

# Service Quality of Tradeshow - Kano Model and Importance Performance Analysis

Jui-Ling Hsu

Associate Professor, Department of International Business, Feng Chia University

No. 100, Wenhwa Rd., Seatwen, Taichung 40724, Taiwan, Republic of China

**Abstract** - Services provided by convention centers are very important, in terms of winning customers' attention and satisfaction. Customer satisfaction has been widely used as an important indicator for business performance, along with the widespread usage of its famous analysis tool, the Importance-Performance Analysis. Despite its usefulness to identify which service attributes should be focused on to increase customer satisfaction, earlier studies have found several problems related to Importance-Performance Analysis's assumptions. By examining the service attributes of Taipei World Trade Center Nangang Exhibition Hall, therefore, this study aims to apply the SERVQUAL into Kano Model and Importance-Performance Analysis to provide a better analysis of which service attributes should be critically focused on by Taipei World Trade Center Nangang Exhibition Hall for further improvement. This paper also provides which strong attributes shall be maintained and which weak attributes shall be enhanced. Both strong and weak attributes are necessary to be identified to guide managers and trade show officials to continuously improve service attributes for customer satisfaction.

**Keywords** — Service quality attributes, Kano model, Importance performance analysis

## I. INTRODUCTION

Under the increased competition, trade shows have been playing important roles in a company's business activities. Specifically, trade shows play an important role as a significant component of industrial companies' marketing and selling strategies (Smith et al., 2003). The term of industrial companies are not only related to manufacturer companies (sellers), but also industrial buyer companies. Looking from the sellers' perspective, trade shows are seen to be a very good promotional way to reach larger prospective customers, particularly if the scale of the trade shows is held on an international scale. On the other hand, from industrial buyer companies' point of view, trade shows are advantageous, mostly in terms of offering great opportunities to buy exhibited products, contact potential suppliers, carry out market research, and find out about competitors (Munuera and Ruiz, 1998).

The increased competition in the trade show industry makes an understanding of the importance of specific venue attributes, facilities, and services are vital (Wu and Weber, 2005). Venue attributes, facilities, and services are an important factor in today's business era because the increased competition amongst competitors demands that each business offers more improved product and service quality for the customers. This condition also happens in the trade show industry. The convention centers are demanded to improve their service qualities. Quality improvement efforts, downsizing, and differentiating a business's existing products and services are important to win against the competition in the world market (Kano, 1995). The competition is no longer based on just lowering the cost, but also to provide value for customers (Porter and Teisberg, 2006). The main goal of product and service quality improvement is offering better value and thus, satisfaction to the customers. By giving a better product and service quality, the customers will likely become more satisfied with the products and services offered. Therefore, the convention centers need to focus and compete with each other in terms of giving service qualities that can lead to customers' satisfaction.

Realizing the importance of performance in generating business competitiveness, many scholars have developed some measurements to measure service quality performance. One of the tools is the Importance-Performance Analysis developed by Martilla and James in 1977. Importance-Performance Analysis (IPA) is an easily applied technique for measuring an attribute of importance and performance for further developing effective marketing programs (Martilla and James, 1977). IPA is also a simple and effective technique that can assist practitioners in prioritizing customer attributes when enhancing service quality and customer satisfaction (Deng, 2007). IPA is one of the widely used methods in many types of research, especially when measuring service quality (Kim, Park, and Mun, 2002).

Several studies have been conducted regarding the trade show. However, most of these studies have been



limited to examine the exhibitors' and attendees' perspectives to attend trade shows (Smith et al, 2003; Blythe, 1999; Munuera & Ruiz, 1999). Researches examined the service provided by the convention center was limited to importance-performance analysis of facility and features of the convention center (Breiter & Milman, 2005; Wu & Weber, 2005; Severt et.al, 2007). By applying SERVQUAL into Kano Model and Importance-Performance Analysis in this study, this study determines to provide a better analysis of which service attributes should be critically focused on by Taipei World Trade Center Nangang Exhibition Hall (TWTC-NEH), to gain market competitiveness in the trade show industry.

## II. Literature Review

Few studies in trade show related areas (Breiter & Milman, 2006; Herbig et al, 1996; Maskell et al, 2004; Wu & Weber, 2010) have used several terms which are related to each other, for instance, trade show, trade fair, exhibition, and convention. Those terms may be varied, but for clarity reason, this study used the terms trade show, trade fair, exhibition, and convention interchangeably which refers to events that bring together, in a single location, a group of suppliers who set up physical exhibits of their products and services from a given industry or discipline (Black, 1986). According to Wu and Weber (2005), trade show venue attributes, facilities, and services are important factors in driving customer satisfaction. That is why each player in the trade show industry needs to offers more improved venue attributes, better facilities, and service quality for the customers' satisfaction. Customer satisfaction holds a very important role in increasing customer loyalty, reducing price sensitivity, increasing positive word of mouth (Matzler, Bailom, Hinterhuber, Renzl, and Pichler, 2004). From a management perspective, the aim of measuring customer satisfaction is to assess the quality of existing management practices and suggest directions for improvement (Severt, et.al., 2007). Keeping in mind that improving customer satisfaction is very critical in business competition, Deng (2007) emphasized that numerous business managers are continually attempting to identify critical service performance factors that generate customer satisfaction and loyalty to stay abreast of competitors.

### A. *SERVQUAL*

*SERVQUAL* is a widely used model for evaluating service quality (Pawitra and Tan, 2003). It is based on the "gap model" of service quality, which defines service quality as a function of the "gap" between customer expectations and their perceptions of the service attribute delivered (Yang, 2003). *SERVQUAL* has emerged as perhaps the most popular standardized questionnaire to measure service quality (Caruana et al, 2000). The model developed by Parasuraman, Zeithaml, Berry (1988) was a two-part scale to measure the expectations-perceptions gap along five

dimensions, also known as *SERVQUAL* Battery (Parasuraman et al. 1994), of reliability, responsiveness, assurance, empathy, and tangibles. The service quality can be measured by subtracting customers' expectation scores from their perception scores on the service attribute measured. Furthermore, integrating *SERVQUAL* into the Kano model will enable *SERVQUAL* to focus on the attractive product/service attributes that are most favored (Tan and Pawitra, 2001).

### B. *The Kano Model*

The Kano model was first developed by Dr. Noriaki Kano to categorize the attributes of a product or service, based on how well they can satisfy customers' needs. It illustrates the relationship between customer satisfaction and the performance of a product or a service (Tan and Shen, 2000). One of the major assumptions of the Kano model is that certain product/service attributes (quality elements) primarily have an impact on creating satisfaction, while others primarily have an impact on creating dissatisfaction (Mikulic, 2007).

Each business player pays large concern in delivering better service delivery for its customers, but delivering better service would probably not directly lead to greater customer satisfaction. Part of the problem is that customers' response to service increments can be non-linear, and satisfaction and dissatisfaction thresholds may not occur at the same point (Oliva et al, 1992). Kano's model is based on the assumption of the existence of non-linear and asymmetric relationships between attribute level performance of products/services and overall customer satisfaction (Mikulic, 2007). However, there are no theoretical and empirical findings that support the assumption of linearity and the symmetrical relationship between attribute performance and customer satisfaction. The relationship between attribute-level performance, and overall satisfaction have been found non-linear and asymmetric (Busacca and Padula, 2005; Mittal, Ross, Baldasare, 1998; Ting and Chen, 2002; Keiningham, Aksoy, et al., 2006).

The Kano model begins with a survey of customers, in which to identify the customers' perceptions and attitudes toward the quality characteristics of a product, a questionnaire should have positive and negative questions (Lee, Hu, Yen, and Tsai, 2008). The customers are asked about product attributes, and how they feel if the product has the attribute sufficiently and if the product does not have the attribute sufficiently, or in other words, the product has the attribute insufficiently (Zultner and Mazur, 2006). The positive and negative questions are reflected in the form of a paired-question of functional and dysfunctional questions to capture the customers' perception and attitudes toward the service quality attributes. Furthermore, the functional and

dysfunctional questions would be matched according to Kano's Quality Attributes Classification Matrix (Table I) to determine which Kano category of each service attribute measured.

In analyzing product/service attributes' impact on satisfaction or dissatisfaction, Kano then categorized product/service quality attributes. Product/service quality attributes are classified into the following five categories (Kuo, 2004) as Table I:

- 1) *Attractive quality (A)*: when present, customers will be satisfied; yet when it is not present, customers would still accept it without dissatisfaction.
- 2) *One-dimensional quality (O)*: when present, customers will be satisfied; it varies in intensity; the higher the quality, the higher the level of satisfaction, and vice-versa; yet when it is not present, customers will be dissatisfied
- 3) *Must-be quality (M)*: customers believe that this quality is a necessity; when it is not present, customers will be dissatisfied.
- 4) *Indifferent quality (I)*: customers will be indifferent whether the quality is present
- 5) *Reverse quality (R)*: when present, customers will be dissatisfied, and vice-versa

**TABLE I**

**Kano's Quality Attributes Classification Matrix**

		Dysfunctional form of the question				
		1	2	3	4	5
The functional form of the question	1	Q	A	A	A	O
	2	R	I	I	I	M
	3	R	I	I	I	M
	4	R	I	I	I	M
	5	R	R	R	R	Q

Note 1= I like it that way; 2= It must be that way; 3= I am neutral; 4= I can live with it that way; 5= I dislike it that way  
 A= attractive quality; O= one-dimensional quality; M= must-be quality; I= indifferent quality; R= reverse quality; Q= questionable result (Source: Lee et al, 2008)

Understanding the category of the quality elements is beneficial in improving quality management, in which managers can set the direction for improvements to enhance customer satisfaction and loyalty, and minimizing dissatisfaction (Kano 1996; Kuo, 2004).

**C. The Importance-performance Analysis**

The effectiveness of IPA to provide insight of which service attributes should be improved was laid on the IPA's technique of comparing two dimensions of service attributes,

namely the importance of the attributes towards the customer, and the performance level. Results are typically presented on a two-dimensional grid which consists of vertical and horizontal axes scaling the importance and performance of mean values of both importance and performance scores (Byeong and Oh, 2002). In Zhang and Chow's research (2004) about tour guides' performance, they said that the comparison between perceived importance and performance on the IPA grid allows managers to identify the relative features of successful tours. By transforming the score of each service attributes into a two-dimensional grid which consists of vertical and horizontal axes scaling the importance and performance of mean values of both importance and performance score, IPA can show which attributes are more important to customers and thus, generating a larger impact on overall visitor satisfaction but is perceived as showing low performance. Analyzing service attributes can help firms to identify primary drivers of customer satisfaction and, based on these findings, set improvement priorities to attain a higher degree of customer satisfaction (Matzler, Bailom, et al., 2004).

Despite the wide use of IPA in measuring service quality performance, there are several weaknesses of the tool. The weaknesses of the traditional IPA laid on its important two assumptions, first, attribute performance and attribute importance are two independent variables (Matzler et al. 2004); second, performance and customer satisfaction is a linear and symmetric relationship (Hu, Lee, et al., 2009). Sampson and Showalter (1999) challenged the first assumption, and in their findings, they found that importance is a function of performance in which the change in attribute performance will lead to the changing of importance, thus, will likely change the improvement efforts. Oh (2001) also noted that given a causal relationship between importance and performance, the traditional IPA grid could offer serious misinformation depending upon the nature and magnitude of the relationship

The conciseness of the findings above regarding traditional IPA implies that further studies are needed to revise the traditional Importance-Performance Analysis to give better analysis towards decision making related to service quality performance. This research intends to identify which core service attributes related to trade shows should be critically focused on to develop customer satisfaction. Thus this study tries to apply the SERVQUAL into Kano Model and Importance-Performance Analysis in the hope this integrated method will help to evaluate customer satisfaction by showing which attributes are strong and which attributes are weak, and thus what improvement actions need to take by the decision-maker board which businesses act as trade show service provider.

### III. RESEARCH METHOD

This study used the Taipei World Trade Center Nangang Exhibition Hall (TWTC-NEH) as the case study subject by applying SERVQUAL into the Kano model, and importance-performance analysis to examine its service attributes towards customer satisfaction. The research instrument was using a survey questionnaire as an instrument of data collection. A two-stage process was conducted to develop the study tool. First, an in-depth literature review was conducted on the topics related to service attributes of tradeshow, and reviewed previous researches that have been done on SERVQUAL, Kano model, and Importance-performance analysis. This step was accomplished to generate measurement items for the specific tradeshow's service attributes. The second step was developing a structured self-administered questionnaire.

#### A. Questionnaire design

The questionnaire consisted of three parts. The first part was structured to find out about the respondents' profile. The second part addressed the functional and dysfunctional forms of the service attributes through the Kano questionnaire model to identify the attributes into Kano's category of service attributes. The respondents were asked to give their opinion towards a pair of 14 (fourteen) functional and dysfunctional questions related to 14 (fourteen) service quality attributes. The functional questions concern the reaction of the attendees if the service attributes are present, while the dysfunctional questions concern the reaction of the attendees if the service attributes are not present. Attendees may answer: I like it that way, It must be that way, I am neutral, I can live with it that way, and I dislike it that way. The third part measured the level of importance scores, minimum service level scores, desired service level scores, and service attributes' performance of TWTC-NEH.

The questionnaire also used SERVQUAL's three-column format and applying 9-point scales to offer respondents a wider range of rating choices (Parasuraman et al. 1994). The three-column format questionnaire is diagnostically superior to the other questionnaires, such as the two-column format and one-column format (Parasuraman et al. 1994). The preferred three-column format of SERVQUAL did not reveal inconsistencies (Caruana, 2000). The questionnaire is developed by applying the SERVQUAL, the Kano model, and the importance-performance analysis. According to the application of SERVQUAL, the SERVQUAL questionnaire must be developed by using the five dimensions of SERVQUAL Batteries (Reliability, Responsiveness, Assurance, Empathy, and Tangibles). Here, the study has developed a set of service attributes that captured the SERVQUAL Battery. The SERVQUAL Battery was later specified into clear statements that will be used in developing the SERVQUAL questionnaire. Subsequently, 14 service attributes were identified and a close-ended and structured questionnaire was designed.

The respondents were asked to rate their opinion on minimum service level, desired service level, and perceived performance of fourteen service attributes of the trade show on Taipei World Trade Center (TWTC) Nangang Exhibition Hall within 9-point scales in which 1 means "very unsatisfied" to 9 means "very satisfied". The question items related to the importance of service attributes were also used 9-point scales in which 1 means "very unimportant" to 9 means "very important". The answers were then analyzed to identify which service attributes should be critically focused on by Taipei World Trade Center (TWTC) Nangang Exhibition Hall for further improvement.

#### B. Data collection

The questionnaires were distributed randomly at Taiwan World Trade Center (TWTC) Nangang Exhibition Hall from March 27th to 30th 2019 when the Taipei Cycle Show was held. Attendees of the 2019 Taipei Cycle Show were used as a sample for this study. The event was chosen because it holds a record as one of the top three-cycle trade exhibitions in the world. According to TAITRA's report, the strong magnitude of the Taipei Cycle Show had prompted many buyers to inquire about pre-arranging booking at next year's show. The Taipei Cycle Show is indeed Asia's largest bicycle showcase along with the famous slogan, "Think bicycle, think Taiwan!" The success of the Taipei Cycle Show to attract many domestic and foreign attendees compared to other shows was seen representative find out the service quality attributes of Taiwan World Trade Center (TWTC) Nangang Exhibition Hall, where the show is held each year. As a method of data collection, collective administration was chosen to administer the questionnaire. According to Kumar (2005), collective administration ensures a very high response rate, and the quickest way of collecting data, and saving money on postage. This method was indeed proved effective, for which a total of 100 questionnaires were distributed at random in the public area of the TWTC Nangang Exhibition Hall, and by the last day of the show, a total of 100 questionnaires were completed.

### IV. RESULTS AND DISCUSSION

This study involves one-hundred foreign businesspeople attendees of the 2019 Taipei Cycle Show to see their perspective about fourteen service attributes. After completing the first part of the questionnaire about the respondents' profile, the respondents were asked the functional and dysfunctional questions of fourteen service attributes (the Kano questionnaire). For both functional and dysfunctional questions, respondents chose from one of the following options, "I like it that way", "It must be that way", "I am neutral", "I can live with it that way", and "I dislike it that way". By using the Kano's Quality Attributes Classification Matrix (Lee et al. 2008) in Table I, the responses to the functional and dysfunctional questions can be classified according to five categories of Kano quality attributes. The last part of the questionnaire has identified the

level of importance scores, minimum service level score, desired service level score, and Taipei tradeshow’s service performance score. The importance-performance gaps can be later calculated, as well as respondents’ satisfaction scores.

Major characteristics of the respondents are males (98%), with age group between 30-39 years (76%), almost half of the sample held graduate school degree (49%) with income per month on average US\$ 5001-6000 (46%) and US\$ 6000 above (45%). These percentages were directly related to the fact that attendees of Taipei Tradeshow were having management positions as business managers (36%), sales representatives (26%), and company owners (22%). 67% of the respondents were frequent attendants, and the rest were not frequent attendants (33%). Tradeshows have been considered as an important promotional tool in businesses today (Browning and Adams, 1988). Tradeshows also undoubtedly provide values in different aspects (Sashi and Perretty, 2002). Tradeshows were found to be attractive events that have been able to attract growing numbers and intensity of attendance. This fact can be seen from the general characteristics of the respondents about the number of tradeshows visited last year. The numbers of trade shows visited last year were dominated by 1-3 tradeshows (29%), 4-6 tradeshows (29%), 7-10 (25%), above 11 trade shows (11%). Regarding the level of attendance, 37% stated that it was their first time to attend a trade show at TWTC-NEH and 27% for second-time attendance. Since this event was a business event, in which most attendants were businessmen in the trading sector, the main reason to attend the Taipei Cycle Show was searching potential partner (or seller, factory) reached 14.4%, followed by finding good products to buy (12.3%).

Regarding the Kano model, the respondents’ answers to both functional and dysfunctional questions were matched according to the Kano’s Quality Attributes Classification Matrix (Lee et al. 2008) in Table I. The category of Taipei Tradeshow’s service attribute according to the Kano model is reported in II. Moreover, Table II also presented the level of respondents’ importance, level of perceived performance, level of desired service level, and level of satisfaction towards each of the fourteen service attributes. As can be seen in Table II, five service attributes had a negative satisfaction level, and those service attributes are classified as Attractive quality with a considerably high level of importance (mean value above 7.51). Those service attributes were considered having a high level of importance, but had a negative level of satisfaction are service attribute 8 (Appealing tourist information service); attribute 5(Consistently courteous service in Taipei Cycle Show); service attribute 2 (Prompt service and response to attendants’ request); service attribute 11 (Providing dining and lodging information, for example, hotels with special rates; and service attribute 6 (Knowledgeable employees of the exhibition hall to answer attendants’ questions). The level of satisfaction scores are respectively -3.15, -2.70, -1.85, -1.58, -0.88.

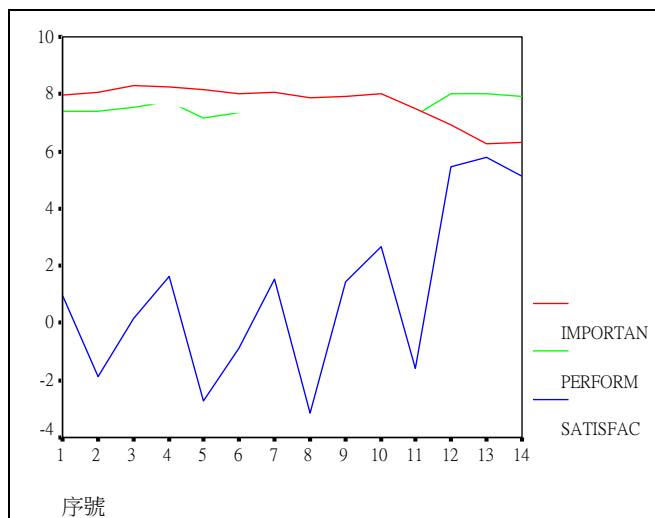
**Table II**  
**Kano model categorization of Taipei Tradeshow’s service attributes**

Service Attributes	Level of importance	Perceived service performance	Desire d service level	Level of satisfactio n	Kano quality attribut e
1	7.95	7.4	7.28	0.95	A
<b>2</b>	<b>8.06</b>	<b>7.42</b>	<b>7.65</b>	<b>-1.85</b>	<b>A</b>
3	8.31	7.52	7.50	0.17	A
4	8.23	7.71	7.51	1.65	M
<b>5</b>	<b>8.17</b>	<b>7.18</b>	<b>7.51</b>	<b>-2.70</b>	<b>A</b>
<b>6</b>	<b>8.02</b>	<b>7.37</b>	<b>7.48</b>	<b>-0.88</b>	<b>A</b>
7	8.08	7.75	7.56	1.54	A
<b>8</b>	<b>7.87</b>	<b>7.12</b>	<b>7.52</b>	<b>-3.15</b>	<b>A</b>
9	7.94	7.64	7.46	1.43	A
10	8.02	7.93	7.60	2.65	A
<b>11</b>	<b>7.51</b>	<b>7.27</b>	<b>7.48</b>	<b>-1.58</b>	<b>A</b>
12	6.94	8.03	7.24	5.48	A
13	6.24	8.01	7.08	5.80	A
14	6.31	7.93	7.12	5.11	A

Note: Respondents’ satisfaction score = level of importance X (perceived service performance-desired service level)

1-14 represents the fourteen service attributes of TWTC-NEH, in which attribute 1= Dependability in offering service as promised in Webpage of Taipei Cycle; attribute 2= Prompt service and response to attendants’ request; attribute 3= The Taipei Cycle Show maintain clear and error-free service (for example, providing information); attribute 4= Feeling secure about the service offered in Taipei Cycle Show; attribute 5= Consistently courteous service in Taipei Cycle Show; attribute 6= Knowledgeable employees of exhibition hall to answer attendants’ questions; attribute 7= Modern and appealing exhibition hall and facilities; attribute 8= Appealing tourist information service; attribute 9= Employees of exhibition hall who have a neat, professional appearance; attribute 10= Clear transportation guide and free shuttle bus; attribute 11= Providing dining and lodging information (for example, hotels with special rates); attribute 12= Offering the Cycle exhibitors’ list and floor map by product and by alphabet; attribute 13= Providing related events and seminars at the same time (for example, 2019 bicycle trend forum, cycling extreme performance); attribute 14= Offering exhibitors’ company information CD and related information to buy at the counter

Service attribute 8 (Appealing tourist information service) is the service attribute categorized as “Attractive Quality”, which means better improvements towards that service attribute will yield high satisfaction, but this “attractive quality” service attribute number 8 has the highest negative customer satisfaction. (-3.15) This implies that the trade show management of TWTC-NEH needs to focus their efforts on improving those attributes with Attractive quality but having a negative satisfaction level score. An illustrative graph that shows more clearly the level of importance, level of performance, and level of satisfaction of TWTC-NEH service attributes is provided in Fig. 1.



**Fig. 1 Level of importance, level of performance, and level of satisfaction of Taipei Tradeshow's service attributes**

The graph revealed that attributes 1 to attribute 11 have a higher level of importance, but those attributes were considered to have a low level of performance compared to their level of importance. On the other hand, attribute 12 ~ attribute 14 were perceived as having a lower level of importance than their level of performance. The most crucial point that needs more attention from the managers of TWTC-NEH is that attributes 2, 5, 6, 8, 11, which have a high level of importance, but those attributes were perceived to have a negative level of satisfaction. Moreover, attribute 2, 5, 6, 8, 11 are categorized as “Attractive quality”. Thus, these attributes will yield high customer satisfaction if the managers of TWTC-NEH will make improvements related to those crucial attributes.

### V. CONCLUSION

This study proposed an integrated approach of SERVQUAL, Kano model, and Importance-Performance Analysis to identify which service attributes should be critically focused on by trade show organizers for further improvement to satisfy the tradeshow's attendees. By integrating the SERVQUAL, Kano model, and Importance-Performance Analysis, this study can achieve a further comprehensive analysis of the data that cannot be achieved by applying those methods individually. The strategic decision-maker of exhibition centers who organize trade shows must pay attention to non-linearity and asymmetric relationship between the level of performance of service offered with the level of satisfaction. Sophisticated service offered would not do much to leverage customer satisfaction, unless those services are considered as “Attractive quality” which has high value-added towards customer satisfaction. Thus, it is very necessary to target the right service attributes that can yield higher customer satisfaction. The integrated analysis

tool used in this study can be useful for strategic decision making, not only applicable to trade show areas, but the approach also applies to other service-related areas. Improving service attributes result of these integrated methods provide insight for better prioritizing efforts for improving service attribute to reap satisfaction as any businesses' goal in today's competitive era. Finally, this research only focuses on a single exhibition center, thus future studies could cover several trade shows on greater geographical areas into consideration.

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