

WIEM05-020 Elements supplied: 1,2,3,4,5,6,8,10

## **VOICE OF THE CUSTOMER**

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## **ABSTRACT**

The *Voice of the Customer* (VOC) is a process for capturing customers' requirements. It produces a detailed set of customer wants and needs which are organized into a hierarchical structure, and then prioritized in terms of relative importance and satisfaction with current alternatives. There are four aspects of the VOC – customer needs, a hierarchical structure, priorities, and customer perceptions of performance.

Voice of the Customer studies typically consist of both qualitative and quantitative market research steps. They are generally conducted at the start (or “Fuzzy Front End”) of any new product, process, or service design initiative in order to understand better the customer's wants and needs (see WIEM05-022). The VOC can be also be a key input for new product definition,

Quality Function Deployment (QFD) (see WIEM05-023), or the setting of detailed design specifications (see WIEM05-049).

The Voice of the Customer process has important outputs and benefits for product developers. It provides a detailed understanding of the customer's requirements, a common language for the team going forward in the product development process, key input for the setting of appropriate design specifications for the new product or service, and a highly useful springboard for product innovation.

As may be seen in the examples presented, gathering the Voice of the Customer is an extremely important part of the new product development process. It forms a solid basis for design and marketing decisions from concept development through product launch.

Keywords:

Voice of the Customer; Customer Needs; Product Development; Quality Function Deployment; Market Research; Qualitative Interviews; Importance; Performance; Fuzzy Front End; Product Design

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## DEFINITION

The *Voice of the Customer* (VOC) is a term used in business to describe the process of capturing customers' requirements. The Voice of the Customer is a product development technique that produces a detailed set of customer wants and needs which are organized into a hierarchical structure, and then prioritized in terms of relative importance and satisfaction with current alternatives.

The Voice of the Customer process has important outputs and benefits for product developers.

VOC provides:

- a detailed understanding of the customer's requirements
- a common language for the team going forward
- key input for the setting of appropriate design specifications for the new product or service
- a highly useful springboard for product innovation

There are four aspects of the VOC – customer needs, a hierarchical structure, priorities, and customer perceptions of performance.

## DESCRIPTION AND COMMENTARY

Voice of the Customer studies typically consist of both qualitative and quantitative market research steps. They are generally conducted at the start (or “Fuzzy Front End”) of any new product, process, or service design initiative in order to understand better the customer’s wants and needs (see WIEM05-022). The VOC can also be a key input for new product definition, Quality Function Deployment (QFD) (see WIEM05-023), or the setting of detailed design specifications (see WIEM05-049). It is critical that the product development core team own and be highly involved in this process. They must be the ones who take the lead in defining the topic, designing the sample (i.e., the types of customers to include), generating the questions for the discussion guide, either conducting or observing and analyzing the interviews, and extracting and processing the needs statements. Only by being highly involved can the team fully internalize the VOC and make effective product design decisions (see WIEM05-002).

As noted in the definition, there are four aspects of the VOC – customer needs, a hierarchical structure of the needs, priorities, and customer perceptions of performance.<sup>1</sup>

### **Customer Needs**

A customer need is a description, in the customer's own words, of the benefit to be fulfilled by the product or service. For example, when describing diagonal lines on a computer monitor, a customer might want them "to look like straight lines with no stair-step effect." Note that *the*

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<sup>1</sup> The Voice of the Customer has its origins in the QFD process, where it is used to develop the customer needs that are linked to performance measures. This why the definition used here is narrower than the generic use of VOC, which can refer to customer feedback in any form. See Griffin, Abbie and Hauser, John, (1993). The Voice of the Customer. *Marketing Science*, 12(1): 1-27 (Winter), p. 2.

*customer need is not a solution*, such as a particular type of monitor (XGA, Megapixel, flat screen, flat panel, etc.), nor a physical measurement (number of noticeable breaks in the line), but rather a detailed description of how the customer wants images to appear on the monitor.<sup>2,3</sup>

The distinction between physical measurements and customer needs has proven to be one of the keys to the success of marketing tactics, as the “lens” model suggests that customers see the world through the lens of their perceptions (their needs).<sup>4</sup> The lens model says that customers choose (buy a product or service) if they prefer that product over others and it is available to them in the marketplace. However, preferences are based on how customers perceive the world. This perception may or may not be totally accurate. It is based, of course, on the product’s features, but it is also based on the image created by advertising, packaging, word of mouth, social context, etc. Marketing is an integrated activity that attempts to design the product (physical features) and the marketing to influence customer perceptions. Within the context of the lens model, the Voice of the Customer identifies the dimensions of customer value (customer needs) and how customers form preferences with respect to those needs (importances of those customer needs). The Voice of the Customer might also identify how advertising, etc. affects perceptions, availability, and perceived price. <Figure 1 near here>

Knowing customer needs is critical to both product development and marketing. For example, if a product-development team focuses too early on solutions, they might miss creative opportunities. A computer-monitor team might be tempted to focus on the size of the monitor or

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<sup>2</sup> Griffin, Abbie and Hauser, John, (1993). The Voice of the Customer. *Marketing Science*, 12(1): 1-27 (Winter), p. 4.

<sup>3</sup> Much of the material used here is drawn from an MIT Sloan Courseware document by John R. Hauser, “Note on the Voice of the Customer,” MIT, Cambridge, MA 2008. MIT Sloan grants the non-exclusive right to use this material. MIT Sloan retains a non-exclusive right to this material.

<sup>4</sup> Brunswick, E. (1952), *The Conceptual Framework of Psychology* (Chicago: University of Chicago Press)

the shape. However, readability might also depend on the ambient room light and reflections, the colors that the software designer chooses, the ratio of the height of small letters to that of capital letters, and even the style of the typeface (serif or sans-serif, proportional or fixed, etc.). All of these design attributes interact with the size and shape of a monitor to affect the customer need of "easy to read text." Some may be less costly and more effective, some may be synergistic with changing the monitor's size and shape, but all should be considered before a final design is chosen for the monitor.

Discussions with customers usually identify 75-150 phrases that might be considered an articulation of customer needs. Such phrases might include basic needs (what a customer assumes a monitor will do), articulated needs (what a customer will tell you that he, she, or they want a monitor to do), and exciting needs (those needs which, if they are fulfilled, would delight and surprise the customer) (see also WIEM05-054). It is extremely important that these customer needs be stated *in the customers' own words*, and not in industry or company jargon, in order to not lose meaning.

Identifying customer needs is primarily a qualitative research task. In a typical study between 10 and 30 customers are interviewed for approximately one-hour in a one-on-one setting. For example, a customer might be asked to picture him- or herself viewing work on a computer. As the customer describes his or her experience, the interviewer keeps probing, searching for better and more complete descriptions of how he or she views data, images, video, or anything else, how he or she works with those images, working conditions, ambient lighting, etc. The goal is to experience the experience of the customer. Sometimes the interviews take place at the site where the customer uses the product – for example, VOC interviews have been conducted on oil-drilling

platforms for manufacturers of oil-drilling equipment. This method of data collection is sometimes referred to as *customer visits*<sup>5</sup>, *contextual inquiry* or *ethnography*.

The interviews are called “experiential,” because they focus on the customers’ experiences. In the interview the customer might be asked to voice needs relative to a number of real experiences. The interview ends when the interviewer feels that no new needs can be elicited from that customer.

While it is tempting to simply ask customers, “What are your needs?” customers often have difficulty articulating them. It is much better to infer customer needs from experiential interviews or observation.

### **Hierarchical Structure**

The average marketing manager cannot work directly with the 75-150 detailed customer needs found in the first step of the VOC process. A simpler structure is needed that focuses both strategy and tactics. The “Voice of the Customer” structures customer needs into a hierarchy of primary, secondary, and tertiary needs. *Primary needs*, also known as strategic needs, are the two to ten top-level needs that are used by the team to set the strategic direction for marketing. Each primary need is elaborated into three to ten secondary needs. *Secondary needs* indicate more specifically what the marketing manager must do to satisfy the corresponding primary (strategic) need. (Secondary needs are also known as tactical needs.) *Tertiary needs*, also known as operational or detailed needs, provide greater detail so that engineering, R&D, and, perhaps, the advertising agency, can develop a detailed set of product characteristics or advertising copy that satisfy the primary and secondary needs.

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<sup>5</sup> Edward F. McQuarrie (2008), *Customer Visits* (M.E. Sharpe: New York)

For example, a voice-of-the-customer analysis for movie theaters identified the following seventeen secondary (tactical needs) structured into six primary (strategic needs). They were:

#### *Theater Selection*

- Offers a good selection of movies and show times
- Easy to get information about show times
- I can always get into the movie I want to see
- A variety of easy and economical ways to buy tickets

#### *Getting to the Theater*

- The theater is conveniently located
- There is safe, convenient parking

#### *Food / Refreshments*

- Good food is available at a fair price
- Concessions are well-run

#### *The Theater Building*

- Quick and easy access to everything I need
- Handles crowds well
- Friendly and available customer service
- Clean, well-equipped restrooms
- A comfortable feeling inside the theater

#### *Inside the Theater Auditorium*

- Clean, comfortable seating
- Auditoriums are clean

#### *The Movie Experience*

- A great view and sound so I'm right in the action
- No disturbances during the show

There are a number of ways to group the 75-150 tertiary (operational) needs into a more aggregate set of tactical needs, and then further into an even smaller set of strategic needs. The easiest way is to have the product development team do so as a group. However, while convenient, this approach has the important limitation that the results tend to reflect the



company's organizational chart, i.e., how the product is developed and produced, rather than the way customers think. It is far better to have customers group the needs. One way this can be done is through the use of one or a few focus groups. A moderator guides the process and makes sure the groupings make sense and are sufficiently disaggregate (i.e., that there are sufficiently many tactical needs so that they do not cover multiple topics). A more statistically representative method is to survey a random sample of current and potential customers and have them sort the needs individually into piles based on similarity. This results in a co-occurrence matrix which can be analyzed using a hierarchical clustering routine. The output is a dendrogram which shows how the needs should be grouped for any total number of needs, from the total number of detailed needs down to 2 or more strategic needs. The final number of primary and secondary needs are then determined judgmentally based on the output of the cluster analysis.

### **Priorities**

Some needs have higher priorities for customers than others. The marketing manager uses these priorities to make decisions that balance the cost of fulfilling a customer need with the desirability (to the customer) of fulfilling that need. For a movie theater company, for example, the strategic decision on whether to provide or communicate improved movie viewing experience depends upon the cost and feasibility of improving the experience and the priority to the customer of an improved viewing experience relative to the customer's other needs. In the VOC, these priorities apply to perceived customer needs rather than product features or engineering solutions. As an example, a quantitative survey of people who go to movie theaters yielded the following importance weights for the seventeen secondary needs (Figure 2). <Figure 2 near here>

A number of new techniques have been developed recently to prioritize customer needs. One, called Teaching Agents to Choose, is an incentive compatible direct-elicitation technique.<sup>6</sup> During the survey, respondents give instructions to a hypothetical “agent” about what rules to use when deciding to choose which product to buy. Priorities of the needs can be estimated by tallying the frequency of mention of the needs referenced in these rules. Another technique, MaxDiff, involves an exercise where respondents pick the most and least important of a series of subsets of needs. The resulting scores are not subject to scale usage bias, which can lead to problems particularly in international studies.

### **Customer Perceptions of Performance**

Customer perceptions are also derived from quantitative market research about how customers perceive the performance of products that compete in the market being studied. If no product yet exists, the perceptions indicate how customers now fulfill those needs. (For example, existing patterns of medical care serve as generic competition for health maintenance organizations. Automobile and bus transportation serve as generic competition for Southwest Airlines.) Knowledge of which products fulfill which needs best, how well those needs are fulfilled, and whether there are any gaps between the best product and "our" existing product provide further input into marketing decisions.

Customer perceptions are often displayed via a “snake plot,” so-called because each product’s performance “snakes” across the page. These data are often obtained via a questionnaire in which each respondent rates each product (that they consider) on each of the secondary customer needs.

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<sup>6</sup> “Incentive compatible” means the incentives for survey respondents are set up in a way that they benefit most from responding in a desired way (in this case, telling the truth).

For example, when people who go to movie theaters were asked to rate how well the theater they attend most often performed on the secondary needs, we obtained the plot in Figure 3.

< Figure 3 near here >

## EXAMPLES OF VOC'S ROLE IN PRODUCT DEVELOPMENT

During a Voice of the Customer for the renal division of Baxter Healthcare, users expressed a need to quickly understand the nature and seriousness of the various alarms that typically sounded throughout the day. The product's designers developed a traffic-light device with colored lights that indicated the gravity of the problem at a glance.

A few years ago, Intel, the world's largest manufacturer of microprocessors, embarked on a very public strategy to develop specialized microprocessors for various applications. In order to better understand customer needs surrounding these applications, the company began to develop its own Voice of the Customer. Using a combination of ethnography and sit-down interviews, followed by group affinitization processes and large-scale quantitative prioritization surveys, the company has now conducted more than 20 such studies on a host of topics, ranging from extremely simple consumer applications, to highly advanced applications with IT Directors at very large companies.

One of the most compelling products to emerge from this strategy is the v-Pro™ microprocessor for business desktop computers. The v-Pro™ technology addresses a number of critical problems for IT Directors who must manage a large "fleet" of company computers, and ensure their security from external corruption and tampering. The v-Pro™ offers several new features - that have proven to be extremely attractive to IT Directors - which emerged from the

identification of key unmet needs in the Voice of the Customer process. Launched in mid-2006, the v-Pro™ became the fastest product in Intel's history to exceed \$1 billion in revenue.

PPG, a leading manufacturer of industrial coatings and other commercial materials, trained product development teams across most of its major divisions in the use of Voice of the Customer. These teams then conducted a number of highly successful VOC studies throughout the world, on topics as diverse as applications for polyurethane coatings, auto paint used in body shops, and eco-friendly uses for fiberglass. Products that emerged from these applications include a chemical agent resistant coating used in military applications, a new material used for golf ball covers, and an advanced fiberglass product used in wind power generation. This latter product allowed PPG to acquire a major share of this rapidly expanding industry.

As may be seen in these examples, gathering the Voice of the Customer is an extremely important part of the “fuzzy front end” of the new product development process. It forms a solid basis for design and marketing decisions from concept development through product launch.

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Figure Captions:

**Figure 1. The Lens Model of Customer Choice.**

**Figure 2. Importance Ratings for Movie Theater Needs**

**Figure 3. Performance Ratings for Movie Theaters.**

Figures:

Figure 1:

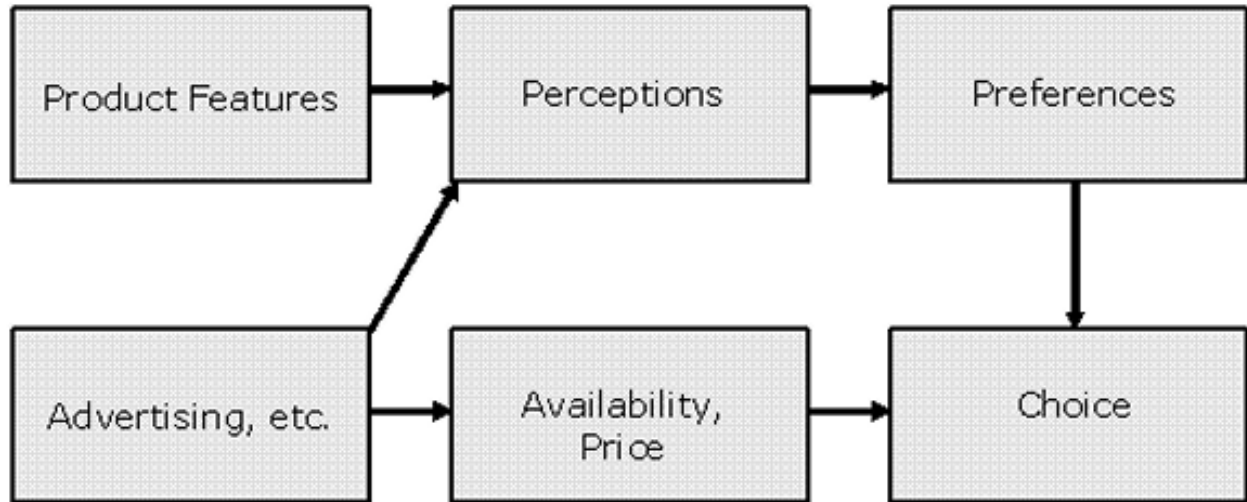


Figure 2:

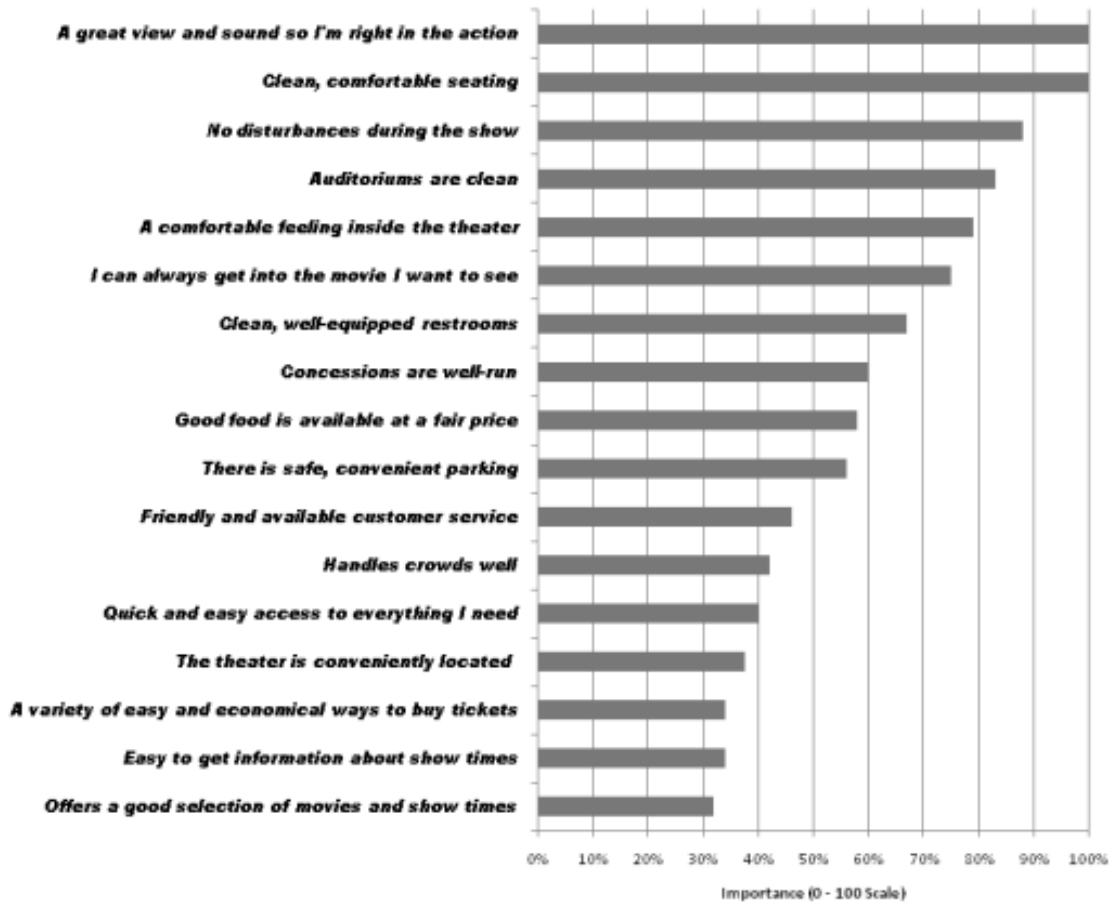




Figure 3:

