This article summarizes the development key concepts of the Kano Mode—the process for gaining deep insights regarding customers’ preferences.

A Quick Refresher on the Kano Model

Organizations of all sizes from various industries across the globe invest considerable resources and effort in determining the voice of the customer. The information obtained through these activities is indispensable for managing research and development related to new and improved products and services that will meet or exceed customers’ expectations. Furthermore, by continually gathering and analyzing customers’ preferences, organizations can identify ways to outperform their competitors, command markets, and generate sustainable success. Widely accepted quality management frameworks, including the Baldrige Performance Excellence Criteria and the ISO 9001 standard, support this approach.
Many methods are available for collecting, analyzing, and interpreting data regarding customers’ requirements and satisfaction levels. However, the Kano Model, introduced in 1984, has become the preferred conceptual construct for prioritizing the comparative importance of product/service features based on customer input. In addition to providing a breakthrough understanding of how customers view the relative importance of specific characteristics, the model is supported with a unique survey-based process that ensures the value of each specific feature can be categorized in a way that avoids inclusion of non-value-added options, makes certain the product/service includes all attributes that cause customers to consider it to match general marketplace offerings, and identifies opportunities for breaking away from competitors’ solutions.

This special issue of *The Journal for Quality and Participation* celebrates the 35th anniversary of the Kano Model, which can be credited with changing the strategic mindsets of organizations, causing them to shift from a predominately internal focus to a more balanced approach that uses customer insights to drive strategic change. Successful application of the model based on properly interpreted data can have many positive results for companies, including making it possible to attain high margins while simultaneously having competitive price points. Ultimately, when the findings from a Kano study are used to improve product/service designs, the entire value proposition of the offering increases and, in many cases, sets a whole new standard for customers’ purchasing decisions. Of course, this is not a one-time activity because the marketplace is dynamic, customers are exposed to new and improved solutions regularly, and innovative ways to change the form and functionality of products/services are discovered almost every day.

**Background Research Foundation**

Throughout most of the 20th century, organizations focused on objectively measuring the quality of the goods and services they produced. Most of the quality assurance methods that are in use today provided the information used to determine if the process outputs were acceptable (fit for use). Inspection and testing, supported by sampling plans, statistical analyses, and many other techniques, drove internal decisions regarding whether customers would be satisfied. The underlying premise was that the specification accurately reflected customers’ expectations, so objective-based criteria would be the most accurate and precise ways to keep defective products/services from reaching customers.

These methods still are in use today, and they have substantial value for helping organizations improve their processes, manage internal performance, and even reduce the likelihood of catastrophic failures. Despite the comfort that is provided by using objective measures, however, complaints, product/service launch failures, customer dissatisfaction levels, and other indicators make it clear that a gap in the decision-making process exists if only objective measures are used. A one-dimensional model (see Figure 1) depicts this approach.

The research conducted by Noriaki Kano and his colleagues set out to establish a better way of understanding what attributes were necessary for a product/service to meet or exceed the expectations of both the business and its customers. The team realized that most of the data on customer perceptions was subjective and that wide variances in customers’ perceptions could be expected. So they developed a two-dimensional approach that would consider both types of data.

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**Figure 1: One-Dimensional Recognition Method**

![One-Dimensional Recognition Method Diagram]

- **Dissatisfaction**
- **Satisfaction**
- **Non-Fulfillment**
- **Fulfillment**

**Satisfied feeling**

**State of physical fulfillment**
This excerpt from one of the early publications of the research explains the foundation of the model. "The practical validity of this theory is examined through a discussion of surveys administered to TV set and table clock consumers. In both cases, the survey results demonstrate that objective quality (satisfaction due to fulfillment vs. dissatisfaction due to unfulfillment) is not enough to explain consumer behavior. A more comprehensive, accurate theory is needed—one that accounts for a broader range of emotional reactions to quality element fulfillment/unfulfillment ..."\(^1\)

Kano and his colleagues were influenced by earlier research related to two-dimensional constructs, most importantly, the work of Frederick Herzberg regarding worker satisfaction. The motivation-hygiene theory postulated that satisfaction and dissatisfaction are not opposite ends of a continuum; as one increases the other does not automatically decrease because they are independent factors. This framework became the foundation for development of the model that relates fulfillment and satisfaction.\(^2\)

The Kano Model, shown in Figure 2,\(^1\) aligns features with three primary categories (must-be, one-dimensional, and attractive quality) and two secondary categories (indifferent and reverse quality), as described below. Note that the categories are represented by flow lines on a two-dimensional plot that demonstrates how the objective and subjective perspectives correlate. The pattern associated with each category is different, depending on how the two dimensions interact at various levels of performance.

- Must-be quality is associated with attributes that customers assume will be present. They aren't noticed unless they are missing or deficient in some way. Note that when a must-be feature is not part of the product/service design, customers are very dissatisfied. Incorporation of the feature does not generate satisfaction, however; it just reduces the level of dissatisfaction. Basically, if the output is missing the must-be attribute, customers notice its absence and develop negative perceptions. When that feature is included, customers don't even notice it because they assume it must be present.\(^1\) An example of this situation is a customer ordering a hamburger at a restaurant. If the order is delivered without the actual hamburger patty, the customer is sure to notice. If the hamburger is included, the customer unconsciously ignores it.

- One-dimensional quality has attributes that increase customer satisfaction as their degree
of achievement increases. It is represented by a 45-degree line that begins in the non-fulfillment/dissatisfaction quadrant and linearly moves up into the fulfillment/satisfaction quadrant. As the feature progressively fulfills the customers’ expectations, it shifts perceptions from dissatisfaction to perfection. For instance, the basic hamburger order might come with a plain, white bun. Organizations that wanted to leverage this one-dimensional feature could drive the upward increase of satisfaction by moving to a bun with sesame seeds, then a Kaiser roll, and eventually a ciabatta roll.

- On the other hand, attractive quality occurs only when the product/service has attributes that are unexpected and delight customers. Note that it provides a dramatic and non-linear increase in satisfaction, but even its initial introductory level, where fulfillment is limited, creates immediate satisfaction. An examination of hamburger products sold by fast-food restaurants these days shows that features, such as the inclusion of bacon, higher-quality beef, onion straws, and other atypical components of the sandwich, can create a competitive advantage for innovative companies.

- Indifferent quality is associated with a customer reaction that most organizations never consider. In this case, the product/service contains a feature that research and development, marketing, or some other function in the company thought mattered to customers. Unfortunately, the reality is that these attributes are unexpected by customers, and/or they are rarely or never used. It is almost amazing that companies will invest large amounts of resources, including money, only to learn that they have no focus on customers’ purchasing decisions. If a hamburger restaurant provided a fortune cookie with every order, customers would notice it, but would they switch to that restaurant solely to get the cookie—especially if they had a favorite brand provided by another company? So indifferent quality, which isn’t shown in Figure 2, would be represented by a straight line that is only slightly above the vertical division of the quadrants.

- Finally, it is actually possible for companies to include attributes in their offerings that customers don’t want and which cause dissatisfaction. These are called reverse quality because the more the feature is present in the product/service, the less the customer is satisfied. The pattern for this dimension also is represented by a 45-degree line; however, that line begins in the non-fulfillment/satisfaction quadrant and linearly moves down into the fulfillment/dissatisfaction quadrant. If the hamburger restaurant decided to add a fee to support a local charity to the pricing for a hamburger, it is likely that many customers would consider that a dissatisfying attribute, and if the fee increased over time the level of dissatisfaction would grow.

Conducting a Kano Survey

One of the most frequent misunderstandings regarding the use of the Kano Model is that any type of survey which gathers feedback from customers can provide the information needed to categorize the features. Actually, a very specific structure is used to gather the data, and the analytical procedure also differs substantially from standard market-research studies or other approaches for gathering customer data, such as net promoter scores. Although a detailed description of the process for determining what features should be tested, structure of the survey questions, comparative analyses that are used to evaluate the responses, and calculations that determine how the results should be plotted on the quadrant-based model cannot be covered reasonably in this summary article, the ASQ resource center includes a previously published column that describes this process completely and can be used as a training manual for organizations which choose to be rigorous in their application of this valuable methodology.

Current Use of the Kano Model

In addition to functions such as research and development, market research, marketing, and quality using the results of Kano surveys and the categorization of product/service features to make decisions regarding the design and value of specific attributes, this methodology is now deployed in many other ways. For instance, at the executive level, Kano survey results are used to establish strategies for increasing the competitive capabilities of the organization and assuring sustainable performance. Consideration of the insights gained from a Kano analysis is now thought to be a worthwhile approach for lean improvement projects and generation of customer delight. “Like so much of lean philosophy, the Kano Model is a way of thinking that can be applied to everyday situations. Lean
thoughts are given concrete application through the use of varied and diverse tools."4

Similarly, “Delivering value and excellence in products and services starts with carefully defining and understanding critical-to-quality (CTQ) requirements. Noriaki Kano developed a model to understand customers’ reactions to product or service features and how these features impact customer satisfaction. Kano’s model can fit into establishing CTQs for any lean Six Sigma (LSS) program.”5

These last two examples show that the use of the Kano Model has now expanded beyond the traditional functions that were concerned with customers’ perspectives and product/service design. The use of the model in lean and Lean Six Sigma quality and process-improvement projects has extended its value dramatically. In many ways, this framework has generated a whole new way of thinking that can be used to build common values related to customer satisfaction, loyalty, and experiences across all levels of the organization.

Summary

Although it’s not possible to describe even the fundamentals of the Kano Model and its associated survey and analysis procedure in one summary article, it is abundantly clear that this research has changed the way leaders think and organizations operate. Customers are now encouraged to express their preferences regularly, and the concept that “one size will fit all” is no longer accepted. Even with the natural diversity of customers’ expectations, however, the Kano Model makes it possible for organizations to identify the features that will satisfy their target customers the best, increase their competitiveness in the marketplace, and develop the capabilities necessary to keep abreast of changing opportunities and issues, which is critical to long-term high performance. The commonly cited example of the buggy whip company that went out of business because it did not know that customers would be willing to invest in a car provides a dramatic reminder that without continuous attention to changing customer perspectives every business—even the most well-recognized industry leaders today—may become fond memories in the future.

References

2. Frederick Herzberg, Motivation to Work, Routledge, 1993, pp. 113–119.