

## Activity Based Costing (ABC) on Company Performance with Competitive Advantage as A Variable Mediation

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**Keywords:** Activity Based Costing (ABC), Company Performance, Competitive Advantage.

**Abstract:** This study aims to examine the effect of Activity Based Costing (ABC) on Company Performance with Competitive Advantage as a Mediation variable. This research is a type of quantitative research, data collected using primary data and questionnaires to obtain information for respondents, namely Middle Managers who work at Manufacturing Companies located in Banten Province in Serang and Cilegon Regencies. The analytical method used is Structural Equation Modeling (SEM) with Partial Least Square (PLS) Path Modeling with SmartPLS 3.0 analysis tool. The results of this study are 1) Activity Based Costing has a positive and significant effect on company performance. 2) Activity Based Costing has a positive and significant effect on Competitive Advantage. 3) Competitive advantage has a positive and significant effect on Company Performance.

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## Introduction

Technological developments in the global market have an impact on companies manufacture. The more advanced the development of technology and information at this time, then Companies must increasingly be able to use the technology they can effectively support business operations to provide the best service to customers. The use of this technology results in substantial operational costs for the company, which in turn results in high production costs. Production costs are total production costs used to convert raw materials into finished products in time certain.

Improper calculation of production costs has a negative impact on the company, because production costs are the basis for determining the selling price and profit which is the measure the effectiveness of the implementation of the export production process. and is the basis for decision making for company management. Nowadays, the advancement of technology and information, more and more companies must be able to adapt in order to remain competitive globally.

The survival of a business is determined by the strategies used, some of which are strategies the most commonly used are markdown, increase in productivity and increase quality. With a variety of resources used to create a product, Companies must be able to choose the most efficient and effective resources to be able to compete with other companies. By studying production costs, management's hope is to keep costs down saving and controlling production costs in order to create competitive selling prices (Siswanto, 2004).

Analysis Activity Based Costing (ABC) help companies identify products, prices, and profitable and unprofitable customers. company policy can then decide whether to continue or stop those factor harm this. Besides that, Activity Based Costing (ABC) is believed to encourage companies to produce products with a competitive advantage (Reirnan, 1990).

Nathan, et al (2006) stated that competitive advantage is defined as the ability of a firm to maintain its position relative to its competitor. According to Yurniwati (2008), company performance is what the company does in relation to the standards expected in a given time period. Performance the company must be measurable and can explain the empirical state of the company from agreed sizes. The performance survey was conducted to find out the performance achieved.

To improve company performance must pay attention to competitive advantage between companies engaged in the same field. Paying attention to product quality, Cheaper prices and satisfying service are things for products improve company performance. Companies can develop or increase their own good strategy in marketing and calculation. One option that can be done for calculations is the ABC method with attention to excellence, quality as well cutting unnecessary activities while still paying attention to product quality from the company. Based on this, the ABC strategy can be an alternative in improving company performance by taking into account aspects of competitive advantage company. This method can be applied in companies with small,

medium classes Even with the top class as well as one that allows it is a manufacturing company.

In application Activity Based Costing has three essential conditions met, namely: The first requirement is that the company must produce a product or line Different products are processed in the same facility. This condition causes problems shipping costs for each product. Product competition from other companies is getting tougher, the company strengthens competition to expand its market area. The bigger the area market, the greater the role of information in determining the basic price through management company. The last requirement is the cost used to measure the ABC system smaller than the benefits that can be achieved, if the costs are greater than the benefits then the company loss.

PT. Krakatau Steel is an iron and steel industry products from PT. Krakatoa Steel has been marketed overseas. This company is a company manufactures whose production processes use Sponge iron, Pig iron (HBI) And scrap processed become steel Billets, Wire Rods, Hot Roll Coils (HRC), And Hot Roll Sheet (HRS).

The early phenomenon of the COVID-19 pandemic had an impact on decreasing demand steel products and obstacles in the distribution of steel products, but Krakatau Steel is capable facing these challenges is proven by the efficiency of operating costs in 2020 compared to 2019 by 38% or equivalent to a savings of \$127 million. Matter This is due to the company transformation that we have done so far. Company aims to further expand the steel market, particularly in Indonesia, which has potential annual market of 15.1 million. The market is 26% for companies, 63% for domestic, and 37% for imports.

According to data Indonesia Iron and Steel Industry Association (IISIA), in 2020 volumes steel imports decreased by 36% to 4.47 million tons compared to in 2019 which amounted to 6.96 million tons. The Covid-19 pandemic is one of the cause the decline. In terms of steel imports, this volume still dominates the share of the domestic market by 52%.

Steel imports in Indonesia, which are still high, are expected to be replaced by supply steel domestic. This is because the national steel industry is still underutilized. an average of 43% in 2019 and 57% in 2020. For this reason, the government needs to increase the utilization and increase the use of domestic products (P3DN).

Control or tighten the import of steel products, alloy steel and their derivatives done by not providing recommendation/pertex or Import Approval Letter for steel products, alloy steel and their derivatives that can be produced domestically. Import Steel products are imported through manufacturers circumvention.

The company runs an improvement program in its core business through an efficiency policy in the entire line to reduce variable costs and fixed costs, process optimization sales & operations planning to press inventory, trade payables and cash conversion cycle. Program The efficiency carried out by the Company has had a significant impact on the decline operating costs. In 2020 the Company reduced its operational costs by 38% from \$208.1 million to \$337.4 million in 2019. This decrease in operating expenses

consisted of several factors, including energy costs, costs utilities, cost consumables, cost spare parts, as well as a decrease in other operational costs.

By optimizing the supply chain and maintaining manufacturing reliability, company reduced energy costs by 47% from \$37.9 million in 2019 to \$20.2 million in 2020. In addition, cost reduction consumables from \$40.6 million in 2019 to \$16.7 million in 2020, up 59%. While reducing costs spare parts reached 56% of \$11 million in 2019 to \$4.8 million in 2020. In addition, reduced costs utilities reach 27% to US\$38 million in 2020, compared to US\$53.5 million in 2019.

The company also performs organizational efficiency through the implementation of manpower optimization work and negative growth strategy. In 2020 there was a decrease in labor costs organic by 30% to USD64.5 million compared to the previous year which reached USD92.2 million. In addition, outsourced labor costs also decreased significantly, namely by 73% to USD 10.1 million in 2020 compared to 2019 which reached USD 38.0 million. In addition, there is also a decrease in costs Outsourcing Wholesale Services by 27% to USD 3.9 million in 2020 from USD 5.3 million in 2019. This is part of a labor cost efficiency strategy outsourcing which prioritizing the importance of increasing sales and revenue. Thus, load cost of sales will be smaller, so as to increase the competitiveness of steel products Krakatau steel.

The company also improves organizational efficiency by optimizing the workforce and implementing strategy negative growth, In 2020, the cost of organic labor is \$64.5 million, down 30% from the previous year's \$92.2 million. In addition, labor cost outsourcing in 2020 it was down 73% to \$10.1 million, reaching \$38 million on year 2019. In addition, costs outsourcing wholesale services decreased by 27% from \$5.3 million in 2019 to \$3.9 million in 2020. This is part of effectiveness cost of the strategy outsourcing workforce interested in increasing sales and advantage in the foreground. In this way, the cost of goods sold is low Krakatau Steel's steel products are more competitive. With more competitive and supported strategy good marketing, we believe we will be able to increase sales volume in 2021 which will also have an impact on better performance. Krakatau Steel will reap profit of around US\$ 40-50 million in 2020.

Sumarsid's research (2011) shows that Activity Based Costing can prevent the company calculates the cost of its product over costing (fees charged in excess than it should) or under costing (fees charged are less than they should be). And method Activity Based Costing can lower the selling price of the product to be able to gain competitive advantage.

Research Bogdanoiu (2009) says that Activity Based Costing is method which generates the cost of each activity for cost object, like a product or service with calculating the cost and performance of activities and resources. As a result, ABC provides information more accurate costing than traditional systems and can be used by managers to make decisions as a basis for gaining competitive advantage.

Agha's research (2012) examined the relationship between competitive advantage and performance company in paint company in UAE. And the result is impactful

competitive advantage positively on company performance, Agha (2012) measures competitive advantage based on 2 dimensions, flexibility and responsiveness, while company performance is measured based on 2 dimension is growth(growth)and profitability.

Other research was also revealed by Nathan, et al (2006) which stated superiority Competitive has a positive influence on company performance. For example, if at he company has a more profitable pricing strategy than its competitors, the company has a great financial opportunity. Nathan, et al (2006) Measuring competitive advantage based on price, quality, delivery dependability, product innovation and time to market. Meanwhile, organizational performance is measured based on market-based performance (Marketperformance) and financial performance (financial performance).

According to the research of Zaman (2009) to test whether the use Activity Based Costing affect the company performance of 70 Australian companies, ABC has performanceoverall, strategic cost allocation that enhances methods, effectiveness, and efficiency. The result is ABC as a measure of the strategic method for allocating costs, improve effectiveness and improve efficiency, which has a positive impact significantly to Australia's performance.

## **Research Method**

### *1. Population and sample*

The population in this study are manufacturing companies in Banten in the region Serang Regency and Cilegon City which meet the criteria in this study. As for selection of manufacturing companies in serang and cilegon regencies. This research uses the method Purposive sampling namely the sampling technique used based on certain considerations/criteria. The criteria specified in this research are: Manufacturing company established for more than 10 years, produce more than 1 product, use Activity Based Costing (ABC). Respondents were selected with the following units of analysis: Middle manager based on 1-10 years of service, on education level D3. S1 and S2, on age > 20 years

The source of data used by researchers in this study is primary data the data will be obtained directly from the source not through any intermediary. Primary data collection will be answered directly by the hotel manager in Serang and Cilegon by using the email website to send messages and permission to HRD, use the LinkedIn application to send emails to HRD and visit direct the company and distribute questionnaires, then researchers will takereturn within the specified time limit.

### *2. Data Testing Method*

#### *a. Data Quality Test*

##### *a.1 Validity Test*

To measure whether or not the data that has been collected by researchers uses a test validity. A questionnaire can be said to be valid when it is able to reveal

something that measured by the questionnaire. The method used by researchers in this validity test is by correlating each indicator score with the total score of the variable indicators, the results are in obtained will then be correlated in comparison with the critical value at a significant level 0.05. If the value  $<0.05$ , the questionnaire can be said to be valid (Ghozali, 2018).

#### a.2 Reliability Test

The reliability test is useful for measuring a questionnaire consisting of indicators from a variable. It is said to be reliable (reliable) a questionnaire if the respondent's answers are above questions are consistent from time to time (Ghozali, 2018). This test is performed with using the Cronbach's Alpha technique which identifies internal consistency between indicators in measuring variables.

### b. Data Analysis

#### b.1. Outer Model

Testing of the measurement model (outer model) is used to determine specifications the relationship between latent variables and their manifest variables.

#### b.2. Inner Model

Evaluation of the structural model (inner model) is carried out to ensure the correct structural model built robust and accurate.

### c. Hypothesis Testing

Hypothesis testing in this study was carried out by looking at the T-Statistics and P-Values. The hypothesis is declared accepted if the T-Statistics value is  $> 1.96$  and the P-Values are  $<0.05$ .

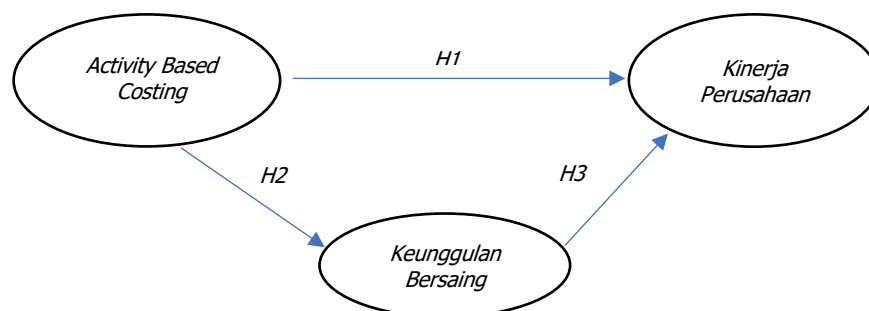


Figure 1. Research Model

## Results and Discussion

### a. Validity Test

Based on the results of the analysis test to determine the validity of the research data obtained that all variables have a value of more than 0.05, so it can be concluded that ActiveBased Costing, firm performance and competitive advantage are valid.

Table 1. Validity Test

	Company performance	Competitive Advantage	Activity based Costing
Company performance	0,710	0,823	0,752
Competitive Advantage	0,763	0,910	
Activity based Costing	0,812		

Source: Processed Primary Data (2022)

**b. Reliability Test**

Table 2. Reliability Test

	Cronbach's Alpha	Rho_A	Composite Reliability	Average Variance Extracted(AVE)
Activity based Costing	0,631	0,741	0,811	0,612
Company performance	0,652	0,721	0,688	0,732
Competitive Advantage	0,662	0,712	0,822	0,881

Source: Processed Primary Data (2022)

Based on the results of data analysis for the reliability test in terms of value Cronbach alpha obtained that for the variable Active Based Costing the value is 0.631, superiority compete 0.652 and for company performance of 0.662 in other words that all variable is greater than 0.05 so it can be concluded that all variables are reliable.

**c. Outer Model**

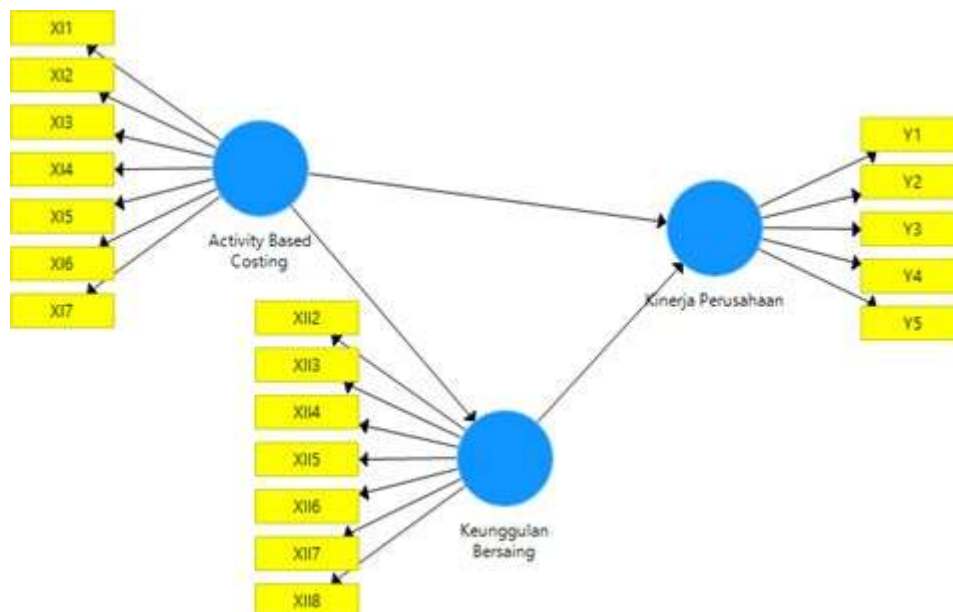


Figure 2. Outer Model (Measurement Model)

#### d. Inner Model

Evaluation of the structural model (inner model) is carried out to ensure the correct structural model built robust and accurate.

##### 1) R-Square

Table 3. R-Square

	R-Square	R-Square Adjust
Company performance	0,710	0,823
Competitive Advantage	0,763	0,910

Source: Processed Primary Data (2022)

Based on output from PLS the result is that each statement is used in research has a value of more than 0.50, this shows that all statement items in a valid category so that all statements can be used for answer the formulation of the problem to be studied.

##### 2) Estimates for Path Coefficients

Table 4. Estimates for Path Coefficients

	Activity based Costing	Company performance	Competitive Advantage
Activity based Costing		0,231	0,314
Company performance			0,006
Competitive Advantage			

Source: Processed Primary Data (2022)

Based on test results using path coefficients obtained data or results as follows:

- There is a direct influence between Activity Based Costing on performance the company is 0.314 which means it is Activity Based Costing increase one unit, the company's performance can increase by 31.4% or it can be concluded that there is an intermediate effect Activity Based Costing on performance company
- There is a direct influence between Activity Based Costing to competitive advantage of 0.231 which means is Activity Based Costing increase by one unit, competitive advantage can increase by 23.1% or it can be concluded that there is an intermediate effect Activity Based Costing to competitive advantage.
- There is a direct effect between competitive advantage on performance company by 0.006, which means that competitive advantage has increased one unit, the company's performance can increase by 0.6% or it can be concluded that there is an influence between competitive advantage on performance company.

#### e. Hypothesis Testing

Hypothesis testing in this study was carried out by looking at the T-Statistics and P-



Values. The hypothesis is declared accepted if the T-Statistics value is  $> 1.96$  and the P-Values are  $< 0.05$ .

Table 5. Path analysis

Variable					
ABC --> KP	0,167	0,169	0,070	2,834	Sign
ABC --> KB	0,065	0,065	0,065	2,537	Sign
KB --> KP	0,180	0,181	0,060	2,023	Sign
KB --> ABC --> KP	0,276	0,172	0,073	0,211	Not Sign

The H1 hypothesis in the study states that Activity Based Costing influential positive effect on company performance, based on the results of the data manager using SEM PLS 3 the calculation results are presented in the table above. Based on calculations with Activity Based Costing, this hypothesis has a test result with a t-statistic value of 2.537 which exceeds the t-table requirement of 1.98. So that H1 is accepted, that is, there is influence between Activity Based Costing on company performance.

The H2 hypothesis in the study states that Activity Based Costing influential positive for competitive advantage. Based on calculations with Activity Based Costing, This hypothesis has test results with a t-statistic value of 2.834 which exceeds the requirement t-table is 1.98. So that H2 is accepted, that is, there is an intermediate effect Activity Based Costing to competitive advantage.

Hypothesis H3 in the study states that competitive advantage has an effect positive effect on company performance, based on the results of data processing using SEM PLS3 obtained the calculation results presented in the table above. Based on calculations with competitive advantage, this hypothesis has a test result with a t-statistic value of 2,023 which exceeds the t-table requirement of 1.98. So that H3 is accepted, namely there is the influence of competitive advantage on company performance.

The H4 hypothesis in this study states that competitive advantage mediates Activity Based Costing (ABC) on Company Performance, based on the results of data processing using SEM PLS 3 the results of the calculations are presented in the table above. Based on calculations with competitive advantage, this hypothesis has test results with a t-statistic value of 0.211 which is smaller than the t-table requirement of 1.98. Up to H4 rejected namely that competitive advantage does not mediate the relationship Activity Based Costing (A B C) on company performance.

## Discussion

### 1. Influence Activity Based Costing (ABC) have a significant effect on Company performance.

Based on the research results show that Activity Based Costing (ABC) to company performance has a positive effect. Based on this, the researcher did more in-depth study related to influence Activity Based Costing on performance company. Based on the

results of the analysis, the highest mean value is on the performance indicator operational. These indicators are specifically related to company performance in achieving process effectiveness so as to provide satisfaction to users of the company's products. Besides that, it supports influence Activity Based Costing on the company's performance is related to the accuracy of delivery orders from customers so that the company prioritizes quality and accuracy delivery for customer can be given good reward by customer company.

Performance benchmarks reflect how the company utilizes its assets productively owned and efficiently monitor the company's capital in the form of funds as well as goods by operating divisions to increase shareholder value. Besides that, companies need new capabilities to be able to succeed in the competition besides the ability to manage goods efficiently, for example to produce products or services high quality, have loyal consumers, produce innovative products or services new, and so on. Performance measurement in a company in a certain period very necessary so that the company's achievements can be known. During this performance measurement only focused on the financial perspective, which only describes the performance of one side that is the company(internal), while the outside of the company(external).

The results of this study support previous research by Kusumaningtyas and Haqqi (2017) and Audina and Lestar (2021) in their research shows that Activity Based Costing positive and significant influence on company performance

## 2. *Effect of Activity Based Costing (ABC) have a significant effect to Competitive Advantage*

More in-depth analysis related to the factors that cause intermediate influences Activity Based Costing to competitive advantage in terms of each indicator in the variable. These indicators are related to resources greater than any indicator other. The resources in question can be interpreted as human resources or actors in the companies studied. If the quality of the resource is superior, then it can compete with other manufacturing companies so as to increase the company's revenue. Besides it's also by improving the quality of resources, can be more value and can compete with other companies, especially companies that have the same product. Other factors that have a significant influence are Top Management Support. With Top Management that support and have high credibility then it will improve the quality of the company. Top Management have an important role in the progress and decline of a manufacturing company.

Activity Based Costing used to improve the accuracy of cost analysis by improve the way costs are traced to individual products or customers. In the process create a necessary competitive advantage where companies perform in organization by reorganizing its operations and management functions (Blocher et al, 2007). Competitive advantage can be seen from the company's position in the competition which is analyzed by looking at the strengths and weaknesses of these companies when compared with its competitors. Competitive advantage comes from the company's ability maintains superiority of its resources and capabilities. Competitive advantage means superiority of skills (skills) and perception-based resources customers and market share. So it can be

concluded that Activity Based Costing experienced a significant influence on competitive advantage

The results of this study support previous research by Rendy & Devie (2013) and Evi Marlina et al (2018) in their research showed that Activity Based Costing experience positive and significant influence on competitive advantage.

### 3. *Competitive Advantage has a significant influence on Company Performance.*

Based on the results of the study indicate that the direct influence of competitive advantage on company performance with the meaning that competitive advantage increases by one unit then thus the company's performance can increase in other words excellence compete has a positive influence on company performance. positive relationship that very closely between the performance of a business and competitive advantage. That is, the better the performance a company the stronger the company's competitive advantage.

Factors that lead to excellence have an influence on company performance with the mean value, namely the company's indicator of being able to achieve the production value that has been targeted. With the achievement of company targets, it will improve user ratings product so that it will have a major effect on the performance of a company manufacture. Because user companies will usually work with companies that able to provide a commitment to the wishes of its producers when the target requested can be fulfilled properly.

Performance measurement needs to be done as a whole in order to make a decision regarding the strategy can be taken as a whole. In this way, the strategy will be take into account all the aspects involved in determining the success of the company. The success of a company in implementing strategy is supported by its own performance. One of the strategies implemented by the company is to create a competitive advantage. especially how to win the commercial competition. To maintain its relative position against its competitors, the company must have characteristics that make it. To maintain a position from competitors, the company must have characteristics that make the company is different from competitors, thereby giving it an advantage over competitors.

The results of this study support previous research by Rendy & Devie (2013) in their research shows that there is a significant influence between competitive advantage and company performance.

### 4. *Competitive Advantage Mediating has a significant effect of Activity Based Costing (ABC) on Company Performance*

Based on the results of competitive advantage research in mediating influence Activity Based Costing (ABC) on company performance so that it raises competitive advantage not be a mediator of influence Activity Based Costing (ABC) on performance company because the company's performance will increase when it is able to excel than

other companies, especially when using Activity Based Costing (ABC) or as a mediator in improving the quality of company performance. The influence of excellence competing mediates Activity Based Costing (ABC) on performance yet impact. This is due to indicators of the quality of human resources in companies that are still not competent in their field. It should be corporate when it doesthe recruitment system pays attention to the quality or ability of the human resources that will be received and educational qualifications that meet the standards. Another thing that causes low influence of competitive advantage as a mediator in influence Activity Based Costing (ABC)on the company's performance is the frequent delivery time experience delays due to several obstacles, such as weather, traffic conditionsunpredictable. In other words, when the cause of the low influence improved it will create a good company performance and be able to compete with another company.

If the company faces very tough competition with its competitors and setting the selling price will greatly affect the competitive advantage of the usage system Activity Based Costing will be very necessary. Because of the system Activity Based Costingresulting in more accurate production costing compared to traditional systems it can help the company in managing its competitive advantage.

With the ability to determine production costs more accurately, the selling price is determined per type of product will be more precise, so that the company does not set the wrong selling price competitive price for a particular product type. If the company has product diversityvery high in terms of volume, size, and product complexity hence usage system Activity Based Costing it will be very useful. Especially if the fee for implementing it is lower than the benefits (Rudianto, 2006).

## Conclusion

Based on the test results and discussion that has been presented in the previous chapter, then some conclusions. Activity Based Costing influence on company performance. Role Activity Based Costing in a company will be able to improve the company's performance from financial performance and operational performance. Activity Based Costing effect on competitive advantage. Role Activity Based Costing within a company will be able to increase competitive advantage. Competitive advantage affects company performance. Where is the increase company's competitive advantage will be able to improve company performance. Competitive advantage does not mediate the effect of Antara Activity Based Costing on company performance.

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