# THE INFLUENCE OF MAINTENANCE AND QUALITY CONTROL ON QUALITY PRODUCT

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**Abstract:** Product quality is the most important part that makes a product acceptable and meets consumer wants and needs. The company has two programs to ensure the quality of these products, namely by carrying out maintenance (preventive maintenance and corrective maintenance) and quality control during the production process. The purpose of this study was to determine how the maintenance, quality control, and product quality implemented by PT. Samase Clothes. And to find out how much influence maintenance on product quality, the effect of quality control on product quality, and the effect of maintenance and quality control on product quality. This study is sample research in which employees, staff, and production admins are respondents in the study, for data collection using a questionnaire with the number of respondents 65 people. The analytical method used is a quantitative method with descriptive analysis and verification analysis. To process data, the author uses the help of Microsoft Excel 2016 and SPSS 25 For Windows. The results showed that maintenance was in the good enough category, quality control was in the good enough category, the product quality was in the good enough category.
**Keywords**: Maintenance; Product Quality; Quality Control

## INTRODUCTION

In modern times, all industries face a world of fierce competition, where business players are not only big companies, but new companies are also ready to break the existence of big companies that have been in the business for a long time, therefore all existing companies must be able to continue to develop the business both in terms of managerial preparation and equipment and sophisticated and modern machine tools, to how the goods/services produced can be well received in a predetermined market. Talking about the business world, many business fields have become a competitive business market to meet the needs and desires of the public or consumers, one of which is the fashion sector. Everyone needs clothes that can cover themselves from their genitals, both women and men. For a Muslim/ Muslimah who is supported by the commandment of Allah Subhanahu wata'ala in the Qur'an Sura An-Nur verse 31 which contains the commands of Allah Subhanahu wata'ala in hijabi aurat himself for women and men. Based on this, Muslim clothing has a great opportunity in market share, because the majority of Indonesians are Muslim.

The city of Bandung is one of the big cities owned by Indonesia, which of course is a promising and broad market. Also, Bandung is a city known for its creative and modern fashion culture so that this business seems to have become a uniqueness and characteristic of Bandung itself. Industrial activity has become an art for its activists. There was an incident in the city of Bandung that attracted the fashion market, namely the hijrah of Bandung youths and girls. This includes all levels of society, from young people to the elderly. This is due to the large increase in the number of places for Islamic studies in the city of Bandung, as well as the emergence of young and slang scholars who are now a reference both in terms of behavior and in terms of dress. Of course, the clothes worn are clothes that are syar'i or cover the genitals well. So that this indirectly encourages Muslim clothing business actors to be able to take advantage of this situation with the presence of these potential consumers. The dream of Bandung City to become

the center of Muslim fashion in the world has been expressed by Ridwan Kamil for a long time. Because the city of Bandung has a large amount of capital to be able to go international. Especially because Bandung has creative ideas that continue to grow, many famous brands from Bandung have succeeded in surging and have a convincing growth rate in the national market.

So many Muslim clothing industry players in the city of Bandung, SAMASE CLOTHES is a company that focuses on production and creativity in the procurement of Muslim clothing and one of the well-known brands in the city of Bandung which are located at Jalan Jurang No.84, Sukajadi District, Pasteur Village. Muslim clothing for men and has been known by many groups from youth to public figures, SAMASE CLOTHES must face challenges and tough competition with other Muslim clothing industry players in presenting the best quality products. Therefore, SAMASE CLOTHES must pay attention to and maintain the quality of its products.

According to Kotler & Armstrong (2012), product quality is the ability of a product to demonstrate its function, this includes overall durability, reliability, accuracy, ease of operation, and product repair, as well as other product attributes. Product quality is the ultimate goal in the production process of every company that will determine the success or failure of a product to be accepted in the market and as proof that the company is doing its best in providing the best product for consumers so that it can become a guarantor for the company in reaping consumers and maintain loyalty. Of course, product quality is determined by many factors, but from some of these factors, there is something called machine maintenance and quality control.

According to Rinawati and Dewi (2014), states that one factor that supports the success of the manufacturing industry is determined by a smooth production process. So that if the production process goes well then, use machines and production equipment are also effective, it will produce quality products, the right time for completion of manufacture and low production costs. According to Bakhtiar et al. (2013), quality control can be interpreted as activities carried out to monitor activities and ensure actual performance.

Every company that has implemented modern technology and has a large production capacity, of course, has a machine that is used to carry out its production activities. However, in certain periods and times, machines must go through a series of maintenance and maintenance processes so that their performance can be carried out optimally to meet production activities following production standards so that companies can minimize the presence of failed products (reject). That is what is called Maintenance. To present this quality, the company can carry out a Quality Control process. This is applied in the production process of a company about how all elements can apply, follow and comply with all prescribed standards and procedures. Of course, in the process, there is a part that is responsible for this. The person in charge of this section must ensure the feasibility of the product, check in detail visually, and ensure whether the product functions according to standards. Testing can be done manually or through machine computerized technology depending on the company. The process can be carried out at the beginning of production, mid-production to the end of production, or a combination of the three so that the application can run optimally.

According to the policyholder for the SAMASE production process, production quality activities have gone through strict selection with existing quality standards, but in reality, the product quality procurement process is carried out by SAMASE, according to the QC (Quality Control) operator contacted, the problem faced is the consistency of quality at workers who carry out quality control when production is demanded more. This is because other employees who are not part of quality control participate to carry out QC so that there are often products that do not comply with standards, but this can

ultimately be reduced to a small amount. 7 Then in the maintenance process, according to the decision-maker and the operator responsible for maintenance, not all damaged machines in certain spare parts are then replaced immediately, but the operator tricks the machine so that the machine can work as usual to streamline maintenance costs. Only completely malfunctioning machines are replaced completely. However, this also does not guarantee optimal engine performance.

This study aims to determine how the maintenance, quality control, and product quality carried out by PT. Samase's outfit. And to find out how much influence maintenance has on product quality, the effect of quality control on product quality, and the effect of maintenance and quality control on product quality.

## METHODS

The implementation of this research uses descriptive methods and verification methods, while the data collection uses: Interview Techniques, Questionnaires, and Observations. Data collection techniques using a population because there are not so many employees after the data collected is tested for validity and reliability testing.

Furthermore, several steps were carried out in this research method such as data normality test, linearity test, multicollinearity test, the transformation of ordinal data into intervals, hypothesis testing, and to describe and test the relationship model between variables in the form of causation, Path analysis was used.

## RESULTS AND DISCUSSION

### Descriptive Research Results

The increasing interest and orders for Muslim clothing, especially in certain seasons such as Eid al-Fitr, Eid al-Adha, 17 August, and New Year in Indonesia, especially in West Java and Bandung, have made companies have to be able to compensate for this demand by always increasing their production. However, it means that the machines owned by the company must be able to carry out production continuously, if not handled properly, various kinds of problems will arise when the machine is used too often. Therefore, in providing machine facilities that are always prime and able to continue to maintain company productivity, maintenance is one of the important aspects that need to be considered by companies, especially PT. Samase Clothes. Maintenance that is done properly, can reduce various kinds of risks that are detrimental to the company.

If seen from the results of exposure and the results of research that have been done, the condition of maintenance that occurs in PT Samase Clothes has not been fully implemented by the company. This can be proven by the variety of opinions regarding the maintenance carried out by PT. Samase Clothes. It appears that there are still obstacles and problems that often include maintenance activities. However, it does not mean that the maintenance is not good, but only that it is not optimal.

The company must be able to ensure that every production process carried out by the company goes with what the company wants to fulfill the company's mission. Of course, the production process, starting from the input, the process then ending at the output, has been well planned and mature by policyholders, stakeholders, and all parties related to PT. Samase Clothes. In the controlling process, the standard and standard conditions are applied by the company.

When viewed from the results of the exposure and the results of the research that has been done, the quality control conditions that occur in PT Samase Clothes are also not fully implemented by the company. This can be proven by the variety of opinions regarding the maintenance carried out by PT. Samase Clothes. It can be seen that there are still obstacles and problems that often include activities, and it is worsened by the

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employees who are responsible for QC who often miss the sorting, especially when inputting materials, goods, and finished products. This all resulted from the negligence of the QC department who always underestimated work because of his work experience. So often underestimating the operational standards that have been set. However, that does not mean that the company ignores this. The company has also done its best for quality control and will continue to evaluate and develop in the future.

Product quality guarantees that a company can carry out its mission for the company's goal of becoming a manufacturer of men's Muslim clothing no. 1 in Indonesia. Therefore the company must be able and make every effort possible in presenting product quality assurance so that the products are owned by PT. Samase Clothes can compete and become the best in the men's Muslim clothing sector. Based on the results of the exposure and the results of the research that has been done, it shows that the procurement of product quality was carried out by PT. Samase Clothes is quite good, but it is felt that it is still unable to provide a very good quality product. This can be seen from the variety of opinions from statements given to respondents and also due to quality control that has not been maximal so that the products owned are still considered quite good. But apart from this, the company has tried to create good quality.

**Verificative Research Results**

In this section, verification analysis is carried out using path analysis as a method to identify and analyze the relationship between variables which aims to determine the effect of Maintenance (X1) and Quality Control (X2), which are independent or independent variables on Product Quality ( Y) which is the dependent variable or dependent variable.

The correlation coefficient between these variables calculated using the Pearson product-moment correlation formula using SPSS version 25 with the results obtained as follows: the first step that must be taken is to calculate the correlation coefficient between the variables being studied. Then the obtained correlation coefficient values are interpreted into the following table of the correlation coefficient interpretation guidelines:

**Table 1. Pearson Correlation**

| Correlations | | Maintenance | Quality Control |
|---|---|---|---|
| Maintenance | Pearson Correlation | 1 | .965$^{**}$ |
| | Sig. (2-tailed) | | .000 |
| | N | 66 | 66 |
| Quality Control | Pearson Correlation | .965$^{**}$ | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 66 | 66 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

Source: Processed Data (2020)

Table 1 above describes the correlation analysis between the research variables. The results of the correlation analysis can be interpreted that the correlation value obtained between maintenance (X1) and quality control (X2) is 0.965. Thus, if interpreted in the guideline for interpretation of the correlation coefficient value, then this value is in the category of a very strong relationship level.

Based on calculations with SPSS ver 25, it can be seen that the calculation results of the path coefficient are as follows:

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**Table 2. Coefficients**

| | Coefficients[a] | | | | |
|---|---|---|---|---|---|
| | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| Model | B | Std. Error | Beta | | |
| 1 (Constant) | 2.708 | 1.154 | | 2.346 | .022 |
| Maintenance | .592 | .132 | .494 | 4.484 | .000 |
| Quality Control | .565 | .127 | .488 | 4.437 | .000 |
| a. Dependent Variable: Product Quality | | | | | |

Source: Processed Data (2020)

In the table above, in the Standardized Coefficients column, there are respective path coefficient variables X1 and X2 against Y. The variable path coefficient of Maintenance (X1) on Product Quality (Y) is pyx1 of 0.494 or 49.4%. Furthermore, the Quality Control variable (X2) on Product Quality (Y), namely pyx2 of 0.488 or 48.8%.

Based on calculations with SPSS ver 25, it can be seen that the calculation results of the coefficient of determination are as follows:

**Table 3. Coefficient of Determination**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .973[a] | .947 | .946 | 3.107514 |

Source: Processed Data (2020)

To calculate the amount of the path coefficient from other factors not examined, it can be done in the following steps:
With the formula $py_\varepsilon$

$$= \sqrt{(1 - R^2 yx_{1.....xn})}$$

$$= \sqrt{1 - 0{,}947} = 0{,}230$$

Meanwhile, the magnitude of the influence of other factors not examined in this study are as follows:
$\varepsilon = 1 - 0{,}947$
$\varepsilon = 0{,}053$

Therefore, it can be interpreted that Maintenance and Quality Control have a major effect on Product Quality at PT. Samase Clothes amounted to 0.947 or 94.7% (R square) and were influenced by other factors not examined at 0.053 or 5.3%. While the magnitude of the influence received by Product Quality (Y) from Maintenance (X1) and Quality Control (X2) and variables outside X1 and X2 which are expressed by residual variables ($\varepsilon$) are R2yx1x2 + py$\varepsilon$ = 94.7% + 5.3% = 100%.

If the framework for the empirical causal relationship between X1 and X2 against Y is described, it can be seen in the following figure:

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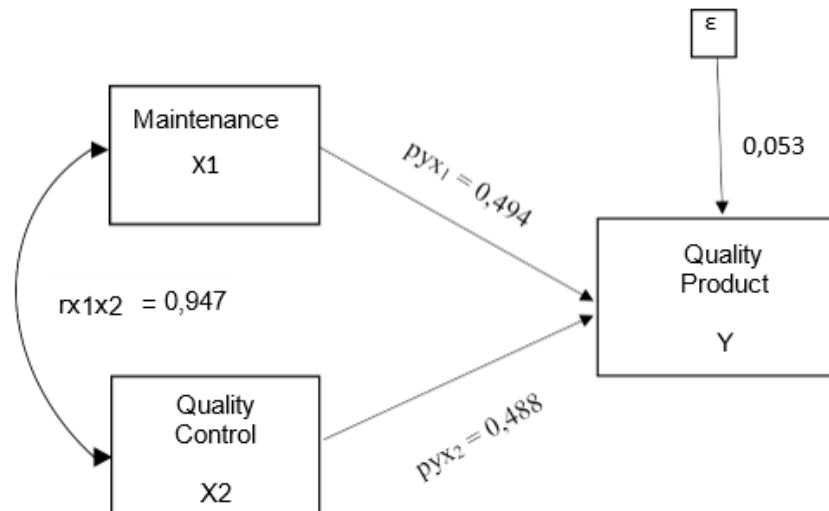


**Figure 1. Overall Path Diagram Structure**
Source: Processed Data (2020)

Through the path diagram, the influence of each variable is calculated as follows:
**Effect of Variable X1 on Y**
The effect of X1 on Y directly
= 0.494.0.494 = 0.244
Effect of X1 on Y through X2
= 0.494.0,947.0,488 = 0.228
0.244+0.228 = 0.472 (Total Effect)

**Effect of Variable X2 on Y**
The direct effect of X2 on Y
= 0.488.0,488 = 0.238
Effect of X2 on Y through X1
= 0.488.0,947.0,494 = 0.228
0.238+0.228= 0.466 (Total Effect)

**Total Influence of Variables X1 and X2 on Y**
The effect of X1 on Y = pyx1 = 0.472
The effect of X2 on Y = pyx2 = 0.466
0.472+0.466= 0.938 (Total Effect)

From the above calculations, it is known that the total contribution given by the two independent variables is 0.938 or 93.8%, whereas when viewed from each variable, Maintenance (X1) provides the most dominant contribution, namely 47.2% and Quality Control (X2) contributes 46.6%. Other variables outside X1 and X2 that did not contribute were 6.4%.

The results of data analysis in this study indicate an attachment of maintenance to product quality. This is proven through research which produces a strong attachment. This indicates that maintenance has a very large impact on product quality.133 This is supported by the opinion of an expert, namely Assauri (2008), which states that maintenance is closely related to product quality because one of the functions of maintenance is maintaining quality at the right level to meet needs. the product itself in non-disruptive production activities. This result is also reinforced by a research journal

compiled by Anggraini & Maulana (2016) that care and product quality show a very strong attachment between the two variables.

The results of data analysis in this study indicate an attachment of control to product quality. This is proven through research which produces a strong attachment. It means that quality control has a huge impact on product quality. In addition to expert opinion, Novianty, et al (2017) through their research journals show information that supports research results This shows that quality control has a big role in ensuring product quality.

The results of the study to find out how much influence maintenance and control have on product quality show that the total contribution given by the two independent variables, namely maintenance and quality control, has a very dominant impact on product quality. So that the two independent variables have a very high level of influence on product quality. The results of this study are reinforced by the opinion of an expert, namely Schroeder (2010), which states that the elements of quality maintenance and control are inseparable from company activities in the procurement of qualified product quality. The same thing is also made clear by the results of a research journal compiled by Haryadi (2019) which states that maintenance and quality control have a major impact on the rate of product failure (failed products are one of the components that can measure product quality).

## CONCLUSION

Maintenance at PT. Samase Clothes are in quite a good category. Although some respondent's opinions have mixed answers, according to respondents they agree that the company's ability to prevent machine damage is good. The thing that is considered insufficient is the success of the response, which is considered to still need to be improved. Quality control carried out by PT. Samase Clothes are in quite a good category. Monitoring the results of PT Samase Clothes is considered to have a fairly good ability, especially in carrying out monitoring processing unit activities. The thing that is considered very lacking is the implementation of the standard-setting that is applied because often QCs ignore standards and neglect them. 136. Product quality at PT Samase Clothes is in a pretty good category. Fulfillment of product durability of PT. Samase Clothes is considered to be able to provide a reliable product durability guarantee. The thing that needs to be improved is the fulfillment of product convenience that cannot yet be provided optimally.

Maintenance is stated to have a huge impact on product quality at PT. Samase Clothes, although in reality in the field there are many obstacles experienced in the maintenance section which causes maintenance activities to be less than optimal. Quality Control is stated to have a huge impact on product quality at PT. Samase Clothes, although in reality in the field, many negligences occur on the part of quality control.

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