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The Effect of Organizational Culture on Technology Transfers and Company Performance

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This study aims to examine the effect of organizational culture on technology transfer and company performance. This study will raise the relationship between technology transfer and company performance as a literature gap. The population used in this study is the largest motor vehicle automotive parts manufacturing by Group Company in Indonesia with a joint venture company with a total of 33 companies. The sample technique used is saturated sampling using 66 production managers as respondents from each company. The research method and data analysis in this study is use a Mix Method with Sequential Explanatory design. To validate the significant level and interrelationships between variables, we use Partial List Square (PLS) method and Smart PLS 3.0. The results shows that the application of organizational culture had a positive and significant effect on technology transfer and company performance. This study also refutes previous research which states that technology transfer has no effect on company performance. In addition it was found that technology transfer has a role as mediation between organizational culture and company performance, so the better the organizational culture of the company, the application of technology transfer will increase so that the company's performance will be better.

Keywords: Organizational culture, Technology transfer, Company performance, and Automotive manufacture.

1. INTRODUCTION

In the globalization era, there is competition between companies, especially in the automotive industry. Companies must meet the needs, demands, and expectations of customers to win the competition. Competition in the automotive industry not only involves companies based in manufacturing in Indonesia, but also all companies in the world and in ASEAN. This condition makes the company must implement continuous improvement on QCD (Quality, Cost, Delivery). Companies must consistently carry out product development activities and improve production processes so that the company's performance targets in QCD can be achieved. Organizational culture is proven through several studies as one of the important drivers of company performance [1, 2, 3]. Organizational culture has a strategic role in the success over organization to grow and develop. Organizational culture functions as a tool to determine how to process and allocate organizati-

onal direction, direct what should and should not be done, and how to process and allocate organizational resources to deal with internal and external problems [4]. Organizational culture also has a positive influence and has an important role in improving company performance [5]. One of the activities that companies must do to improve performance is by updating hardware and business processes [6]. A global competition and the development of manufacturing technology encourage companies to compete in domestic and foreign markets. Increased market and business competition must be responded to by the company well so that the needs, demands, and expectations of customers are met. This regenerative process can be done by developing technology in the company [7]. Entering the era of the technological revolution 4.0, many companies in Indonesia lag behind the developed countries in the world in the application and advancement of technology. One

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effort that needs to be done by companies is transferring technology [8]. By implementing technology transfer, companies will be more responsive in business development activities through process innovation, creating new applications, and creating new products. Through the empirical analysis which shows that the application of technology transfer has a positive impact on the company. Technology transfer has a strong and positive effect on company performance and all dimensions used have the same effect [9, 10].

However, other studies give the opposite result that there is no direct relationship and significant influence between technology transfers on company performance [11]. Thus, this finding is a refutation of in previous studies which makes the literature gap in this study. In addition to influencing company performance, organizational culture has been empirically proven to have a positive influence on technology transfer. Several studies have agreed that organizational culture has an influence on the application of technology transfer. The technology transfer process can only be successful when considering the cultural aspects of existing cross-cultures. The company must moderate cultural differences by providing a good understanding, establishing collaboration and communication between experts, and conducting seminars and training of related members. In the end, this study aims to find out how the relationship of organizational culture influences on technology transfer and company performance [12, 13, 14].

2. METHODOLOGY

2.1 Relationship between Organizational Culture with Technology Transfer

Organizational culture is a system adopted by members of an organization that distinguishes the organization from others. Organizational culture is a system of values obtained and developed by the organization and the pattern of habits and basic philosophies of its founders, which are formed into rules that are used as guidelines in thinking and acting in achieving organizational goals [15]. A culture that grows to be strong can drive the organization towards better development [16].

Organizational culture consists of two dimensions, namely basic values and organizational orientation. Here, basic values are habits and beliefs that are shared by all members of the organization as a guide in carrying out tasks to achieve organizational goals [17]. Indicators used include innovation and risk taking, attention to detail, aggressiveness, and stability. Organizational orientation is a habit that differs from one organization to another. Indicators used include orientation to results, orientation to people, and orientation to the team [18].

Organizational culture is the controller and direction in shaping the attitudes and behavior of members in an organization [19]. The organizational culture has been widely studied as one of the variables that has a lot of influence on organizations, one of which is the application of technology transfer. Several studies have

agreed that organizational culture has an influence on the application of technology transfer and influences the success of technology transfer [20, 21]. Cultural aspects play an important role in the success of technology transfer. Companies must accept cultural integration and can reduce barriers due to cultural differences between the giver and the recipient to facilitate the success of the technology transfer process. The technology transfer process can only be successful when considering the cultural aspects of existing cross-cultures. In addition, the Company must moderate cultural differences by providing good understanding, establishing collaboration and communication between experts, and conducting seminars and training of related staff [22]. Based on previous research, a good organizational culture will have a positive impact on the application of technology transfer so that it will expedite the transfer process and increase the chances of success.

2.2 Relationship between Organizational Culture over Company Performance

Organizational culture has a role as a tool to determine how to process and allocate organizational direction, direct what is and is not to be done, how to process and allocate organizational resources to deal with internal and external problems [23]. Thus, organizational culture has a strategic role in the company's growth and development. Many researchers agree that organizational culture has an influence on company performance. The results of the study mentioned that organizational culture has a significant positive relationship on company performance [23, 24]. The organization spends a lot of time and effort to develop the culture of the organization so that it contributes to good and sustainable performance. Organizational culture was also found to contribute significantly to the organization's business performance by giving positive results to cost savings, sales growth, and increased competitiveness. The application of good organizational culture can improve the achievement of efficiency and effectiveness of the company [25]. In Addition, Another study conducted that there was a positive and significant influence between organizational culture on company performance and was able to drive and improve company performance [25, 26]. Thus, a good organizational culture will improve company performance in increasing competitiveness and winning competition. A good organizational culture can be a parameter in an organization in maintaining existence [26].

2.3 Relationship between Technology Transfer and Company Performance

There are several methods that can be done by companies in implementing technology, one of which is through technology transfer. Technology transfer is the process of transferring capabilities, knowledge, technology, manufacturing methods, samples of manufacturing

results, and facilities, between government, universities, and other institutions that ensure that the development of science and technology is accessible to many users [26]. Technology transfer is broadly divided into two parts, namely disseminating and transferring technology from the technology owner to the technology user [26]. Technology transfer is a series of activities to transfer physical devices, technological processes, and knowledge from one organization to another. Technology transfer does not only include knowledge of techniques to transform technology into goods with appropriate technology. But that also includes human capabilities, methods, and other technical factors to realize technology. Thus technology transfer can be interpreted differently as the process of transferring and applying knowledge, skills, operational systems, and product results from one company to another to be utilized for the progress of companies bound in the form of cooperation.

Applying the right and optimal technology transfer will make the company more responsive in business development activities through process innovation, creating new applications, and creating new products. This finding is confirmed through empirical analysis which shows that the application of technology transfer has a positive impact on company performance. Technology transfer has a strong and positive effect on company performance, 40% has an effect on company productivity and 29% has an effect on innovation capacity. Based on this understanding, the hypothesis can be assessed as follows:

- H1: Organizational Culture has a significant positive effect on Technology Transfer.*
H2: Organizational Culture has a significant positive effect on Company Performance.
H3: Technology Transfer has a significant positive effect on Company Performance.
H4: Technology Transfer mediates the effect of Organizational Culture on Company Performance.

Figure 1 shows the conceptual framework model in this study.

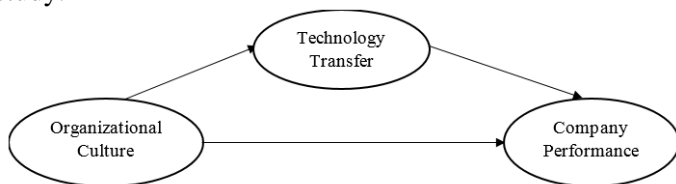


Figure. 1. Conceptual Framework Model

3. RESULT AND DISCUSSION

In this study, we use a research combination methods (mixed methods) with a research design that uses Sequential Explanatory. To obtain a significant level and the relationship between variables in this quantitative study, it will use the Partial Least Square (PLS) method with Smart PLS 3.0 software. The population in this study is the largest automotive spare parts manufacturing company in Indonesia with a joint venture company with

33 companies. The methods of determining the sample using a sampling technique saturated with the sample in this study are two production managers representing each company. The research test equipment used was a questionnaire (quantitative) and interviews and observations (qualitative). Here, we distribute questionnaires over 66 correspondent in production managers with 33 item questions. The rating scale used a Likert scale of 1-5 ranging from strongly disagreeing to strongly agreeing. After processing the data on all 66 questionnaires collected, the test results can be presented in the research model as follows:

3.1 Validity and Reliability test

The validity test used is Discriminant Validity, which is an analysis to determine the construct validity by evaluating the AVE Root (Average Variance Extracted), by comparing the correlation between constructs with other constructs. The model has sufficient discriminant validity if the root of AVE for each construct is greater than the correlation between constructs and other constructs. The validity test of the model on PLS output can be shown in the following table :

Table I. Validity Test

	Organizational Culture	Company worker	Technology Transfer
Organizational Culture	0.784		
Company Performance	0.693	0.807	
Technology Transfer	0.631	0.678	0.712

Source : data processed, 2019

AVE roots in all constructs are higher than the correlation between these variables with other variables. For example the organizational culture variable has a AVE root value of 0.784. The value of AVE is higher than the correlation coefficient on organizational culture variables with other constructs (technology transfer and company performance) which have correlation coefficients ranging from 0.631 to 0.693. Construct can be declared valid because the root AVE > correlation coefficient. Likewise for other variables it can be seen in the same way, so that it can be stated that all of these variables have high discriminant validity.

In addition to construct validity, a construct reliability test is measured by Composite reliability of the indicator block that measures the construct. The construct is declared reliable if the composite reliability value is > 0.70.

Table II. Reliability Test

	Composite Reliability
Organizational Culture	0.917
Company Performance	0.918
Technology Transfer	0.910

Source : data processed, 2019

Based on the table above it can be seen that all constructs have a composite loading reliability value > 0.70. Thus it can be concluded that all constructs meet the requirements of construct reliability for further testing.

3.2 Coefficient of Determination (R²) and Predictive Relevance (Q²)

R² value is used to assess the effect of independent variables on the dependent variable whether it has a substantive effect whereas Q² functions to measure the relevance of predictions in the research model. The following is an inner model calculation from the data obtained and used by researchers using PLS method:

Table III. R² Test

	R Square
Company Performance	0,576
Technology Transfer	0,398

Source : data processed, 2019

The model gives an R² value of 0.576 on the company performance variable, meaning that the ability of the model on the organizational culture variable in explaining the company performance variable is 57, 6%. R² of 0.398 on the technology transfer variable which means that the ability of the model on the organizational culture variable in explaining the technology transfer variable is 39.8%.

PLS models are also evaluated by looking at the predictive Q² relevance by the model and also its parameter estimation. Q² value > 0 indicates the model has predictive relevance, conversely if the Q² value ≤ 0 indicates the model lacks predictive relevance. Q² calculation is done by the formula :

$$Q^2 = 1 - \{(1-R12) \times (1-R22)\}$$

where, R12 and R22 are R square endogenous variables. The quantity Q² has a value in the range 0 < Q² < 1, where the closer to 1 means the better. This quantity of Q² is equivalent to the coefficient of total determination in path analysis. Based on the results of the coefficient of determination above, it can be calculated the value of Q² as follows:

$$Q^2 = 1 - \{(1-0,576) \times (1-0,398)\}$$

$$Q^2 = 1 - 0.255$$

$$Q^2 = 0.744$$

Q² coefficient of 0.744 shows that the Q² value > 0 indicates the model has predictive relevance.

3.3 Structural Test or Hypothesis Test

Hypothesis testing is done by Path Analysis. From the path analysis test we get the relationship between constructs as follows:

Table IV. Hypothesis Test Results

	T Statistics	P Values	Remark
Organizational Culture → Company Performance	4,236	0,000	Supported
Organizational Culture → Technology Transfer	7,163	0,000	Supported
Technology Transfer → Company Performance	4,055	0,000	Supported

Source : data processed, 2019

Table V. Indirect Effects (Mediation Effects)

	T Statistics	P Values	Remark
Organizational Culture → Technology Transfer → Company Performance	3,618	0,000	Supported

Source : data processed, 2019

The result shows that the Hypothesis 1 which says that there is a positive and significant relationship between organizational culture and company performance can be accepted. The hypothesis 2 which says that there is a positive and significant relationship between organizational culture and technology transfer can be accepted. Hypothesis 3 which say that there is a positive and significant relationship between technology transfers to company performance can be accepted. Furthermore, based on the research results, it is obtained that there is an indirect influence of organizational culture on company performance through Technology Transfer. Thus Technology Transfer is a variable that mediates the relationship between organizational culture and company performance.

3.4 Discussion of Research Findings

The purpose of this study is to complement the previous literature by examining the influence of Organizational Culture variables on Technology Transfer and Company Performance. In addition, to see the direct and indirect effects those have an impact on company performance through technology transfer. Research questions were tested using a questionnaire against 66 Production Managers from 33 automotive component manufacturing companies. All companies which are the object of this research are joint ventures. Quantitative and qualitative analysis methods are used to test how much influence the organizational culture has on technology transfer and company performance. Interviews and observations were carried out on four informants in four different companies. This number is quite adequate seeing from the similarity of business processes of the 33 research objects.

The first test is carried out on the relationship between organizational culture and technology transfer. From the test of the research model, the results show that there is a positive and significant influence of Organizational Culture on Technology Transfer.

Organizational culture indicators used in this study including innovation and risk taking, attention to detail, aggressiveness, stability, results orientation, people orientation, and team orientation. There are two main factors that can strengthen the impact of organizational culture on technology transfer, which are company attitudes that strongly encourage employees to be aggressive and competitive and also companies that always consider the effects or risks of each employee's work. The company supports the attitude of risk taking as one of the main factors found in the success of organizational culture. In addition, there is one weak indicator in the research model used in organizational culture, namely that the company believes that the final result is the most important and needed. These results are in line with previous research that the achievement of objectives or final results is considered low compared to other factors. Companies are more concerned with the focus of the process that is done repeatedly will have a strong relationship to the success and achievement of performance. The results of this study revealed that organizational culture has an influence on the success of technology transfer and plays an important role in the success of technology transfer. The technology transfer process can only be successful when considering the cultural aspects of existing cross-cultures.

From the test of the research model the results show that there is a positive and significant influence between organizational cultures on company performance. This means that the higher the organizational culture that is implemented, the company performance will increase. Organizational culture has a strategic role in the company's success to grow and develop. The role of organizational culture itself is as a tool to determine how to process and allocate organizational direction, direct what is and is not to be done, how to process and allocate organizational resources to deal with internal and external problems. The application of good organizational culture can improve the achievement of efficiency and effectiveness of the company. There was a positive and significant influence between organizational cultures on company performance and was able to drive performance improvement. In addition, organizational culture also has a positive influence and has an important role in improving company performance. This research also proves the indirect influence between organizational cultures on company performance through technology transfer. The stronger the organizational culture of a company will be able to increase the successful implementation of technology transfer so that the company's performance will be better.

The latest research results state that there is a positive and significant effect between technology transfer and company performance. When companies use technology, they need less input and they have more output. Thus the company's productivity increases because of technology. On the other hand technology reduces the company's processing time. Products can be produced quickly

because of technology. As a result, delivery times can be shorter. The cost of reproduction and waste products are reduced after using technology. So technology can affect company performance. The measures of company performance used in this study are Productivity, Process Innovation, Quality, Delivery, Safety, and Healthy. Applying the right and optimal technology transfer will make the company more responsive in business development activities through process innovation, creating new applications, and creating new products.

This is confirmed through empirical analysis which shows that the application of technology transfer has a positive impact on company performance. The overall dimensions of technology transfer used in research have a significant effect on company performance. Technology transfer has a strong and positive effect on company performance, 40% has an effect on company productivity and 29% has an effect on innovation capacity.

In addition, the application of technology transfer has a strong and positive influence on company performance, especially quality performance with ten indicators is used in this study, five indicators were found with the weakest results including physical and social environmental impacts, cultural background, know why and know how, conformity to business development, and preparation related to time, thought, and language and mental readiness about the technology system to be used. This can occur because in manufacturing companies the technology implementation process occurs within a considerable time span between the applications of one technology with the next technology. The main reason is that the investment needed to implement a new technology in an automotive manufacturing company is fairly small. Companies must conduct a series of financial studies and business feasibility to be able to apply it in a company. This condition can be compared with the course of the industrial revolution which indeed took a long time from industry 1.0 to industry 4.0.

4. CONCLUSIONS

In this study, the relationship between organizational culture, technology transfer, and company performance is explored. All data analysis results presented support the research framework that has been prepared. Firm performance is significantly proven to be influenced by two variables, namely organizational culture and technology transfer. The greatest influence that can drive company performance is an organizational culture that includes innovation and risk taking, attention to detail, aggressiveness, stability, results orientation, people orientation, and team orientation. It is constantly shown that company performance is strongly influenced by organizational culture. This emphasizes the position of organizational culture which is the controller and direction in shaping the attitudes and behavior of members in an organization. A culture that grows to be strong can drive the organization towards better development. Organizational culture has a strategic role in the company's success to grow and develop.

However, as discussed in the previous section, if the culture of the organization is not well controlled during the technology transfer process it will actually be a barrier to the success of the activity. In addition, the results of this study refute the literature gap related to the absence of influence between technology transfer and company performance. This study provides positive results between the applications of technology transfer to company performance. Subsequent research results obtained indicate that technology transfer has a significant and positive influence on company performance. Applying the right and optimal technology transfer will make the company more responsive in business development activities through process innovation, creating new applications, and creating new products or services. The most important factor in the successful implementation of technology transfer in addition to equipment and technical support is that the company has a good change management system to properly address any process changes that occur due to technology transfer practices.

As in general, this research has certain limitations that are considered when analyzing research results. First, this research is only limited to one sector, namely automotive manufacturing. The population is limited to 33 companies and the sample is 66 respondents. The relatively small sample size will limit the application of other statistical techniques such as the number of observations favored must be ten times more than the questionnaire items. Variables that influence and are influenced by technology transfer can still be explored more broadly, given that companies will increasingly rely on technology to be able to compete and develop.

Suggestions for further research include that this research model can be reused in different case studies, be it services or other manufacturing. The population and sample of research objects can be increased so that they can use analysis techniques and test data that are broader in scope. In addition, research indicators used in organizational culture variables can adopt the theories including power distance, uncertainty avoidance, individualism or collectivism, and masculinity or femininity. Other researchers can also add other variables such as the impact of knowledge management on technology transfer, and the impact of technology transfer on productivity or human resource management.

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