Review of the Kano model - practical example tourism industry

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Abstract

The purpose of this paper is, to review the most commonly used approaches to the classification of quality attributes according to the Kano model. Despite all efforts, many product development projects fail and lead to the introduction of products that do not meet customers' expectations.

It is important for a company to learn exactly these customer requirements and then, in the second step, how to implement these. A high-quality product creates customer satisfaction. A long-term lack of customer satisfaction results in long-term economic damage as customers are not tied to the company, the reputation of the company will suffer from the following customer behaviour, and the previous customer may have wanted to compensate for damage. Based on an extensive review of the literature on the Kano model and the relevant marketing / management literature the method and applications are explained in the following text. In the following, the Kano model's attributes are analysed in terms of customer satisfaction. It has become clear that the impact of attributes on customer satisfaction change with time, which is illustrated by examples.

In addition, the Kano model is linked to the touristic industry. Customer satisfaction is particularly important in this industry, since the quality, price and delivery date of the product lead to the purchase decision. Satisfied customers also book through the same agency or the same hotel facility in the future.

Keywords: Kano Model, Kano methodology, attractive quality, tourism research

Introduction

The goal of each company is to ensure competitiveness and long-term profitability. Therefore, it is important to win new customers and keep the old customers. Keeping the old customers through maintaining a continuous business relationship and customer relationship. High loyalty and customer loyalty, according to a study, generate more purchases from customers. In addition to customer loyalty, the quality of the goods and services is a major contributor to the purchase decision.

In recent years, companies have introduced a range of quality management systems. The goal is to increase customer satisfaction and build long-term trust with customers. This is what companies want to achieve through products and services that meet customer requirements and exceed expectations.

By means of classified surveys the products and services can be adapted to the wishes of the customers. A high level of attention is paid to high-quality and quality products to improve competitiveness and to ensure a better position in the market.

In the 1980s, Professor Noriaki Kano developed a model to describe the satisfaction of customers with products or services and to make them measurable. The basic principle of the Kano model is the classification of product characteristics with the three categories:

- Basic (must be)
- Performance (one dimensional)
- Excitement (delighters)

This model also classifies customer preferences into five categories: attractive, one-dimensional, must-be, indifferent and reverse.

The Kano model defines various product attributes that are considered important to customers. Most traditional techniques identify the importance of the performance of attributes that the relationship between the attributes and customer satisfaction is linear. The Kano model classifies the customer satisfaction between the performance of attributes and customer satisfaction as non-linear. It suggests attributes as "must-be", "one-dimensional" or "attractive" (Kano et al., 1984, Berger et al. 1993, Matzler et al. 1996, Nilson-Witell and Fundin 2005).

"Must-be" attributes refer to the basic features of the product or service. These are requirements that the customers expect and which are considered self-evident. When done well, customers are just neutral, but when done poorly, customers are very dissatisfied.

One-dimensional attributes lead to satisfaction when these are met. And dissatisfaction, if these are not fulfilled. Higher performance brings higher satisfaction and vice versa.

Attractive attributes bring superior satisfaction, if present, but they do not bring dissatisfaction when they are not present or inadequate. These are attributes that are not normally expected.

Two further attributes can be identified in the Kano model: "Neutral" and "Reverse" attributes. Neutral attributes do not bring satisfaction or dissatisfaction. "Reverse" attributes are the most remote attributes. These are the requirements that cause dissatisfaction.

The course and the modification of the attributes over time will be explained in detail below. Technological progress and competition between manufacturers of a particular type of product lead to an on-going depreciation of the product characteristics.

The central locking system of a passenger car with a radio key was once again an element of enthusiasm. Today it is a basic feature.

The Kano model thus does not provide a static description of the properties of a product, but an analysis model for its continuous development.

The most important statement of the Kano model is that a product does not have to have all the functions, but only those that contribute to customer satisfaction. Therefore, customer surveys are the most important data source for working with the Kano model.

Methodology

According to Cooper (1994), every scientific investigation begins with the review and analysis of existing literature. This leads to get a broad picture of the world (Cooper, 1998).

For the research for these review the authors used the Web of Science and ScienceDirect databases. First, the authors used the keyword ‘kano model’ in the title line and identify the papers with the highest citation rate and relevance. The number of citations of a scientific paper or article is an important value of this work. The higher

the number of citation, the more relevant the work seems to be. This means that the work has a current status and can also be relevant for the development of future research. The number of citations is therefore an indication of the influence of this paper on the literature in this field (Chandy & Williams, 1994; Cote, Leong, & Cote, 1991). On the other hand, it can also lead to disagreements, since other important work deserves influence. Nevertheless, the citation analysis in the academic field is acknowledged as a credible representation of the influence of an article on a research field. After that, the authors searched articles about the want-and-needs from customer in terms of the tourism industry. For this part, the author used some surveys from German and Austria tourism companies. Secondly, the authors checked the relevance of the articles to the Kano model and filtered out the irrelevant ones.

Attributes of the Kano Model

The Kano model describes the relationship between the fulfilment of customer requirements and customer satisfaction. The Kano model is an approach to systematically achieve customer satisfaction in a project or for a specific product. The model describes the relationship between the achievement of certain characteristics of a product or service and the expected customer satisfaction. The model was designed by Professor Noriaki Kano in 1984. He derived from the analysis of customer wishes that there could be customer requirements of different kinds. The Kano model now makes it possible to capture the expectations or wishes of customers and to consider them when developing new products or services.

There are five categories of customer requirements that have uniquely different effects on customer satisfaction. So, not all consumer requirements for a product have the same effect on customer satisfaction. This means that not all requirements have the same importance, but still affect the satisfaction. While the fulfilment of a requirement does not change the affinity, because it is considered basic, the failure of another requirements leads to the decrease of satisfaction. An example from the tourism industry illustrates this assumption. Take the safety of a journey and a hotel-room with a multimedia system. Both were very well implemented, but it is more important for the consumers that the flight and hotel is safety. But while the safety is regarded as basic and a fulfilment of the function does not really influence customer satisfaction, the multimedia system in the hotel-room has a positive effect on the satisfaction.

Professor Kano defines in his original paper 5 categories (see Figure 1):

1. One-dimensional - These are the requirements which are openly expressed by the customers and which are most easily fulfilled by the suppliers. The better the requirements have been implemented, the higher is the customer satisfaction. On the other hand, if they were implemented more badly, customer satisfaction is much lower. Nowadays they are also described as performance features. Kano, however, originally described it as "one-dimensional" because it is linear. This means the better the implementation the higher the satisfaction. The example tourism would include attributes such as price-performance ratio, all-inclusive offers or a pleasant arrival.
2. Basic - Are the characteristics perceived by the customers as self-evident. Compliance with these requirements does not lead to any increase in customer satisfaction. However, a poor execution or the lack of this attribute results in decreasing satisfaction. Kano originally called these as a “must-be” because they are the requirements that must be included and are the price of entry into a market. Using the example of tourism: safety or friendly staff.
3. Excitement - Kano originally called these “Attractive or Delighters” because that’s exactly what they are and do. Enthusiasm are utilizing stimulating features that customers do not necessarily expect from a product or service. With these characteristics, the product tries to differentiate itself from the competition to inspire the customer and to increase the satisfaction. A small increase in the performance of the product can lead to overproportioned benefits. So, the differentiation to the competition can be marginal, the use and the increase of the customer satisfaction on the other hand enormously. Using the example of tourism: hotel-room multimedia system. Other examples are a special equipment or a special design.
4. Indifferent - Features which are of no importance for the customers. They do not lead to any increase in satisfaction in the presence and to no lower satisfaction in the absence. With the example tourism, this could be for a specific customer group: the flight route or the pilot.
5. Reverse - Are features that have the opposite effect. While the presence of the feature leads to dissatisfaction, the lack of the characteristic has a positive effect on the satisfaction. Using the example tourism, this could be for a specific costumer group: maybe the weather like rain, noise in the accommodation facility.

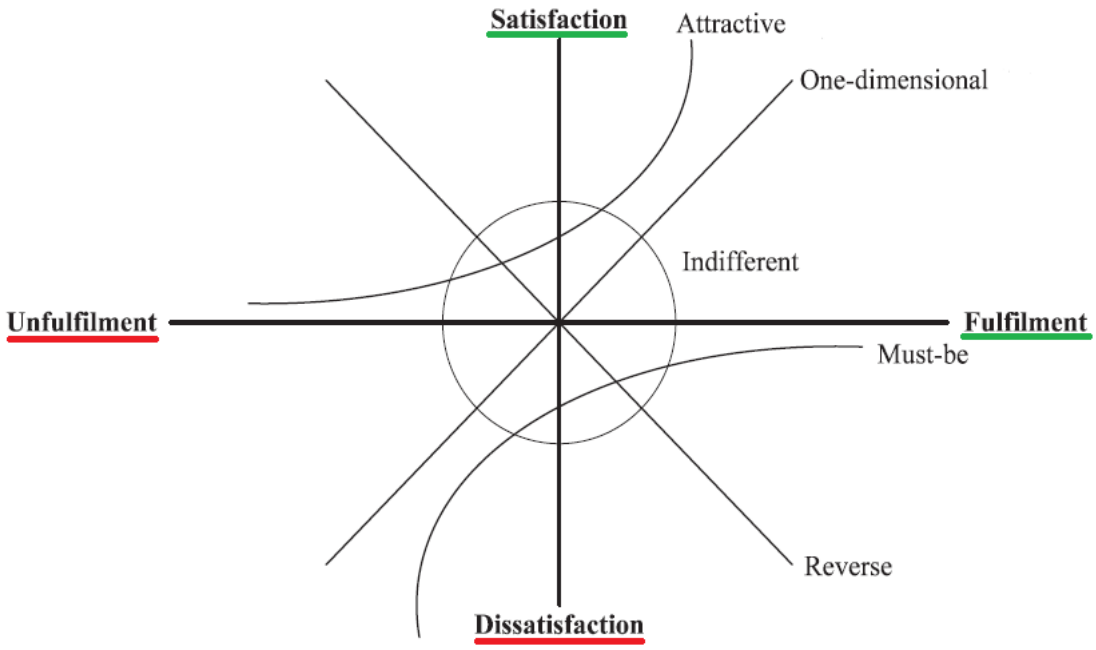

Figure 1. Kano's model of quality attributes.

Literature Review

Our literature review aims to investigate the most important contributions of the literature which made use of the Kano methodology and in which way researchers have used, interpreted and modified the methodology of Kano (1984).

First phase (1984 – 1999)

In 1984, Kano presented his theory of "attractive quality and must-be quality" in the Western world. Through the conceptual elaboration of the Kano methodology, which includes a specific questionnaire for the classification of quality attributes, a new research field was born. Besides the contributions of Kano and his team in the magazines of quality management and marketing, they also published some conference documents (Kano 1995, Yamada 1998). This amplified the dissemination of the theory and the related works.

An important contribution in the first 15 years was a compendium of ideas and experiences with the theory in the practice of Berger et al. (1993). The ideas and conceptions of the paper, which were published in the Centre for Quality Management Journal, are still an essential part of today's understanding of the Kano methodology. On the basis of this work many researchers conducted case studies by introducing new measures and means to simplify the classification of quality features. A further researcher who reinforced the basis for the theory of attractive quality through a

comprehensive empirical study in the ski industry (over 1500 customers) was Matzler (Matzler et al., 1996, Matzler and Hinterhuber 1998).

Second phase (2000-2008)

From 2009, paper's publications have risen sharply. One reason for this is the publication and dissemination of journals, as well as the broad scope of the case studies. In 2001, Noriaki Kano published "Life Cycle and Creation of Attractive Quality" in Sweden (Kano, 2001). In this article, Kano (2001) examines the available remote controls for television. His conclusion from this investigation is that a remote control was an attractive quality feature in 1983, a one-dimensional attribute in 1989 and a must-be quality attribute in 1998 (Kano, 2001). A few years later, Nilsson-Witell and Fundin published a research paper that examines the early phase of the attractive quality life cycle in 2005. The results in their work are that new attributes are initially pathetic before they become attractive. The results of these two papers confirm with empirical evidence the life cycle of the successful quality of Kano et al. (1984).

The focus of the research was on three topics. These topics are (1) categorizing quality attributes, (2) other ways to classify quality attributes, and (3) linking Kano methodology to other methods, e.g. QFD

To improve the outcome of the empirical study, some authors suggested modifying the questionnaire, the evaluation table, or the type of analysis.

In view of the second topic in this phase, other possibilities for the classification of quality attributes, ten of the 27 empirical studies on this topic prove. Kano et. Al. (1984) invented the traditional approach to the classification of attributes and Witell and Löfgren (2007) compared this approach with some substitute approaches (Emery and Tian, 2002, Martensen and Grönholdt, 2001) in an empirical study. However, the study shows that none of the other approaches resulted in a result that has any parallels with the result of the traditional Kano methodology. Witell et. al., (2013) draws the conclusion in his literature research that more exploration of other approaches is required. For this reason, we are advised to use the traditional five-level Kano questionnaire.

The third research topic is based on Matzler and Hinterhubers (1998) paper and deals with the link between the Kano methodology and other methods such as QFD, SERVQUAL and FMEA. The most common is a combination of the Kano methodology and QFD.

Third phase (2009-2016)

As of 2009, the rate of published academic papers on the theory of attractive quality and the Kano methodology is greatly increased. Compared to the period between 2000 and 2008, the number of annual papers has quadrupled. In 2009 the number of papers reached a total of 26. One reason for the increased earnings of the papers was the establishment of new channels for the publications. New research fields were also used. The range, which at that time consisted of quality, management and service magazines, was expanded by topics such as construction and environmental and lifestyle research journals.

The type and content of the previous phases remained the same. The combination of methods such as QFD and SERVQUAL with the Kano methodology remained the most frequent research approach.

Specifically, it can be said that in the period between 2009 and 2016 the number of papers has risen, but the content remains largely the same. The amount of paper that questions research on the theory of attractive quality is scarce. Instead, researchers published papers that introduced new fields of application for empirical studies and modified versions of the Kano model.

Refer to the tourism industry

Tourist success of companies, regions, etc. is primarily dependent on demand indicators such as frequencies, visitor numbers, overnight stays, etc. This demand leads to sales, profit and value added in combination with the achieved price penetration and the operational cost structure.

The more revenue per guest is generated, the more pays for marketing and customer loyalty. The goal is a strategically planned and targeted sales optimization, no sales maximization. It is about recognizing the wishes and needs of the guest and to use them perfectly. Service is in the first place, not hard-selling. What exactly stands behind this is shown in the following in more detail.

The geographical situation of a location is of great importance (Hernández-Lobato et al. (2006). It is particularly important for the target groups to emphasize the necessary market elements, whereby the offer and the characteristics should be adapted to the wishes of the customer. On the basis of this, there are many possibilities to create

corresponding destinations and the appropriate offers to the individual accordingly. (Jenkins, 1999, Croy and Wheeler, 2007) (Hankinson, 2005).

Therefore, instead of immediately identifying the contact elements of a particular destination, this study constructs a target market contact model based on the product types and service offerings that tourists would experience at a destination.

Chattopadhyay and Laborie (2005) suggested that customers are more satisfied with the specific advantages of certain brands. The brand has a strong influence on, for example, brand loyalty, brand loyalty, commitment and brand performance. As the customer-benefit concept combines functional, effective and psychological features (Bateson, 1979), the advantages of brands can be divided into two types: benefits and emotional benefits. Starting from the idea of Miller and Foust (2003, p. 44), the emotional benefits for the further processes and positive consequences of consumption are of particular importance. Being comfortable and enjoying is at this moment more important than the actual benefit of the additional offer. One example are the design hotels, where the rooms differ. The guests are willing to spend more money on a chosen room, although the function as a hotel room nothing changed.

As a second major area, where costs become a secondary issue, the issue of security and risk minimization is concerned.

Target groups that can be identified with the brand are divided into the following two forms, tangible actions and intangible actions. Significant actions are situations in which customers must interact physically with suppliers because they are an integral part of the processes. Intangible actions are interactions in which "customers must be in the mental communication with the advantages of the providers". Accordingly, the proposed target mark contact model consists of the two-dimensional constructs that are experienced by tourists.

As suggested by Pine and Gilmore (1998), there are four levels of offerings, goods, services, experiences and transformations, to create different entertainment aspects for tourists. From enthusiasm or performance factors that offer the potential
(e.g. quality of childcare in a children's hotel, surprising follow-up call after the journey home, etc.).

Mark contacts can also be sorted by level in four contact fields based on the two-dimensional constructs. Four kinds of consulting models (plant-oriented contact, atmosphere-oriented contact, service-oriented contact and associative-oriented contact) are available for the selection of the holiday destination of the consumers.

The concept of Berry and Clark, (1986, p. 54) refers to concrete facilities that are the direct or peripheral part of a supply that can be brought into focus through a physical contact.

In this paper, the authors found that three atmospheric elements, colour, lighting and style were essentially related to the overall impression of the holiday stay (Countryman and Jang, 2006). This observation shows that the environment of the specific environment helps customers to shape their attitudes and behaviours (Bitner, 1992). The goal is to create an emotional experience for tourists and thus attract a regular customer who is satisfied with the services. To some extent, atmospheric evidence or clues are more important in purchasing decisions than for physical goods (Brady et al., 2005). Therefore, an atmosphere-oriented contact occurs tangibly by concentrating on the experience aspects of a target from which the tourists get emotional benefits.

In addition to the well-being of the customers, the service-oriented contact, which serves as a sign of quality and value for customers (Hartline and Jones, 1996, p. 207), is particularly important. For example, the performance of the reception, housekeeping and parking staff is a perceived quality that significantly affects the customer, while the performance of the reception and the space staffs significantly impairs the perceived value. This means that the customer interaction is decisive for the success of the service experience (Devlin and Dong, 1994).

An association-oriented contact refers to the "pictures come to the customer" (Kotler, 2003, p. 430). As suggested by Keller (1993), brand advantages or personal values and meanings attached to the attributes are associated with the brand associations of the customer, which form a brand image. Thus the brand associations play an important role in the achievements of a goal, as a brand image is conceived, like the heritage of a city (Hankinson, 2005). Therefore, association-oriented contact occurs in an intangible manner by focusing on the transformational aspects of a target from which tourists gain emotional benefits (see Figure 2).

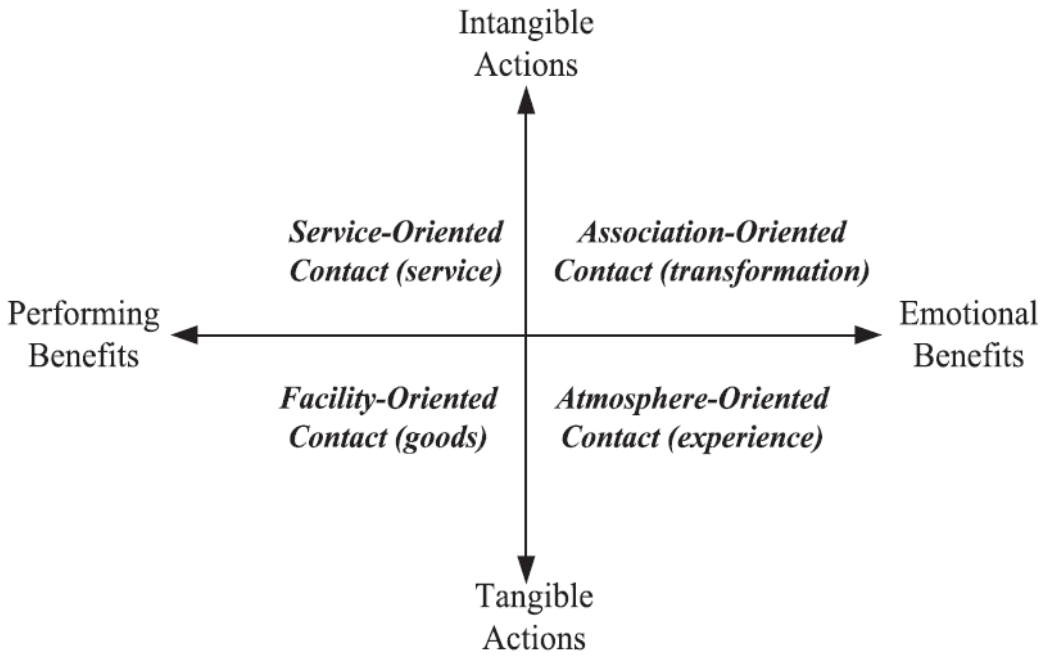

Figure 2. The destination brand contact model with four contact realms.

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These aspects of contacts are in some respects part of the customer's construct of quality. For one, quality means a high standard of comfort, for the other small things that are extraordinarily good. One of them hopes for high value with quality, the other more hospitality. The quality of tourism is essential for customer loyalty as well as for the acquisition of new customers and thus for the successful and sustainable demand generation and securing of tourism providers.

Conclusion

The limitations of this research, which are dealt with as follows, provide a direction for future research. The introduction of the theory of attractive quality and the must-be quality of Kano et al. (1984) was associated with a high influence in business and literature from the very beginning. To date, the interest of the research areas is growing steadily. Nevertheless, the research field of attractive quality has not yet been fully explored. To do this, the research content must focus more on the theory and its implications.

Knowledge about the dynamics of quality attributes requires further research in this direction, but some empirical evidence is still required. This applies in particular to

quality characteristics, which follow the alternative life cycles. The dynamics of the attributes is an important aspect of the theory of attractive quality.

A goal should be emphasized for future research in the tourism sector. For this purpose, it is useful to collect data from tourists in different locations (on the spot, current tourists against the spot and potential tourists). In the future, many personal factors (such as personality and age) and stimulus factors (e.g. information volumes) that may influence the experience of a tourist should also be taken into account (Jenkins, 1999).

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