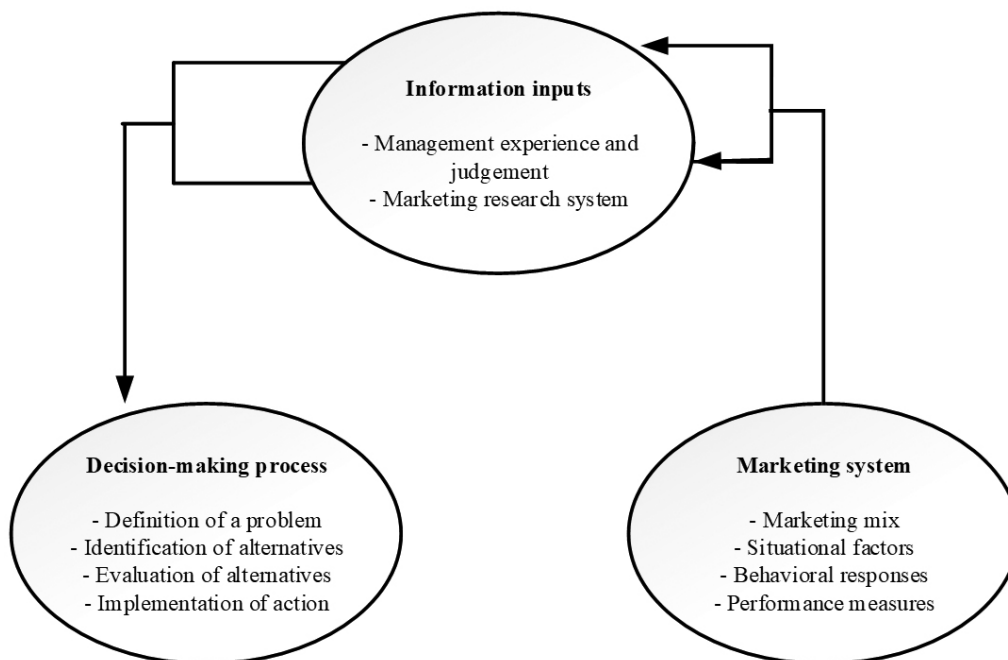


Figure 2: Marketing management process

3 The Kano model of customer satisfaction

3.4 Short overview of the Kano model of customer satisfaction

The Kano model of customer satisfaction, proposed by the Japanese professor Noriaki Kano and his colleagues, divides product attributes into three categories: threshold or must be, performance and excitement or delighter (see Figure 3). A competitive product meets basic attributes, maximizes performance attributes and includes as many excitement attributes as possible (Chen & Chuang, 2008; Kano Model Analysis, 2014; Kano et al., 1984; Spool, 2011). The Kano model is used to determine the customer expectations regarding product – it is used for analyzing customer needs and determining product requirements. The main focus of customer needs abbreviates from the product quality properties. Customers (or potential customers) are trying to solve an issue or realize an opportunity. However, it is crucial to define a segregation of needs, since we know all the needs are not equal – different customers have different priorities and meanings attached to their needs.

3.5.5 History

The Kano model was developed in 1984 by Noriaki Kano and his team. It was formulated to define a model that could categorize and prioritize customer needs and provide the manufacturer with guidelines for product development lifecycle and to provide the customer with on-growing satisfaction when returning for the new line of a product from the same manufacturer.

3.1.2 The model

The model itself can be shown graphically as a combination of two axis – the x axis and the y axis, where the x axis defines whether the customer needs were met and to what extent (the x axis can be understood as the products performance or function) and the y axis is the level of customer response to the product: was the customer delighted or disappointed. The customer response and the level of meeting expectations is divided into three categories (see, for example Chen & Chuang, 2008):

- *Basic needs* or as we can call them the “must be requirements”. The requirements in this category are essential – if they are met it means that there is no special delight for the customer, they are performing quite neutral. But if these requirements are not met, the customers are disappointed and the product is not likely to be sold.
- *Performance needs*. These are needs that the custom-

er can define and the manufacturer can discuss. The needs are subject to the “more is better” rule. The needs that are met here are the one that separate one product or service from another. This is the category which provides the separation between competitors. In this category the product or service provides an answer to questions such as: What is the level of service? What is the price performance? What features does a product have?

- *Attractive (delight) needs*. These are mostly the unspoken needs that the customer cannot define. These needs are not expected by the customer – so if the product or the service does not provide them, the customers are neutral, since they were not expecting them in the first place. But if the product or service provides them, the customers are excited.

These three categories can be used for defining our product or service requirements and design. When designing a new product, it is expected that all the requirements from the first category are met – there can be no option to omit them. When taking the second category (performance needs) into focus, it is clear that in this category the product or service and its place between competitors is defined. This is where the right level of features and properties are defined to assure an attractive and competitive product. The third category is where the “wow” effect is defined. Each product or service should have at least one or two such features which delight the customer and therefore provide the final differentiation of the product from the competition. By integrating such features into our product or service, this really means embellishing the product or service when we are defining it.

3.1.3 Use of the Kano model

The Kano model can be used in different ways, depending on the matter in focus. However, it is crucial to always provide the three category view of the customer regarding the matter in focus. Once it can be used as a model for meeting the features and properties that the product should have, it can be used as a model for defining and benchmarking the product basic quality against other products on the market. The Kano model is sometimes called the ‘two-dimensional quality model’.

The customer sees the Kano model as a simple classification of the products they encounter – they see them as basic, good or excellent products. This is where use of the Kano model becomes complex. When providing a solution to a global market, sometimes the understanding of delight can vary from one location to another, one culture to another, one set of values to another. The second important factor is the definition of delight during the time. As time passes, the sets of features that provide delight changes. So when defining the features and properties from a distance,

it is important to understand the “strategic” in the “operational” usage of the Kano model. The “strategic” point of view suggests something like “our product will have excellent design features”, and the more operative approach says something like “this year our dishwashers shall be made in all the colors of the rainbow.”

If the Kano model is utilized as a tool for defining the products and their quality, the understanding of ‘delight’ and ‘must have’ must be permanently and constantly re-defined (see, for example Butori & De Bruyn, 2013). This definition must be relevant to both the market and time in which the product is meant to meet the market. Through doing this efficiently the Kano model is and can be used as a tool for achieving customer loyalty and a perennial, yet steady, growth of new customers wanting to buy the product.

3.6 Stated and derived importance

In order to construct the Kano model, we must define x axis and y axis. We define x axis as stated importance, whereas y axis is defined as derived importance. In customer satisfaction surveys, the most frequent request is to rate the importance of a particular product or service attribute. This information is used by a company to determine which attributes are valued most by customers and how they are related (Di Paula, 1999; Smith & Wright, 2004). When analysing data from customer satisfaction surveys, a common problem is the comparison of stated and derived importance for a set of satisfaction dimensions (Fontenot et al., 2007; Grigoroudis & Spyridaki, 2003; Moliner et

al., 2007; Tarn, 2004; Trif, 2013). The derived importance analysis includes correlating performance ratings for a specific product or service attribute with broader performance criteria. Such criteria could be the overall customer satisfaction ratings of the company, product or service. The more prominent an attribute correlates with overall customer satisfaction, the more important it is for a company to improve performance on that attribute (Di Paula, 1999; Matzler et al., 1996; McElroy, 1989). One of the key advantages of the derived importance approach is that it makes use of statistical modelling – multiple regression in deriving the relative importance of explanatory variables in explaining the dependent variable. In general, this approach is objective by avoiding human bias; the quality of data is higher. Alternatively, the question is to what extent the regression model predicts the dependent variable as a function of the other explanatory variables. Another problem is the existence of multicollinearity. For example, the three variables that measure quality are correlated amongst themselves. The stated importance approach uses both attribute importance and performance ratings. According to Chu (2002) the main reason for using stated importance is that it entails the face validity of the results. It is also a simple technique to administer. This approach involves both importance and performance measures. On the contrary, this is seen as a disadvantage as the attributes are generally measured twice (repetition) and therefore takes more time for a respondent to fill in the questionnaire. Additionally, the response rate may be lower (see, for example Park, 1998; Partovi, 2007).

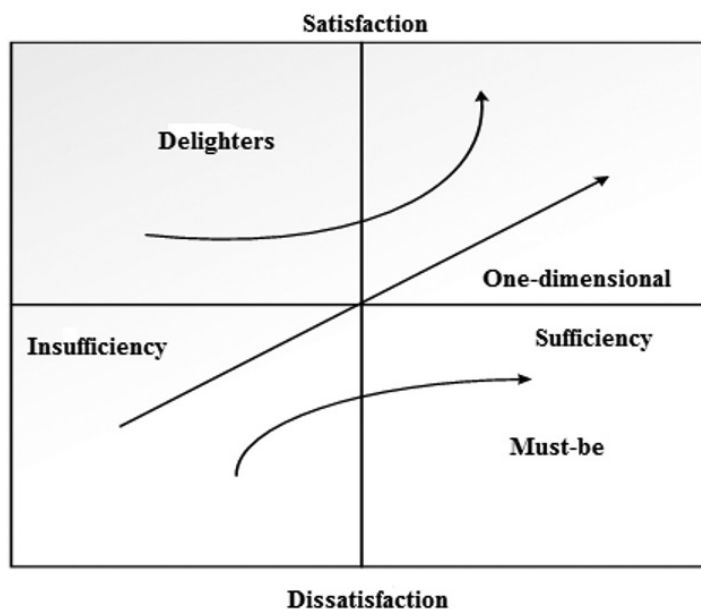


Figure 3: Kano model

4 Research methodology

We adopted a quantitative approach regarding data collection and the method used was based on a survey. Respondents were randomly selected individuals from the service interventions for an end users database for which the information of their willingness to participate in such activities was available. Respondents were invited to complete the survey. They received the link to the web application. However, in cases where no email address was available, the paper form of the survey was forwarded. The main part of the survey consisted of 23 home appliance characteristics, which measured respondents' perceived importance and the relative performance of each attribute on a five-point Likert scale. Respondents' overall level of satisfaction with home appliance was also measured on a five-point Likert scale. We obtained 115 valid surveys. Out of 115 valid surveys there were 48,7 % males and 51,3

% females. Approximately half of the respondents were below the age of 40, whereas more than a half of the respondents had a degree from a higher education institution and more. The majority of respondents were employed on a non- fixed terms basis, whereas the mode on income interval was 1000-1499 EUR. The most frequent family size was 4 or 5 members in a family, followed by three and two members in a family.

5 Results

We first used factor analysis to identify the underlying factors of the 23 home appliance characteristics. The main objectives of using factor analysis are:

- To create a smaller set of correlated characteristics into dimensions or factors from the existing characteristics that explain the most variance among the characteristics.

Table 1: Descriptive statistics (Source: author calculations)

Characteristics	Label	Mean	Std. dev.
Neatness of salesperson in the workplace	P1	3,10	1,24
Professional skills of salesperson	P2	3,87	1,27
Wider knowledge of salesperson	P3	3,74	1,19
Professional approach of salesperson	P4	3,84	1,29
Appearance of sales salon	P5	3,63	1,18
Appearance of exhibition place where home appliance was presented	P6	3,48	1,19
Web presentation of home appliance	P7	3,74	1,09
Basic price of home appliance	P8	3,93	0,97
Terms of financing and stage payments	P9	3,20	1,33
Discounts and sales campaign	P10	4,00	1,13
More affordable home appliance in comparison to competitive brands	P11	3,20	1,19
Technical features that competing devices do not have	P12	3,67	1,02
Dimensions of home appliance	P13	3,74	1,16
Energy class of home appliance	P14	4,19	0,88
Serially fitted protective equipment	P15	4,03	1,01
Brand of home appliance	P16	3,83	1,04
Colour palette in which home appliance is available	P17	3,30	1,27
Design of home appliance	P18	3,83	1,01
Easy to use	P19	4,23	0,84
Simple basic maintenance of home appliance	P20	4,25	0,94
Guarantee period	P21	4,50	0,81
Service network with available spare parts	P22	4,53	0,74
Keeping in touch with customer after purchase	P23	3,03	1,36

- To apply the derived factors for subsequent analysis: to further calculate the derived importance and stated importance of customer satisfaction which are then used to construct the Kano model of customer satisfaction (due to internal business needs we applied adapted version of the 'original' Kano model where the classification of a feature goes beyond qualitative analysis and is based on stated and the derived impor-

tance approach).

- To analyse which characteristics are the strongest drivers or predictors of repeat purchase.

Principal component factor analysis with varimax rotation was first used to identify the underlying factors of the 23 home appliance characteristics (descriptive statistics is reported in Table 1). The Kaiser-Meyer-Olkin (KMO) meas-

Table 2: Results of factor analysis – identification of underlying home appliance factors (Source: author calculations)

Characteristics	Factor loading				
	Sales environment	Price	User features	Design features	Technical features
<i>Sales environment</i>					
Neatness of salesperson in the workplace	0,83				
Appearance of exhibition place where home appliance was presented	0,81				
Appearance of sales salon	0,78				
Professional skills of salesperson	0,78				
Wider knowledge of salesperson	0,71				
Professional approach of salesperson	0,70				
<i>Price</i>					
Discounts and sales campaign		0,79			
Basic price of home appliance		0,77			
Terms of financing and stage payments		0,71			
More affordable home appliance in comparison to competitive brands		0,69			
<i>User features</i>					
Easy to use			0,72		
Guarantee period			0,71		
Brand of home appliance			0,66		
Simple basic maintenance of home appliance			0,52		
<i>Design features</i>					
Colour palette in which home appliance is available				0,83	
Design of home appliance				0,77	
<i>Technical features</i>					
Energy class of home appliance					0,60
Serially fitted protective equipment					0,58
Dimensions of home appliance					0,51
Eigenvalue	8,29	2,33	1,92	1,42	1,03
% of variance	36,06	10,12	8,37	6,17	4,48
Cronbach's Alpha	0,91	0,80	0,77	0,84	0,71

ure of sampling adequacy was calculated to examine the appropriateness of factor analysis. In our case KMO was 0,86, indicating that factor analysis is appropriate. The decision whether to include characteristic into a factor was based on several principles (see, for example Field, 2009), including: characteristic loadings equal to or above 0,50; eigenvalues equal to or above 1,0; and the decision also included the recommendation that factors extracted should account for at least 60 % of the variance. As a result, a five-factor solution which categorized the 23 home appliance characteristics and explained 65,2 % of the variance was identified. We also tested the reliability and validity of measurement. We tested reliability using Cronbach's Alpha. Cronbach's Alpha coefficient was higher than 0,70 in all cases and indicated that the tested measurement scale is reliable. We tested validity with convergent validity and used Pearson's correlation coefficients. The correlation coefficients within each factor are high and statistically significant, indicating the existence of convergent validity. Table 2 shows the results of five factors derived from factor analysis labelled as *Sales environment*, *Price*, *User features*, *Design features* and *Technical features*.

According to the results of factor analysis we applied the derived factors to further calculate the derived importance and the stated importance of customer satisfaction which were then used to construct the Kano model of customer satisfaction. We calculated the stated importance

(x axis in the Kano model) as the mean importance rating given to home appliance characteristics by respondents. In order to convert the means into importance weights we normalised the means. The derived importance (y axis in the Kano model) was obtained by correlating rating of characteristics with the overall rating. Subsequently we performed the normalisation. Figure 4 presents the Kano model according to the data used.

According to the Kano's model characteristics that have a high stated and low derived importance are least expected characteristics (must be attributes). Characteristics like energy class of home appliance and serially fitted protective equipment are the minimum expected for home appliance. Characteristics with low stated and high derived importance are called delight attributes. The marketers should concentrate on these attributes. In this study wider knowledge of salesperson, professional skills of salesperson, design of home appliance, professional approach of salesperson, brand of home appliance, basic price of home appliance, appearance of exhibition place where home appliance was presented and more affordable home appliance in comparison to competitive brands emerge as the delight attributes. Others are linear attributes. If they are important, then pay attention. The most important characteristic is the guarantee period, as stated and derived importance is high. If they have low importance, one should not pay much attention to those characteristics in the sense of de-

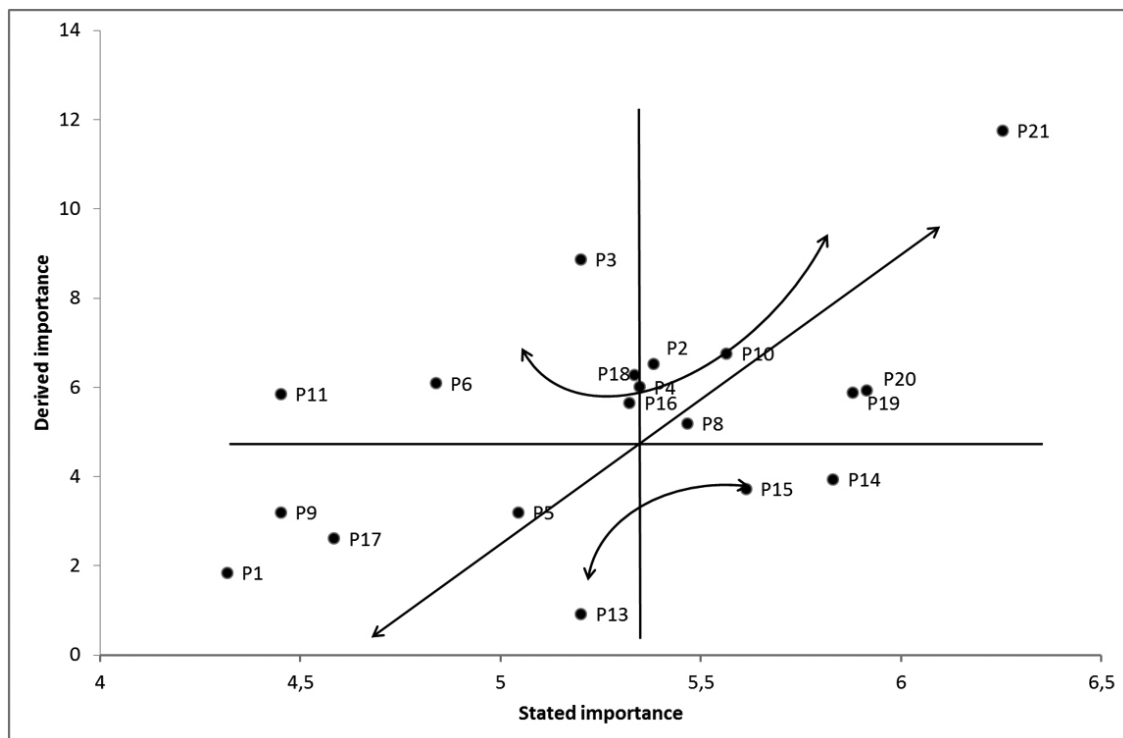


Figure 4: Kano model for the study of home appliance

sign. Spending too much on such characteristics may not be in a linear relationship with profitable returns.

In addition, we wanted to understand respondent opinions and drivers of their evaluation in order to gain perspective of how we can improve their experiences and perhaps company profitability. In such a manner we analysed which factors are the strongest drivers or predictors of repeat purchase. Factor analysis provides us with the set of quantities that can be used in a regression or other multivariate analysis technique (in comparison with the original intercorrelated variables). Regression works in the best possible way when predictors are uncorrelated (Iacobucci, 2013; Feinberg et al., 2013). We have to be aware that variables that we are given are never uncorrelated. Alternatively, factors (when they are extracted using orthogonal rotation, like varimax) are always perfectly uncorrelated (Field, 2009). This enables further statistical analysis. According to this, we completed our analysis by using the factors in a logistic regression to help determine which are the strongest drivers or predictors of repeat purchase. The repeat purchase was a dummy variable indicating 1 if respondent would buy another home appliance product of a brand X if he/she had to buy another home appliance product and indicating 0 otherwise. We used the variable repeat purchase as dependent variable in a logistic regression with the five factors as predictors. The logistic regression results are shown in Table 3.

The logistic regression analysis showed that the model as a whole is statistically significant ($\chi^2=14,98$, $p<0,010$). Estimate of the variance that can be predicted from the combination of the five factors, Cox&Snell and Nagelkerke R^2 is 12,2 percent and 17,1 percent respectively, which means that the five factors explain about one eighth (one sixth) of the variation in repeat purchase. Table 3 presents the odds ratios, which suggest that the odds of repeat purchase are increasingly greater as user features (factor 3) scores increase. The odds of repeat purchase improve by 2,236 for each unit increase in users' features score.

6 Discussion and conclusion

In this study user features are those which represent the strongest driver of repeat purchase and they are positively correlated with repeat purchase. This may indicate that the decision of the company to adopt the simplicity philosophy has proven to be the right orientation for the company combining lifestyles and personalities. The company products are designed following experiences and technology. The creation and realisation of the company products is driven by the needs of different types of people. The company plays a challenger on the market several times; such as the decision to adopt the life simplicity philosophy. The company was in the position to follow such market strategy as the company faces economies of scale and therefore lower costs per unit. Additionally, the company is small enough to be flexible. The company product range is characterized by innovative and design-oriented products with high technical perfection and functionality. The company has become an innovative brand with an emphasis on design, geared to the needs of customers. The company relies on proven and useful solutions to achieve the most efficient use for household appliances. From the principle of "bewusst robust" (consciously robust), today's principle of the company is to create attractive design-oriented household appliances to make the daily lives more pleasant and less complicated. The company's decision, supported by ongoing customer satisfaction measurement enables the company to apply continuous improvement and total quality management philosophies, as well as to improve company performance in the context of economic globalisation.

From the methodological point of view, limitations in the research can be found in the number of respondents. Having a sample size which is large enough, ensures a representative distribution of the population and finding significant relationships from the data. Another limitation of the research is the omission of a variable which would indicate the country of origin of the respondents. Having such a variable would allow comparisons to be made, to form independent groups and test the differences between the groups and to account for other impacts, such as general economic conditions. However, the latter could be seen

Table 3: Logistic regression analysis results (Source: author calculations)

Coefficients	B	Std. error	Exp(B)	Sig.
Constant	0,825	0,218	2,283	0,000
Factor 1	0,018	0,221	1,018	0,936
Factor 2	-0,055	0,225	0,947	0,808
Factor 3	0,805	0,241	2,236	0,001
Factor 4	0,163	0,216	1,177	0,450
Factor 5	0,142	0,213	1,152	0,506

as a possible direction for future research.

The findings of our research have both theoretical and practical implications. It is believed that the findings of this research enable better understanding of the complexity of customer satisfaction and the Kano model itself. Our research adds to the relatively scarce literature in Slovenia in the relation of using the Kano model and integrating this model with other models and tools to support optimization of business decisions. Above all, the research of customer satisfaction influences the improvement of quality management and in general the performance of a company.

From a theoretical perspective, our research contributes to identification of the home appliance factors and to construction of the Kano model of customer satisfaction based on the calculation of the stated and derived importance. The Kano model can be used in many different ways; however it always provides the three category view of the customer. On top of that, the findings of our research indicate which factors are the strongest drivers/predictors of repeat purchase. In order to optimize business decisions, it is imperative to focus on people as customers and emphasize customer needs and priorities. Increased customer satisfaction guarantees long-term success of a business through customer loyalty. What is more, measuring and delivering what customers really want enables companies to gain insights into which elements of value do matter more than others. When optimally combined, they translate to successful business performance.

When customers evaluate a product or service, they weigh its perceived value against the price. The price side of the equation is considered to be the easy part, whereas the other side of the equation is more challenging, as it is connected with the question what customers really value. This is difficult to answer. The direction for future research therefore could be seen in building a new model of customer value which requires anticipating what else customers might consider valuable and enables a company to find new combinations of value that its product or service could deliver without missing the message what customers try to achieve in a certain circumstance. The model could be of help for benchmarking purposes and when recognized as growth opportunity it can add to stronger customer loyalty and better business performance.

Literature

- Aaker, D.A., & Joachimsthaler, D. (2009). *Brand Leadership*. London: Pocket.
- Aaker, D.A. (2010). *Building Strong Brands*. London: Pocket.
- Aaker, D.A. (2005). *Strategic Market Management*. New York: Wiley.
- Almquist, E., Senior, J., & Bloch, N. (2016). The elements of value. Measuring and delivering what consumers really want. *Harvard Business Review*, 94(9), 46-53.
- Anderson, E.W., Fornell, C., & Lehmann, D.R. (1994). Customer satisfaction, market share, and profitability: findings from Sweden. *Journal of Marketing*, 58(3), 53-67, <http://dx.doi.org/10.2307/1252310>
- Ažman, S., & Gomišček, B. (2012). Asymmetric and non-linear impact of attribute-level performance on overall customer satisfaction in the context of car servicing of four European automotive brands in Slovenia. *Organizacija*, 45(2), 75-86, <http://dx.doi.org/10.2478/v10051-012-0008-2>
- Burns, A.C., & Bush, R.F. (2010). *Marketing Research*. New York: Pearson Publishing.
- Butori, R., & De Bruyn, A. (2013). So you want to delight your customer: the perils of ignoring heterogeneity in customer evaluations of discretionary preferential treatments. *International Journal of Research in Marketing*, 30(4), 358-367, <https://dx.doi.org/10.1016/j.ijresmar.2013.03.004>
- Chang, Y.C., & Chen, C.Y. (2014). Prioritizing 5S activities by Kano model with modified CS coefficient for a semiconductor wafer fabrication during ramp-up stage. *The TQM Journal*, 26(2), 109-124, <https://doi.org/10.1108/TQM-03-2013-0027>
- Chen, C.C., & Chuang, M.C. (2008). Integrating the Kano model into a robust design approach to enhance customer satisfaction with product design. *International Journal of Production Economics*, 114(2), 667-681, <http://dx.doi.org/10.1016/j.ijpe.2008.02.015>
- Chernatony, L. (2002). *Blagovna znamka: od vizije do vrednotenja [From brand vision to brand evaluation]*. Ljubljana: GV Založba.
- Chu, R. (2002). Stated-importance versus derived-importance customer satisfaction measurement. *The Journal of Services Marketing*, 16(4), 285-301, <http://dx.doi.org/10.1108/08876040210433202>
- Čočkaló, D., Dorđević, D., & Sajfert, Z. (2011). Customer satisfaction and acceptance of relationship marketing concept: an exploratory study in QM certified Serbian companies. *Organizacija*, 44(2), 32-46, <http://dx.doi.org/10.2478/v10051-011-0004-y>
- Di Paula, A. (1999). Assessing customer values: stated importance versus derived importance. *Marketing News*, 33(12), 39.
- Dominici, G., Roblek, V., Abbate, T., & Tani, M. (2016). Click and drive: Consumer attitude to product development: Towards future transformations of the driving experience. *Business Process Management Journal*, 22(2), 420-434, <https://doi.org/10.1108/BPMJ-05-2015-0076>
- Feinberg, F.M., Kinnear, T.C., & Taylor, J.R. (2013). *Modern Marketing Research*. Melbourne: South-Western Cengage Learning.
- Field, A.P. (2009). *Discovering statistics using IBM SPSS statistics*. London: Sage.
- Fonseca, L. M. (2015). From Quality Gurus and TQM to

- ISO 9001: 2015: a review of several quality paths. *International Journal for Quality Research*, 9(1), 167-180.
- Fontenot, G., Henke, L., Carson, K., & Phillips Carson, P. (2007). Techniques for determining importance: balancing scientific method and subjectivity. *Journal of Targeting, Measurement and Analysis for Marketing*, 15(3), 170-180, <https://doi.org/10.1057/palgrave.jt.5750043>
- Gričar, S., & Bojnec, Š. (2013). Inflation and hospitality industry prices. *Eastern European Economics*, 51(3), 91-108.
- Grigoroudis, E., & Spyridaki, O. (2003). Derived vs. Stated importance in customer satisfaction surveys. *Operational Research*, 3(3), 229-247., <http://dx.doi.org/10.1007/BF02936403>
- Gronholdt, L., Martensen, A., & Kristensen, K. (2000). The relationship between customer satisfaction and loyalty: cross-industry differences. *Total Quality Management & Business Excellence*, 11(4-6), 509-514, <http://dx.doi.org/10.1080/09544120050007823>
- Gustavsson, S., Gremyr, I., & Kenne Sarenmalm, E. (2016). Using an adapted approach to the Kano model to identify patient needs from various patient roles. *The TQM Journal*, 28(1), 151-162, <https://doi.org/10.1108/TQM-04-2013-0050>
- Iacobucci, D. (2013). *Marketing models*. Australia: South-Western, Cengage Learning.
- Jobber, D. (2007). *Principles and Practice of Marketing*. London: McGraw-Hill.
- Johansson, B., Sudzina, F., & Pucihar, A. (2014). Alignment of business and information strategies and its impact on business performance. *Journal of Business Economics and Management*, 15(5), 886-898, <http://dx.doi.org/10.3846/16111699.2012.749806>
- Južnik Rotar, L., & Kozar, M. (2012). Exploring the mechanisms for implementing a risk management process: overall approach and practical example. *Management*, 17(64), 77-86, <http://dx.doi.org/10.7595/management.fon.2012.0023>
- Kano Model Analysis. Retrieved 15.2.2017, from: <http://people.ucalgary.ca/~design/engg251/First%20Year%20Files/kano.pdf>
- Kano, N., Seracu, N., Takahashi, F., & Tsuji, S. (1984). Attractive quality and must-be quality. *Hinshitsu: The Journal of Japanese Society for Quality Control*, 14, 39-48.
- Kobylanski, A., & Pawlowska, B. (2012). Managing customer satisfaction: a conceptual framework. *The Business Review Cambridge*, 20(1), 33-41.
- Lilien, G. L., Kotler, P., & Moorthy, K. S. (1992). *Marketing Models*. New Jersey: Prentice Hall, Upper Saddle River.
- Macdonald, E.K., Wilson, H.N., & Konuş, U. (2012). Better customer insight – in real time. *Harvard Business Review*, 90(9), 102-108.
- Matzler, K., Hinterhuber, H. H., Bailom, F., & Sauerwein, E. (1996). How to delight your customers. *Journal of Product and Brand Management*, 5(2), 6-18, <http://dx.doi.org/10.1108/10610429610119469>
- McElroy, J. (1989). QFD: Building the House of Quality. *Automotive Industries*, 4, 30-32.
- Moliner, M.A., Sanchez, J.S., Rodriguez, R.M., & Callarisa, L. (2007). Perceived relationship quality and post-purchase perceived value. An integrative framework. *European Journal of Marketing*, 41(11-12), 1392-1422, <http://dx.doi.org/10.1108/03090560710821233>
- Murali, S., Pugazhendhi, S., & Muralidharan, C. (2016). Modelling and investigating the relationship of after sales service quality with customer satisfaction, retention and loyalty – a case study of home appliances business. *Journal of Retailing and Consumer Services*, 30(5), 67-83, <https://doi.org/10.1016/j.jretconser.2016.01.001>
- Nilsson-Witell, L. & Fundin, A. (2005). Dynamics of service attributes: a test of Kano's theory of attractive quality. *International Journal of Service Industry Management*, 16(2), 152-168, <https://doi.org/10.1108/09564230510592289>
- O'Sullivan, D., & McCallig, J. (2012). Customer satisfaction, earnings and firm value. *European Journal of Marketing*, 46(6), 827-843, <http://dx.doi.org/10.1108/03090561211214627>
- Omachonu, V., Johnson, W.C., & Onyeaso, G. (2008). An empirical test of the drivers of overall customer satisfaction: evidence from multivariate Granger causality. *Journal of Services Marketing*, 22(6), 434-444, <http://dx.doi.org/10.1108/08876040810901855>
- Park, T., & Kim, K. J. (1998). Determination of an Optimal Set of Design Requirements Using House of Quality. *Journal of Operations Management*, 16(5), 569-581, [http://dx.doi.org/10.1016/S0272-6963\(97\)00029-6](http://dx.doi.org/10.1016/S0272-6963(97)00029-6)
- Partovi, F. Y. (2007). A Quality Function Deployment Approach to Strategic Capital Budgeting. *The Engineering Economist*, 44(3), 239-260, <http://dx.doi.org/10.1080/00137919908967522>
- Shahin, A., Mohammadi, S., Harsij, H., & Rahbar Qazi, M.R. (2017). Revising satisfaction and dissatisfaction indexes of the Kano model by reclassifying indifference requirements: A case study of the presidential elections. *The TQM Journal*, 29(1), 37-54, <https://doi.org/10.1108/TQM-05-2015-0059>
- Smith, R. E., & Wright, W. (2004). Determinants of customer loyalty and financial performance. *Journal of Management Accounting Research*, 16(1), 183-205, <http://dx.doi.org/10.2308/jmar.2004.16.1.183>
- Spool, J.M. (2011). Understanding the Kano Model – A Tool for Sophisticated Designers. Retrieved 10.2.2017, from: http://www.uie.com/articles/kano_model/.
- Strandskov, J. (2006). Sources of competitive advantages

- and business performance. *Journal of Business Economics and Management*, 7(3), 119-129, <http://dx.doi.org/10.1080/16111699.2006.9636132>
- Šuster Erjavec, H., Dmitrović, T., & Povalej Bržan, P. (2016). Drivers of customer satisfaction in service industries. *Journal of Business Economics and Management*, 17(5), 810-823, <http://dx.doi.org/10.3846/16111699.2013.860614>
- Taifa, I. W., & Desai, D. A. (2017). User requirements customization and attractive quality creation for design improvement attributes. *International Journal for Quality Research*, 11(1), 131-148, <http://dx.doi.org/10.18421/IJQR11.01-08>
- Tarn, J. M. (2004). Customer satisfaction, service quality, and perceived value: an integrative model. *Journal of Marketing Management*, 20(7-8), 897-917, <http://dx.doi.org/10.1362/0267257041838719>
- Trif, S.M. (2013). The influence of overall satisfaction and trust on customer loyalty. *Management and Marketing*, 8(1), 109-128.
- Wen Wu, K. (2006). Service quality, customer satisfaction, and customer loyalty in consumer electronics e-tailers: a structural equation modeling approach. PhD thesis. Lynn University, Ann Arbour.
- Yang, Y., Yan H.B., & Ma, T. (2015). On Customer Satisfaction of Battery Electric Vehicles Based on Kano Model: A Case Study in Shanghai. In: V.N. Huynh, M. Inuiguchi, & T. Demoeux (Eds.), *Integrated Uncertainty in Knowledge Modelling and Decision Making. Lecture Notes in Computer Science*, vol. 9376 (pp. 350-361). Berlin Heidelberg: Springer, http://dx.doi.org/10.1007/978-3-319-25135-6_33
- Yeung, M. H., & Ennew, C. T. (2000). From customer satisfaction to profitability. *Journal of Strategic Marketing*, 8(4), 313-326, <http://dx.doi.org/10.1080/09652540010003663>
- Yu, S. (2007). An empirical investigation on the economic consequences of customer satisfaction. *Total Quality Management and Business Excellence*, 18(5), 555-569, <http://dx.doi.org/10.1080/14783360701240493>

Laura Južnik Rotar is an Assistant Professor of Economics at the Faculty of Business, Management and Informatics Novo mesto. She received her PhD degree from the Faculty of Economics, University of Ljubljana. She has published in refereed journals, such as *Eastern European Economics*, *Managing Global Transitions*, *Our Economy*, *Management*. She has been involved in several research projects.

Mitja Kozar is a head of Risk Management at Gorenje, d.d., Velenje, the major Slovenian home appliance product company. He gained work experience in the private and public sector. His research focus is on risk management, decision making in management, information technology, performance management, knowledge management.

Uporaba Kano modela za izboljšanje zadovoljstva potrošnikov

Ozadje/namen: Zanimanje za merjenje zadovoljstva potrošnikov se kaže v koristih, ki jih le-to prinaša, in sicer pridobitev lojalnosti potrošnikov, prenašanje potrošnikovih dobrih izkušenj od ust do ust, ponovni nakup, izboljšanje tržnega deleža podjetja in dobičkonosnosti. Področje integriranja Kano modela zadovoljstva potrošnikov z ostalimi modeli in orodji, ki omogočajo razvoj ali izboljšanje proizvoda oziroma določanje trženjskih strategij, je na slovenskem področju relativno neraziskano. Cilj raziskave je oblikovati Kano model za izboljšanje zadovoljstva potrošnikov gospodinjskih aparatov.

Zasnova/metodologija/pristop: Podatki so bili zbrani preko spletne ankete med naključno izbranimi posamezniki iz podatkovne baze končnih uporabnikov. Faktorska analiza glavnih komponent je bila uporabljena za identifikacijo dejavnikov lastnosti gospodinjskih aparatov. Nato smo izračunali izpeljano in navedeno pomembnost, kar je bilo uporabljeno za oblikovanje Kano modela zadovoljstva potrošnikov. Prav tako smo analizirali, kateri dejavniki v največji meri vplivajo na ponovni nakup z uporabo multiple regresijske analize.

Rezultati: Identificirali smo dejavnike gospodinjskih aparatov, pri čemer so to prodajno okolje, cena, uporabniške, oblikovalske in tehnične lastnosti. Na podlagi rezultatov smo nato oblikovali Kano model, kjer analiza presega kvalitativni okvir in pomeni implementacijo dveh pristopov, izpeljane in navedene pomembnosti. Tržniki naj se osredotočijo na lastnosti kot so širše znanje prodajalca, strokovne sposobnosti prodajalca, dizajn gospodinjskega aparata, blagovna znamka. Uporabniške lastnosti v največji meri vplivajo na ponovni nakup.

Zaključek: V članku smo povezali Kano model z merjenjem zadovoljstva potrošnikov, kar predstavlja prispevek k teoriji trženjskega raziskovanja. Rezultati raziskave lahko služijo kot podpora optimizaciji poslovnih odločitev kot tudi za nadaljnje znanstveno raziskovanje

Ključne besede: optimizacija; poslovne odločitve; Kano model; merjenje zadovoljstva potrošnikov