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Quality Analysis of E-Commerce Services in Indonesia

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Abstract. E-commerce and digital platform are considered resilient strategies during the disruption era, where many offline businesses have to shift their promotion and product sales strategies through the digital platform. Nowadays, several service providers are supporting enterprises in using the digital platform. Aside from positive outcomes for firms in using E-commerce, there were also several disadvantages for customers in using this digital platform. As a company engaged in the service sector, providing good service for customer satisfaction is considered a necessary action. This study aims to verify the level of customer satisfaction with the services provided by the e-commerce agency. Service Quality and Quality Function Deployment are used as research approaches. From the data processed using the servqual method, 21 service attributes have negative values that must be taken corrective action. By using the QFD method, the priority of the voice of the customer is obtained, including good quality design results with a value of 6.28 as the priority, good video quality with a value of 6.19 as the second priority, and good quality branding results with a value of 5,88 as the third priority. As for recommendations for improvement based on the value of contributions, including carrying out good discussions with customers, the briefer team and the design team can work well together and update procurement of equipment technology periodically and as needed.

INTRODUCTION

The covid-19 pandemic has been known as the disruption era worldwide since the beginning of 2020. The transformation behavior not only affecting in the way of human beings' activities but also shifting business services. The new standard era causes numerous problems for offline businesses, where various offline businesses enterprises have to change their promotion and sales strategies through online media using digital marketing. Nowadays, there are various kinds of complaints that arise from e-commerce agency customers regarding the services provided by the company. As a company engaged in the service sector, the e-commerce agency must provide service satisfaction to its customers.

The purpose of this research is to support business owners who need digital marketing services; an e-commerce agency is as a result of this providing services such as digital marketing and branding. As a company engaged in the service sector, the e-commerce agency must provide service satisfaction to its customers to find out the level of customer satisfaction with the services provided by the e-commerce agency.

The benefit of this research is to help business people to provide good service. So that it can help customers make decisions to buy the goods or services offered, foster customer confidence in the goods or services offered by the seller, and foster trust and satisfaction with customers. To determine the level of customer satisfaction with the

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services provided by the e-commerce agency, the researchers used the service quality (Servqual) and Quality Function Deployment (QFD) methods. Because the two methods are considered to be able to help solve problems that occur in Agency E-commerce companies.

Quality function deployment (QFD) is a method developed to reduce set-up costs. Apart from this, several other benefits include increasing customer satisfaction, reducing implementation time, encouraging collaboration, and providing documentation. QFD translates what customers need into what the company produces. QFD enables organizations to prioritize customer needs, find innovative responses, and improve processes to achieve maximum effectiveness.

Servqual is known as a suitable method and is widely used to improve the quality of company data services as it can be seen that measurement data can be used to make comparisons between before and after changes in an organization, and servqual can also be used as a measuring tool needed to find the location of problems related to quality. According to [1], understanding service quality is a dynamic condition associated with service products, human resources, processes, and the environment that can meet the needs and desires of customers. Thus, whether or not service quality is defined as the ability of service providers to meet customer wants and needs and accuracy in delivery to balance customer expectations with the service received so that each part cooperates to form a digital forensic system [2].

According to [3], understanding customer satisfaction is a condition where customer expectations for a product are by what the customer receives. If the product turns out to be far below expectations, the customer will be disappointed. On the other hand, if a product meets expectations, the customer will be satisfied. Customer satisfaction can make repeat purchases and make customers loyal and provide mouth to mouth recommendations that can have a good impact on the company [4]. In particular, e-commerce which bases the internet, enables a company to better communicate and interact with new and existing prospective customers, conduct market research more cheaply, and provide a variety of customer services and support more effectively and efficiently [5].

MATERIALS AND METHOD

1. Identification and formulation of the problem
   Identify the problem by discussing the background of the research. The background shows that e-commerce services are not following customer desires. The current state of the service. From this background, the formulation of the problem is determined. The research formulation is how to improve service quality. This research uses Service Quality and Quality Function Deployment Methods. The service Quality method is used to measure service quality. Service Quality is obtained by finding the difference between the perceived value and the expected value. The Quality Function Deployment method is used to determine the most critical service level so that it can be used to improve service quality
2. Research Objectives
   The purpose of this study is to improve the quality of e-commerce services to consumers. The quality of service following the wishes of consumers will increase the productivity of the company.
3. Literature Study
   The literature study used in this research is the theory of Service Quality Management, Service Quality, Quality Function Deployment, validation test, reliability test, data adequacy test, and questionnaire design.
4. Data Collection and Processing Stage
   4.1 Preparation and Distribution of the Preliminary Questionnaire (Stage 1)
   Phase I questionnaire was used to determine customer perceptions and expectations of service quality. The customer perceptions and expectations will be used to determine attributes in designing the phase II questionnaire.
   4.2 Preparation and Distribution of Questionnaires (Stage 2)
   The second stage of the questionnaire contains service attributes that will be measured based on the Likert scale.

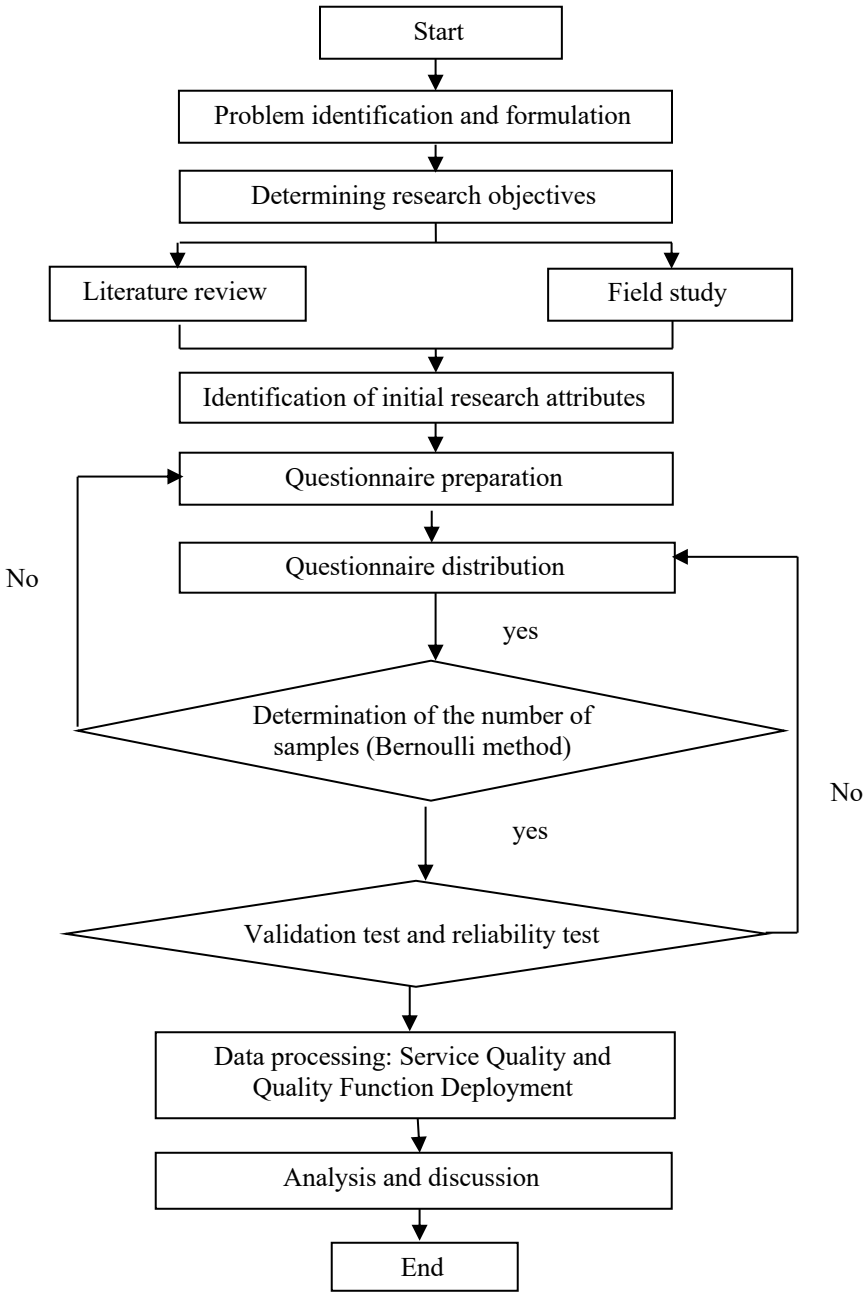

FIGURE 1. Flowchart

4.3 Determination of Minimum Sample Quantity

This study used 40 respondents—determination of the minimum number of samples using the Bernoulli Method.

4.4 Validity and Reliability Test

Validity test to find out data that can be trusted the truth following reality. The higher the validation value of a variable, the more it hits the target. The method used to test the validity of this research is using SPSS v.16 software. In the validity test, a variable is valid if the result of r_count > r_table. The reliability test determines how far the results obtained are consistent, reliable, and reliable. Reliability testing using the Cronbach Alpha method. A variable is said to be reliable if it gives a Cronbach Alpha value > 0.60.

4.5 Data Processing

Researchers will process the data that has been collected. Data processing is based on the theory that the researcher has determined.

5. Analysis and Discussion Stage

At the stage of analysis and discussion aims to analyze the results of all data processing.

6. Conclusion and Suggestion Stage

The conclusion is the answer to the research objective. Suggestions are used to provide input to services so that they can fulfill customer desires.

Sample

The distribution of this questionnaire was carried out on April 18 – 23, 2021. The results of distributing the questionnaire (Phase I) contained 21 attributes and four additional attributes. There were 40 questionnaires distributed. The returned questionnaire was 36 respondents. At the same time, the questionnaires that did not return were four questionnaires. In the study using the information on the characteristics of the questionnaire (phase II), the majority of respondents stated that the respondent's position as owner, which was 73%, and the rest as manager of 27%. Based on most respondents, the type of company is engaged in fashion by 30%, food & beverage by 37%, furniture by 3%, beauty by 10%, logistics by 2 or 7%, automotive by 10%, property by 3%. The majority of respondents said the company's age was < 5 years, namely 53%, respondents who said the company's age was 5-10 years by 20%, respondents who said the age of the company was > 10 years by 27%. Phase II questionnaires distributed must meet the minimum sample adequacy test. The minimum sample adequacy test uses the Bernoulli method. From the results of the calculation of the Bernoulli method of 35 questionnaires, it can be concluded that the data that has been distributed is sufficient.

Measure

This study used a phase I and Phase II questionnaire. The results of the questionnaire will be processed or measured using a Likert scale between 1 to 5. The results of the questionnaire will be tested for validation and reliability testing. The method used for the validation test is Pearson's Product Moment. Where Pearson correlation is used to measure the linear relationship between attributes. Attributes are declared valid if they provide a value (r count) greater than (r table (r count > r table)). Attribute data that shows invalid, then the attribute must be removed. With N as much as 36 so that df = 34 (N-2) and a significant two-way level of 5%, it can be seen that (r table = 0.3291). A reliability test is a test to ensure the measurement results of the attributes with the tool can be used. Measurement of the service quality method by calculating the difference between the value of satisfaction and expectations to customers. Service quality value is used as input for the voice of customer data in Quality function deployment. The voice of the customer is the basis for designing technical responses. The relationship between the voice of the customer and technical response can be used to determine the highest rank. The highest ranking is used as the basis as a priority for improving customer service.

Procedure And Data Analysis

Validity and reliability test. According to [15], the validity test is to determine whether you can use a measuring instrument that has been prepared to measure what you want to measure correctly. A validity test is the instrument's effectiveness based on the correlation between attributes. It will describe the level of capability of the measurement instrument used to reveal several main measurement targets so that it can be used to determine the accuracy of the

distributed questionnaire. Measurement of effectiveness means that there are no systematic errors or random errors. The significance test compares the calculated r-value with the degrees of freedom (df) in r table = n-2. In this case, n is the number of samples and comparing the total correlation values of the related items with the results of the r table calculations. If the result of r count > the value in r table and that is positive, the item or question or indicator is declared valid [16].

According to [17], the reliability test is how the measurement results using the same object will produce the same data. A reliability test is used to determine the consistency of the measuring instrument, which usually uses a questionnaire. A reliability test is a tool used to repeat the measurement to get consistent measurement results. To determine whether the instrument is reliable, use a threshold value of 0.6. If the correlation is 0.6, then the item is declared reliable, and if the correlation value obtained is less than 0.6, then the item is declared less reliable. The most common methods used in reliability testing include [18]:

1. Copy Test-Retest Reliability. The results of these measurements will be compared to see the similarities. The larger the discrepancy and inconsistency, the greater the randomness of the error and the lower the reliability
2. Alternative Forms Reliability includes giving two forms with the same meaning and purpose but not the same. Then compare from here to get the resulting level of difference
3. Split Half Reliability It includes dividing the items in the measuring instrument into equal groups and correlating the responses of each item to assess the level of reliability.

TABLE 1. Service quality

No	Code	Voice of Customer	Average value		Gap Servqual Score
			Satisfaction	Perception	
		Tangible			
1.	X1	The E-commerce agency office looks cool and clean.	4,47	4,64	-0,17
2.	X2	Availability of extra facilities	4,47	4,56	-0,08
3.	X3	Use of work tools are qualified and up to date	4,31	4,64	-0,33
4	X4	Employees have a neat appearance			
5	X5	There is a company nameplate	4,64	4,61	0,03
		Reliability			
6.	X6	Good design quality	4,03	4,61	-0,58
7.	X7	Good video quality	4,14	4,64	-0,50
8.	X8	Good quality branding results	4,25	4,58	-0,33
9.	X9	Service hours according to the schedule that has been informed	4,36	4,50	-0,14
10.	X10	The availability of discounts or bonuses	3,72	4,58	-0,86
11.	X11	Satisfactory service price	3,92	4,53	-0,61
12.	X12	Customers get easy work results through various media	4,50	4,31	0,19
		Responsiveness			
13.	X13	Immediately resolve incoming complaints from customers	4,14	4,61	-0,47
14.	X14	Revisions completed quickly	4,53	4,58	-0,06
15.	X15	Customers easily get updated information	4,25	4,44	-0,19
16.	X16	The company accepts and serves customers well	4,22	4,44	-0,22
		Assurance			
17.	X17	The ability of employees to complete the job well	4,47	4,56	-0,08
18.	X18	The ability of employees to solve problems well	4,47	4,67	-0,19
19.	X19	The ability of employees to understand the job desk well	4,36	4,56	-0,19
20.	X20	The employees' skills well	4,36	4,22	0,14
21.	X21	Data from customers is well preserved	4,47	4,67	-0,19
		Empathy			
22.	X22	Customer service friendliness in serving	4,67	4,83	-0,17

No	Code	Voice of Customer	Average value		Gap Servqual Score
			Satisfaction	Perception	
23.	X23	The readiness of customer service in serving	4,56	4,78	-0,22
24.	X24	Understanding the needs and interests of each customer	4,53	4,61	-0,08
25.	X13	Immediately resolve incoming complaints from customers	4,56	4,47	0,08

Based on the table above, 21 attributes have negative gab values and four attributes that have positive gab values. A positive gap value indicates that the quality indication has met customer expectations, and a negative gap value indicates that service quality must be improved to meet customer expectations. Thus, the study has 21 attributes as the voice of the customer.

TABLE 2. Gap servqual score

No	Code	Voice of Customer	Gap Servqual Score
1.	X1	The E-commerce agency office looks cool and clean	-0,17
2.	X2	Availability of facilities (such as wifi, toilet, tv, waiting room, etc.)	-0,08
3.	X3	Use of work tools that are qualified and up to date	-0,33
4.	X5	There is a company nameplate	-0,19
5.	X6	Good design quality	-0,58
6.	X7	Good video quality	-0,50
7.	X8	Good quality branding results	-0,33
8.	X9	Service hours according to the schedule that has been informed	-0,14
9.	X10	The availability of discounts or bonuses	-0,86
10.	X11	Satisfactory service price	-0,61
11.	X13	Immediately resolve incoming complaints from customers	-0,47
12.	X14	Revisions completed quickly	-0,06
13.	X15	Customers easily get updated information	-0,19
14.	X16	The company accepts and serves customers well	-0,22
15.	X17	The ability of employees to complete the job well	-0,08
16.	X18	The ability of employees to solve problems well	-0,19
17.	X19	The ability of employees to understand the job desk well	-0,19
18.	X21	Data from customers is well preserved	-0,19
19.	X22	Customer service friendliness in serving	-0,17
20.	X23	The readiness of customer service in serving	-0,22
21.	X24	Understanding the needs and interests of each customer	-0,08

RESULT AND DISCUSSION

The steps in determining the planning matrix in the Quality Function Deployment:

1. The Importance to Customer value is obtained from the average value of the customer importance level.
2. The value of Customer Satisfaction Performance is obtained from the average value of the level of customer satisfaction.
3. The Goal value is obtained from the average value of customer expectations.

TABLE 3. Voice of customer

No	Code	Voice of Customer	Importance to Customer	Customer Satisfaction Performance	Goal
1.	X1	The e-commerce agency office looks cool and clean	0,048	4,47	4,64
2.	X2	Availability of facilities (such as wifi, toilet, tv, waiting room, etc.)	0,047	4,47	4,56
3.	X3	Use of work tools that are qualified and up to date	0,048	4,31	4,64
4.	X5	There is a company nameplate	0,048	4,47	4,67
5.	X6	Good design quality	0,048	4,03	4,61
6.	X7	Good video quality	0,048	4,14	4,64
7.	X8	Good quality branding results	0,047	4,25	4,58
8.	X9	Service hours according to the schedule that has been informed	0,047	4,36	4,50
9.	X10	The availability of discounts or bonuses	0,047	3,72	4,58
10.	X11	Satisfactory service price	0,047	3,92	4,53
11.	X13	Immediately resolve incoming complaints from customers	0,048	4,14	4,61
12.	X14	Revisions completed quickly	0,047	4,53	4,58
13.	X15	Customers easily get updated information	0,046	4,25	4,44
14.	X16	The company accepts and serves customers well	0,046	4,22	4,44
15.	X17	The ability of employees to complete the job well	0,047	4,47	4,56
16.	X18	The ability of employees to solve problems well	0,048	4,47	4,67
17.	X19	The ability of employees to understand the job desk well	0,047	4,36	4,56
18.	X21	Data from customers is well preserved	0,048	4,47	4,67
19.	X22	Customer service friendliness in serving	0,050	4,67	4,83
20.	X23	The readiness of customer service in serving	0,049	4,56	4,78
21.	X24	Understanding the needs and interests of each customer	0,048	4,53	4,61

The fourth step is to determine the value of the improvement ratio. Fifth, determine the value of sales points. Sales points are used to provide information about the ability of the service to meet customer needs. The sales point value consists of 1.0 as “no sales point,” 1.2 is “medium sales point,” and 1.5 is “strong sales point. Sixth, determine the raw weight value.

TABLE 4. Voice of customer raw weight

No	Code	Voice of Customer	Improvement Ratio	Sales Point	Raw Weight
1.	X1	The E-commerce agency office looks cool and clean	1,04	1	0,050
2.	X2	Availability of facilities (such as wifi, toilet, tv, waiting room, etc.)	1,02	1,2	0,058
3.	X3	Use of work tools that are qualified and up to date	1,08	1,2	0,062
4.	X5	There is a company nameplate	1,04	1	0,050
5.	X6	Good design quality	1,14	1,5	0,082
6.		Good video quality	1,12	1,5	0,081

No	Code	Voice of Customer	Improvement Ratio	Sales Point	Raw Weight
7.	X8	Good quality branding results	1,08	1,5	0,077
8.	X9	Service hours according to the schedule that has been informed	1,03	1	0,048
9.	X10	The availability of discounts or bonuses	1,23	1,2	0,070
10.	X11	Satisfactory service price	1,16	1,2	0,065
11.	X13	Immediately resolve incoming complaints from customers	1,11	1,2	0,064
12.	X14	Revisions completed quickly	1,01	1,5	0,072
13.	X15	Customers easily get updated information	1,05	1,2	0,058
14.	X16	The company accepts and serves customers well	1,05	1,2	0,058
15.	X17	The ability of employees to complete the job well	1,02	1,2	0,058
16.	X18	The ability of employees to solve problems well	1,04	1,2	0,060
17.	X19	The ability of employees to understand the job desk well	1,04	1	0,049
18.	X21	Data from customers is well preserved	1,04	1,2	0,060
19.	X22	Customer service friendliness in serving	1,04	1,2	0,062
20.	X23	The readiness of customer service in serving	1,05	1,2	0,062
21.	X24	Understanding the needs and interests of each customer	1,02	1,2	0,058

House of Quality can find out the priority needs of e-commerce service customers. Service attributes that have a high value indicate that service attributes are needed by customers.

TABLE 5. Normalized raw weight score

No	Code	Nilai *Normalized Raw Weight*	NRW (%)
1.	X1	The E-commerce agency office looks cool and clean	3,82
2.	X2	Availability of facilities (such as wifi, toilet, tv, waiting room, etc.)	4,42
3.	X3	Use of work tools that are qualified and up to date	4,76
4.	X5	There is a company nameplate	3,86
5.	X6	Good design quality	6,28
6.	X7	Good video quality	6,19
7.	X8	Good quality branding results	5,88
8.	X9	Service hours according to the schedule that has been informed	3,68
9.	X10	The availability of discounts or bonuses	5,37
10.	X11	Satisfactory service price	4,98
11.	X13	Immediately resolve incoming complaints from customers	4,89
12.	X14	Revisions completed quickly	5,52
13.	X15	Customers easily get updated information	4,42
14.	X16	The company accepts and serves customers well	4,45
15.	X17	The ability of employees to complete the job well	4,42
16.	X18	The ability of employees to solve problems well	4,64
17.	X19	The ability of employees to understand the job desk well	3,77
18.	X21	Data from customers is well preserved	4,64
19.	X22	Customer service friendliness in serving	4,77
20.	X23	The readiness of customer service in serving	4,77
21.	X24	Understanding the needs and interests of each customer	4,47

Technical response analysis aims to determine the value of technical responses that e-commerce services must consider. The technical response that has the highest contribution value, the technical response needs to be prioritized for customer service.

TABLE 6. Technical responses

No	Code	Technical Responses
1.	RT1	Complete all the needs and facilities in the office
2.	RT2	Procurement (update) of the latest work equipment technology
3.	RT3	Provide various kinds of discounts or bonuses
4.	RT4	Offers a variety of service packages
5.	RT5	Implementation and supervision of SOPs
6.	RT6	Conduct discussions with customers
7.	RT7	Provide customer care facilities in various media
8.	RT8	Provide training to employees
9.	RT9	Perform repairs and replace facilities if something is damaged
10.	RT10	Hiring cleaning service
11.	RT11	Maintain the quality of room temperature, lights, wifi, work equipment properly
12.	RT12	The briefer team and the design team work well together
13.	RT13	Provide a visitor voice box to give impressions, suggestions, and criticism

The technical response with a high contribution indicates that technical response must be prioritized in improving the service quality. Several technical responses that need to be prioritized in order to be able to meet customer desires, namely having a contribution value higher than the average contribution value, can be seen in the following table7.

Table 7. Technical response priority

Technical Response	Contribution	Relative Contribution (%)	Rank
Conduct discussions with customers (RT6)	2,95	16,31	1
The briefer team and the design team work well together (RT12)	2,47	13,66	2
Procurement (update) of the latest work equipment technology (RT2)	2,29	12,67	3
Maintain the quality of room temperature, lights, wifi, work equipment properly (RT11)	1,98	10,94	4
Provide various kinds of discounts or bonuses (RT3)	1,58	8,73	5

The table above shows that five technical responses will be prioritized in improving the quality of service to customers. Improving the quality of service to customers will increase profits and be competitive.

CONCLUSION

Based on data processing using the Service Quality method, 21 attributes are harmful out of 25 service attributes. This means that the services provided by the e-commerce agency company still do not meet the expectations of their customers, so it is necessary to improve the quality of service. Based on data processing results with Quality Function Deployment, the priority order of service attributes desired by customers is obtained. Namely, the first is the quality of good design results. Second, the quality of the video is good. Third, the quality of good branding results. Fourth, revisions are completed quickly. Fifth, there are discounts or bonuses. The technical response chosen as the proposed improvement and development is following the priority of its contribution in the QFD analysis, namely being able to carry out discussions with customers well, the briefer team and the design team can work well together and update procurement of work equipment technology regularly following the requirements needed, maintaining room temperature, lighting, wifi, working equipment properly, providing various kinds of discounts or bonus.

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