

Case Study of Customer Satisfaction in a State-Owned Construction Companies

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Abstract

Customer satisfaction has been recognised by researchers as one of the main factors for the success of project. Customer satisfaction to build a loyal relationship between users and service providers is an interesting challenge. This study aims to provide information from literature regarding the on factors that affect customer satisfaction, and to determine the assessment of customer satisfaction with the performance of PT PP Persero Tbk, especially in the building division. The study from 28 literatures show that the quality of work and a professional team are the factors that most affect customer satisfaction. The results of the customer satisfaction assessment (CSS) of PT PP Persero Tbk state that the quality of human resources and interpersonal communication with customers is the most valued by customers in assessing project performance. These result prove that a professional team consisting of quality human resources is important in providing customer satisfaction. This research only focuses on subjective assessment methods applied to construction management to obtain customer satisfaction.

Keywords: *Customer Satisfaction*

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A. INTRODUCTION

Customer satisfaction is becoming the biggest challenge for improving quality in the construction industry and a measuring tool in the development of construction quality. Customer satisfaction It is an important factor in the development and management of the construction process, as well as in creating efficient company relationships with service users. Contractors as the main service providers in the construction industry need to design more and better strategies to determine what matters to project owners in optimizing investment and business opportunities. (Chinny, 2007).

The value of customer satisfaction has been identified as a key parameter for the success of construction projects and an effective tool for maintaining a company's competitive advantage in a competitive business environment. There is a significant difference between the loyalty of satisfied and completely satisfied customers, where customers who are only satisfied find it easy to switch with a better offer and the level of customer satisfaction is emphasized in a competitive market where competition is fierce. (Kotler P., 2000). According to (Abayomi Omonori, 2014) customer satisfaction affects the future of the company and increases the company's cash flow / profit. The quality of high customer satisfaction increases the profitability

of the company. The future behavior of clients is influenced by their satisfaction with the excellence of the services provided by the construction company. (Serdar Durdyev, 2018). To compete successfully in the long term, companies must be sure that customers are satisfied. Delivering superior quality and maintaining customer satisfaction quickly becomes a way for companies to differentiate themselves from competitors (Stroh, 2001). (Stroh, 2001).

The occurrence of defects does not necessarily jeopardize customer satisfaction, although it does concern them. When the occurrence of defects did compromise customer satisfaction, it was found that the worse impact was the construction company's inability to communicate with the customer after a claim was filed. (Raphael Negri Milion, 2017). Quality and client satisfaction have long been the focus of attention in the construction industry due to their significant role in the success or failure of a project. Lack of quality in projects has a significant impact on client satisfaction (Shahid Hussain & Ali Milion, 2017). (Shahid Hussain & Ali, 2019)..

Client satisfaction is a fundamental issue for construction service providers that must be constantly improved if they are to survive in the market. A survey of construction clients across the UK revealed that overall performance quality, technical accuracy, and personnel are the key performance attributes of consultants. (Jianxi Cheng, 2006). The ability to align project outcomes with customer and client expectations and perceptions is the most ideal situation in measuring project success (Majid, 2014). (Majid, 2014). An important goal in improving customer satisfaction is to achieve customer loyalty (Sami Kärnä1, 2004). (Sami Kärnä1, 2004)..

Private customers can become more established partners in cooperation, which will then have an impact on customer satisfaction. Otherwise, Public customers have to follow legislative procurement, which essentially narrows the criteria for selecting contractors. Competitive bidding is usually based on price criteria, and therefore contractors do not have sufficient incentives to exceed customer expectations, and may regard customer satisfaction as meaningless. In the case of public customers, contractors participate in competitive bidding for each new contract regardless of the success or failure of their previous projects, whereas private customers will eliminate unsatisfactory contractors from the competition.

The main benefit of high customer satisfaction for a contractor is the opportunity to remain a potential customer of the partner in the future. (Kärnä, 2004). Customer satisfaction with the construction products and construction services provided by a contractor has a direct influence on the customer's desire to choose that contractor for future work (Maloney W. F., 2003). (Maloney W. F., 2003).

Construction Industry Customer Satisfaction

It is important to realize that the owner's needs are very diverse. The customer's needs may be very different on each project. Cost may be the most important factor for the customer on one project, while execution time is the most

important factor for another project. (Maloney, 2022). Contractors should therefore identify the most important customer satisfaction criteria on each project.

Customers are usually satisfied with the contractor's ability to cooperate and the workers' skills and performance. Delays and cost overruns in construction are critical issues in the construction business and have a strong influence on the success of a project.

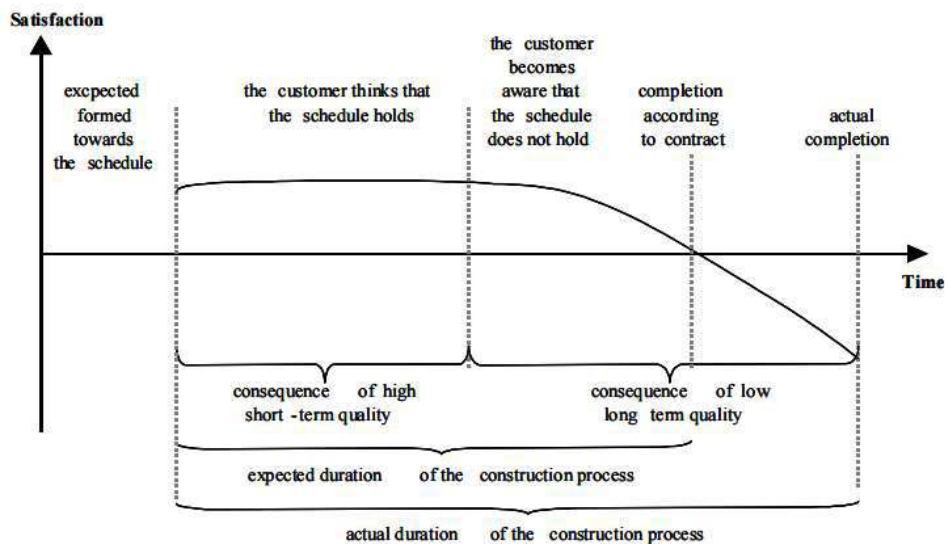


Figure 1. High short-term quality and low long-term quality of construction delivery schedules (Hastie et al., 2017). Diambil dari Ojasalo, J., *Quality Dynamics in Professional Services*. Helsinki: Swedish School of Economics, Finland, 1994, p.121. (Sami Kärnä1, 2004)

Figure 1 shows the construction schedule and changes in customer satisfaction throughout the process. The service user is satisfied with the implementation schedule at the beginning of the process, and starts to feel dissatisfied during the rest of the implementation period. When the customer realizes that the schedule is not suitable, the customer's satisfaction with the schedule changes significantly, from a high level to a low level. (Sami Kärnä1, 2004).

Strategies for Improving Construction Client Satisfaction Levels

As construction companies face increasing competition, greater attention continues to be paid to customer relationships and customer satisfaction. For many companies, customer satisfaction is an effective way to differentiate themselves from the competition as well as one of the key issues in their efforts to improve service quality. Client satisfaction is one of the main challenges for quality improvement in the construction industry, and is a successful strategy in the development and management of the construction process. (Chinny, 2007).

It is about creating an efficient company-client relationship. Customer satisfaction in construction is more about client relationships than transactions (Homburg & Rudolph, 2001). One of the efforts that can be made is integrated team

integration. Collaborative team integration allows for true engagement and understanding of needs and requirements that will yield favorable results.

The three constraints on any project are time, cost and quality. If not handled properly there will be a significant impact on all three. A well-integrated team will help eliminate most of the construction problems and criticisms coming in from the client, and will help generate increased client satisfaction with the project performance.

B. METHOD

This research reviews studies that discuss customer satisfaction (CS) from the customer satisfaction survey results of PT PP Persero Tbk building projects from 2020 to 2022 and related construction literature published from 2001 to 2020. The literature adopted to provide an overview of how for contractors to get a sense of customer satisfaction. Literature was reviewed and taken from leading publishers and journals in the field of construction management, engineering management, project management, and other related disciplines or sub-disciplines. The research was conducted through online libraries, namely American Society of Civil Engineers Library, Google Scholar, ResearchGate, Life Science Journal, Nordic Journal of Surveying and Real Estate Research, Semantic Scholar, Taylor & Francis, Techmind Research, Routledge, Emerald Group Publishing Limited, Academia, UTS Epress, ScienceDirect, Elsevier, Suruhanjaya Syarikat Malaysia, IOP Publishing, International Knowledge Sharing Platform, VGTU Press, and SAGE. The content of this research is based on journal papers and conference proceedings. In addition, some related studies have also been extracted from the bibliographies cited from various published papers.

This study cites Journal of Construction Engineering and Management, Life Science Journal, Nordic Journal of Surveying and Real Estate Research Special Series, International Journal of Construction Management, Journal of Research in Marketing, Construction Management and Economics, The Service Industries Journal, Construction and Architectural Management, Journal of Management in Engineering, International Journal of Building Pathology and Adaptation, International Journal for Research in Applied Science & Engineering Technology, Construction Economics and Building, Building and Environment, Journal of Facilities Management, OIDA International Journal of Sustainable Development, Journal of Physics: Conference Series, International Journal of Engineering Research & Technology, Journal of Economics and Sustainable Development and International Journal of Engineering Business Management. Methodology The assessment of relevant journals is carried out by qualitative assessment of the results of previous research, in the following order:

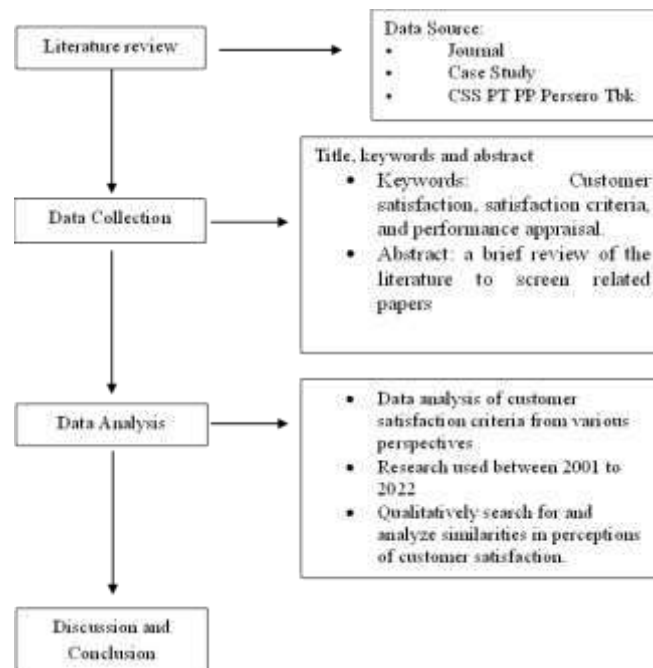


Figure 2. Flowchart

The results of the customer satisfaction survey (CSS) and relevant literature were analyzed qualitatively through a review of the main factors that led to customers being satisfied with the contractor's performance, but limited to findings from 28 publications on customer satisfaction in the construction industry from different geographies.

C. RESULTS AND DISCUSSION

Study Literature

Table 1 shows the annual trend of studies with the topic of customer satisfaction published in 2001 to 2022 has increased from the previous 10 years. This indicates that customer satisfaction is increasingly important in the construction industry. Customer satisfaction can influence customers to choose a contractor for future work. (Maloney W. F., 2003).. Therefore, researchers in the field of construction management have identified the main factors of customer satisfaction that aim to improve contractor services for the sustainability of company performance.

Table 1. Research Countries

Country	Number
Pakistan	1
Jordan	1
Finland	4
United States of America	4

Egypt	1
Australia	2
United Kingdom	1
Saudi Arabia	1
Brazil	1
Taiwan	2
South Africa	1
Indonesia	2
India	2
Nigeria	1
Cambodia	1
Thailand	1
New Zealand	1
Spain	1
Total	28

Table 2. Year of publication

Year	Number
2001	1
2002	1
2003	2
2004	4
2006	1
2009	2
2013	1
2014	2
2015	1
2016	1
2017	6
2018	1
2019	2
2020	2
2022	1
Total	28

Table 3. Journal publications

Year of Publication	Number
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Year of Publication	Number
Journal Of Construction Engineering And Management	5
Life Science Journal.	1
Nordic Journal Of Surveying And Real Estate Research Special Series	1
Journal Of Research In Marketing	1
Construction Management And Economics	1
Emerald Group Publishing Limited	1
Construction And Architectural Management	1
Journal Of Management In Engineering	1
International Journal Of Building Pathology And Adaptation	2
Building And Environment	1
Journal Of Facilities Management	1
OIDA International Journal Of Sustainable Development	1
Journal Of Physics: Conference Series	1
International Journal Of Engineering Research & Technology	1
Journal Of Economics And Sustainable Development	1
Journal Of Civil Engineering And Management	1
International Journal Of Engineering Business Management	1
International Journal For Research In Applied Science & Engineering Technology (IJRASET)	1
Safety Science 47	1
Journal Of Safety Research 35	1
IPTEK Journal Of Proceedings Serie	1
Journal Of Management In Engineering	1
Total	28

Table 1. Customer Satisfaction Factors

Customer Satisfaction Factors	Number
Quality of Work	1,6,7,9,15,18,19,22,23,24,26,27
HSE	16,16,20,21,22,27
Professional team	2,4,10,17,22,26,27,28
Ability of Cooperation	6,11,12,22,27

Communication	4,12,17,22
Timely Completion	9,14,17,22
References : 1. (Abayomi Omonori, 2014). 2. (Chike Eke, 2017). 3. (Chinny, 2007). 4. (Jianxi Cheng, 2006). 5. (Kotler, 2000). 6. (Kärnä, 2004). 7. (Maloney W. F., 2003). 8. (Maloney W. F., 2022). 9. (Othman, 2015). 10. (Raphael Negri Milion, 2017). 11. (Sami Karna J.-M. J., 2004).12. (Sami Karna J.-M. J.-M., 2009). 13. (Sami Kärnä1, 2004). 14. (Serdar Durdyev, 2018). 15. (Shahid Hussain & Ali, 2019). 16. (Beatriz Fernández-Muñiz, 2009).17. (Syairuddin, 2020). 18. (Ghaleb J. Sweis, 2013). 19. (Stroh M. T., 2001). 20. (Rechenthin, 2004). 21. (Eldejany, 2019). 22. (Majid, 2014). 23. (Laith Hadidi, 2017). 24. (P.Meenakshi, 2016). 25. (Maloney W. F., 2002). 26. (ER Ahadian, 2020). 27. (Shruthi Sivaprakasam, 2017). 28. (Thanitbenjasith, 2017).	

Customer Satisfaction Survey (CSS) PT PP Persero Tbk

PT PP Persero Tbk is one of the state-owned construction companies that has contributed to the construction of buildings and infrastructure in Indonesia since 1953. Increased competition in the construction business has driven PT PP Persero Tbk always conducts customer satisfaction surveys to improve the competitiveness of the company. Surveys are conducted every 50% and 100% work progress. Respondents used are service users and consultants on each project. CSS assessment references as follows:

Table 5. CSS Assessment Reference PT PP Persero Tbk

Assessment Reference	Code
Work process management	Work Process
HR Capacity	HR
Timeliness of completion	Completion Time
Communication and customer interpersonal relationships	Completion Time
HSE Management	HSE
Appropriateness of budget and implementation results	Budget Accuracy
Product quality	Quality
Service flexibility	Services
Speed of response to instructions given	Responsiv
Concern for the environment	Environment

Table 6. CSS Assessment Classification Standard Of PT PP Persero Tbk

Category	2020	2021 - 2022
Excellent	>90%	>93.5%
Good	>75% to 90%	>75% to 93.5%
Moderate	>55% to 75%	>55% to 75%
Less	<55%	<55%

Customer satisfaction survey (CSS) of PT PP Persero Tbk building projects from 2020 to 2022 on building projects. The number of projects that are respondents is as follows:

Table 7. Number of CSS Respondent Projects

Year	2020	2021	2022	Total
Number of Project	18	20	20	60

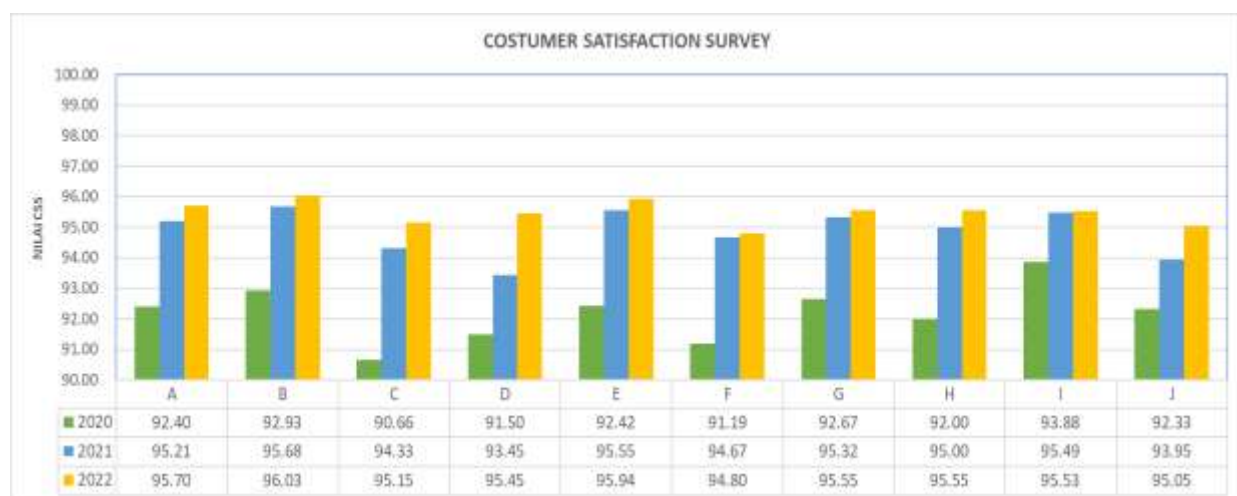


Figure 3. Customer satisfaction of PT PP Persero's building projects

Table 8. CSS Assessment Reference Ranking

Rangking	2020	2021	2020
1	Responsive	HR	HR
2	HR	HSE	HSE
3	Quality	Responsive	Work Process
4	HSE	Quality	Quality
5	Work Process	Work Process	Services
6	Environment	Services	Responsive
7	Services	Budget Accuracy	Communication
8	Communication	Completion Time	Completion Time
9	Budget Accuracy	Environment	Environmen

HR capacity and interpersonal communication with customers have the highest scores in the customer satisfaction survey. Of the 10 survey references set by the company, all of these references get an excellent value classification. This illustrates the company's ability to provide the best performance to customers for building projects.

Quality

Lack of quality in projects has a significant impact on client satisfaction (Shahid Hussain & Ali, 2019). The quality of the work of apartment buildings is also something that influences residents in providing satisfaction ratings. (Ghaleb J. Sweis, 2013). From the survey results of Karna (2004), it was found that low satisfaction ratings were related to quality assurance and handover including: material quality and defect repair during handover inspections. These results mean the importance of quality assurance to customer satisfaction. According to Torbica and Stroh (2001), quality improvement efforts will lead to higher quality products and services, which will lead to increased customer satisfaction.

Providing training programs for the workforce by management to produce highly skilled talent in order to create synergies that will significantly impact customer satisfaction. (Maloney W. F., 2003). Research conducted by Othman (2015) and Ahadian et al (2020). Quality assurance, environment and safety, supervision and subcontractors, personnel and cooperation affect customer satisfaction. (Shruthi Sivaprakasam, 2017)

A factor that greatly influences customer satisfaction is the contractor providing agreed quality standards. In housing development in Australia Forsthy (2007) states service quality, product quality and price consistently manifest during the purchase decision process and also in pre-purchase expectations and purchase perceptions. Meenakshi (2006) statistical test states that the quality of flats is a top priority for flat buyers, so the design of flats Implementation of ISO 9001: 2008 is expected to increase customer satisfaction. (Laith Hadidi, 2017).

HSE

A safety management system (SMS) is not only able to reduce personal injury and harm to workers' health, it also reduces the number of interruptions in the production process so that management can increase productivity, production quality and the level of innovation of the company, thus affecting customer satisfaction and company reputation. (Beatriz Fernández-Muñiz, 2009).. A successful safety program is defined as one that not only meets regulatory compliance, but also one that stands out from the competition. It should be an exemplary program with results that add value to the client and the company (Rechenthin, 2004). (Rechenthin, 2004). Eldejany (2019) stated a positive relationship between safety management systems (SMS), safety performance and customer satisfaction. One of the five factors of customer satisfaction is work environment and safety. (Sami Karna J.-M. J., 2004).

Professional team

Owner satisfaction from private and public sector construction in Johannesburg, South Africa mostly strongly agreed that using a competent team of professionals when executing projects can result in better satisfaction levels, reduced contract claims and variations (Chike Eke, 2017). (Chike Eke, 2017). Customer satisfaction in the construction industry is: conformity of project reports with actual conditions in the field, ability to complete within deadlines, level of service after completion, application of work procedures and instructions for completing projects, project workers' expertise in using equipment in the field, and fulfillment of construction functions. (Syairuddin, 2020).

Satisfaction assessment is greatly influenced by the team's professional ability in variance management, schedule, resource management, data inspection and team performance. (Jianxi Cheng, 2006). Studies conducted in Ternate state that customer satisfaction is influenced by the suitability of project reports with real conditions in the field. (ER Ahadian, 2020). Contemporary leadership influences job satisfaction and organizational commitment. (Thanitbenjasith, 2017).. Clients want in the engineering consulting industry to have good quality personnel and service quality even though it depends on the client's willingness to pay (Tang, Lu, & Chan, 2003). (Tang, Lu, & Chan, 2003).

Ability of Cooperation

Karna (2004) emphasizes the fact that the contractor's ability to cooperate can reduce the adverse impact of poor quality assurance at the completion stage. Karna et al (2009) also stated that the capacity of personnel to work together is the most influential factor on customer satisfaction and the contractor's ability to work together is divided into two including: managing change (variance) and emphasizing the importance of communication in project production. Karna et al (2004) the factor that most affects customer satisfaction is the capacity of personnel to work together.

Communication

Customer satisfaction is a fundamental issue for construction companies that must be constantly improved to survive. From the results of a survey of construction clients across the UK, it was revealed that overall quality of performance, technical accuracy and personnel were the consultants' key performance attributes. Clients consider effective communication and their service provider as the most important criteria in determining their level of satisfaction. (Jianxi Cheng, 2006). Customer satisfaction also depends on the level of trust in follow-up communication. (Syairuddin, 2020).

While the occurrence of defects does interfere with customer satisfaction, it was found that the worse impact resulting from the occurrence of multiple defects in a single unit is the construction company's inability to communicate with the

customer after a claim is filed, and the occurrence of defects. (Raphael Negri Milion, 2017). According to a study conducted by Karna et al (2009) the ability of contractors to cooperate is divided into two directions: managing change and communication. The results emphasize the importance of communication in project production.

Work Completion

Othman (2015) and Syairuddin et al (2020) also mention that contractors can complete work within the specified time which greatly affects customer satisfaction. Kontraktor dengan kinerja tepat waktu tenaga kerja terampil kontraktor menciptakan harapan di pihak pelanggan (Maloney W. F., 2002). Provide information to the client about the time when it will be done and complete the work according to the promised time. (Serdar Durdyev, 2018).

D. CONCLUSION

The increasingly fierce competition in the construction industry requires more intensive and continuous attention to customer satisfaction. Companies use various approaches to obtain customer satisfaction in developing, monitoring and improving customer relationships and quality. Customer satisfaction surveys also provide service providers with important information about their customers. To achieve customer satisfaction, companies must understand what customers need and how service providers complete it.

In a highly dynamic business environment, such as construction industry, it is imperative for construction companies to understand their customers needs and use them as a guide to improve company performance and achieve a competitive advantage. This view arises from the important role played by customers as the core in the construction business process and the force for improvement that necessitates working for customer satisfaction and fulfilling their requirements. In this study, a literature review and analysis of 28 case studies, including international construction projects with various customer characteristics, found that the ability of service providers to deliver good quality work, professional teams and HSE implementation are very important to gain customer satisfaction. This study also confirmed the customer satisfaction assessment of one of Indonesia's largest state-owned construction companies that is able to survive in the market competition. Customer surveys provide that the company's human resource capabilities are what customers appreciate for their performance. Thus there is a relationship between the needs of international construction customers and Indonesian construction companies that require professional quality personnel to provide a sense of satisfaction for customers.

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