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# Analysis the Impact of Dynamic Capability on Firm Performance with mediation variables of Agility in Batam's Manufacturing Industry.

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## Abstract

*Technological developments increasingly make the competition between companies more intensity. Manufacturing industry is a sector that give the most contribution to national economy. In improving organizational performance, dynamic capabilities role has recognized and desired by all companies. But mostly the companies believe that dynamic capability is built on only the side of Human Resource and the very complicated creation process.This study uses a quantitative approach in analyzing and presenting data from the results of research data. The object of research used in this study are 150 employees who work in the manufacturing industry in Batam. The data collected from the respondents will be processed using the SmartPLS 3 and SPSS systems.The research was carried out with the aim of knowing the effect of the components of the company''s performance, namely Human Resource Management, Intellectual Capital, Dynamic Capability on company performance on employees of the manufacturing industry in Batam City. Research Result Shows That Human resource management has a negative influence on Dynamic Capability, Intellectual capital has an effect on Dynamic Capability, Agility as mediation variable has a significant effect through Dynamic Capability and Firm Performance, and Dynamic capability has a positive influence on firm performance.*

**Keywords:** *Human Resource Management, Intellectual Capital, Dynamic Capability, Agility, Firm Performance*



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# INTRODUCTION

In this era, technological developments increasingly make the competition between company more intensity. This is caused by companies competiting in utilizing this shopisticated technology to develop business in their companies such as in their information technology systems (Gonzalez & Melo, 2017). The development of this technology can be easier to facilitate the productivity of company, which is the companies can continue to innovate within the company relation to how the company can affect the level of competition between businesses. In this case, internal company related to the company's human resources developed to be of higher quality so that it can be superior to other competitors. According to Indonesia's Ministry of Industry, in industrial applications, especially in industry 4.0, Human Resource is one of the main factors in supporting its successful implementation. Indonesia also has a pool of talents consisting of the highest number of universities in ASEAN (Kemenperin, 2018).

The manufacturing industry was chosen because the role of this industry cannot be desperated to the Industrial Development. Manufacturing industry is a sector that give the most contribution to national economy. In the midst of intense business competition, manufacturing industry is increasingly encouraged to increase innovation by utilizing technology and the efficiency of the production process to be an important key in strengthening the competitiveness of the manufacturing industry in Indonesia (Kemenperin, 2019).

Meanwhile, according to the Central Statistics Agency (BPS) throughout 2019, the growth of large and moderate manufacturing industry production has increased by 4.01% against 2018. Meanwhile, the growth in production of micro and small manufacturing industries has increased by 5.80% in 2018. This increase was influenced by several sectors of the manufacturing industry which experienced a significant increase so that the manufacturing sector was still the largest in ASEAN with a Gross Domestic Product (GDP) value of USD 674.5 billion seen from 19% of Indonesia's GDP which was USD 3.55 trillion (www.cnbcindonesia.com, 2019).

The Companies, which is engaged in various sectors is in order to create high quality of human resources, a company must have the ability and capability. In this point, the role of knowledge management itself has an important role. This is due to knowing what are the internal shortcomings of the company, especially in terms of managing better quality human resources. Knowledge Management in the company can encourage their company's internal development which will encourage it to be better than other competitors. Besides encouraging change, knowledge management can also encourage individuals within the company to practice things that are driving assistance in bringing the company towards a better way. In this matter, Managements Capability has the role to improving the internal structures of the company which consists of human, structural, and companies' technical. Meanwhile, dynamic capabilities are related to innovations that have been carried out from the results of the application of the internal drive made to build the company towards a better direction. Of Course, Dynamic Capabilities are related to how the application of knowledge managements is expected from its application to create dynamic company capabilities to bring companies to compete in various sectors. Therefore, to examine things related to the relationship between knowledge management and dynamic capabilities will be discussed in this research. According to Najmi et al., (2018) research, In improving organizational performance, dynamic capabilities role has been recognized and desired by all companies. But mostly the companies believe that dynamic capability is built on only the side of Human Resource and the very complicated creation process.

In this research, Intellectual Capital can be defined as a multifaced concept, which comprising three dimentions. The first is human capital that concerns skill, competencies, knowledge, and capabilities that used by the firm's employee. Second, social capital which is

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concerns knowledge in interaction of individual and networks of relationship. Third, Organizational Capital that is knowledge and experience institutional which are stored in firm system, database, structure, patents, routine, processes, manuals, and alike (Singh & Rao, 2016). Agility usually interpreted as the ability to stay flexible in facing new development so that it can continuously adjust the strategic direction of the company and creat the great value by developing innovative ways (Pereira et al., 2018)

# METHODOLOGY

This study uses a quantitative approach in analyzing and presenting data from the results of research data. When related to the research objectives, this research can be said to be a basic type of research, which is a research developed in a work environment that examines the relationship between variables related to cause and effect.

The object of research used in this study are 150 employees who work in the manufacturing industry in Batam. The questionnaire is divided into two parts, the first part contains general questions related to the demographics of the respondents. To measure the tested variables, using a Likert scale measurement. This measurement uses several questions related to research variables by responding to 5 choice points on each question, namely strongly agree, agree, moderately, disagree, and strongly disagree. Data collection for this study was conducted by distributing online questionnaires to employees who work in the manufacturing industry in Batam City.

The data analysis method used in this research is descriptive analysis and SEM. Descriptive analysis is used for demographic data of respondents, such as gender, age, education level, profession, income level, and others. IBM SPSS Statistics 26 was used for descriptive analysis. To test the causal relationship and determine the effect of each variable as a whole, the researcher used structural equation modeling (SEM). The data collected from the respondents will be processed using the Smart PLS 3 and SPSS systems.

# RESULTS AND DISCUSSION

Data collected from respondents was done by distributing questionnaires via google form to employees who work in the manufacturing industry in Batam City and as many as 150 questionnaires were processed.

Data processing was carried out using descriptive analysis of respondents based on certain criteria, such as gender, last education, length of service. From the questionnaire data that has been distributed, 50% of respondents are male and 50% of respondents are female. The last dominant education is Bachelor/S1 with a figure of 51.3%. Respondents with the latest education Diploma/D3 recorded as many as 27.3%. And for the last educated SMA/SLTA/SMK it was recorded as much as 21.3%. A total of 32% of respondents or as many as 48 respondents have worked for less than 1 year. 45.3% of respondents or 68 respondents have worked for 1 to 3 years. There are 16 respondents or 10.7% of respondents have worked for 4 to 6 years, and there are 22% of respondents or as many as 18 people have worked for more than 6 years.

**Variable Descriptive Statistical Analysis**

Table 1 shows the results obtained from the questionnaire data related to each variable studied. The Human Resource Management variable shows that the respondents gave answers to the variables between the values of 4.1867. The average answer for the Intellectual Capital variable is between the values of 4.1720. Respondents for the Dynamic Capability variable are in the range of values of 4.1320. Respondents' answers to the Agility variable ranged from 4.1289. Then for the Firm Performance variable, it is between the values of 4.0911.

**Table 1.** Variable Descriptive Statistic Data

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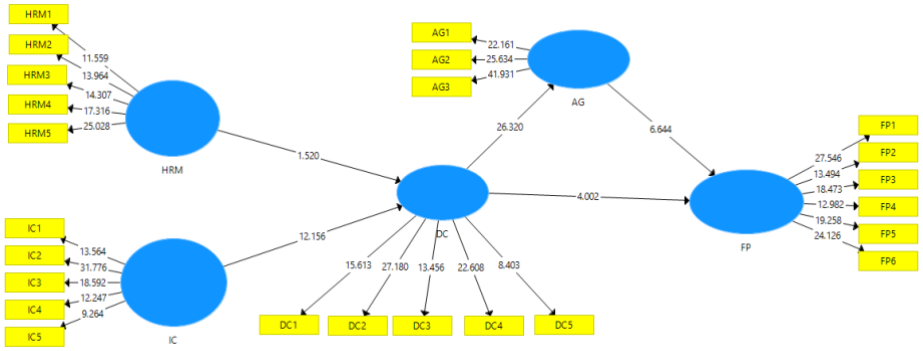
| Information | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|
| Human Resource Management | 2,00 | 5,00 | 4,1867 | 0,61728 |
| Intellectual Capital | 2,00 | 5,00 | 4,1720 | 0,61263 |
| Dynamic Capability | 2,20 | 5,00 | 4,1320 | 0,61211 |
| Agility | 2,00 | 5,00 | 4,1289 | 0,74564 |
| Firm Performance | 2,33 | 5,00 | 4,0911 | 0,68775 |

**Model Evaluation**

Evaluation model evaluation or Evaluation of the outside model (outler model) is also known as the evaluation evaluation model in research that is used to develop models of validity and reliability.




**Gambar 2**. Evaluasi Model

**Result of Validity and Reliability Test**

Validity test was carried out to measure the validity of each question on each variable listed on the questionnaire. The validity of a question is seen from the sample mean value in the outer loadings table. The criteria used to determine the outer loading. Validity testing to understand the accuracy of the answers to questions in the questionnaire. The outer loading value is declared valid if the significant result is greater than 0.5. The test results show that all questions in the questionnaire meet the validity test. The results state that it is valid because all values are greater than 0.5 (Ghozali & Latan, 2012). Cronbach alpha test provides evidence of whether the data being studied is reliable or not. The data value is declared reliable if the cronbach alpha value is greater than 0.5 and the test results show that all variables have a cronbach alpha value greater than 0.5 meaning all variables are reliable.

**Table 2.** Validity Test

| Variable | | loading factor | Explanation |
|---|---|---|---|
| Human Resource Management | HRM 1 | 0,693 | Valid |
| | HRM 2 | 0,724 | Valid |
| | HRM 3 | 0,776 | Valid |
| | HRM 4 | 0,782 | Valid |
| | HRM 5 | 0,775 | Valid |
| Intellectual Capital | IC 1 | 0,775 | Valid |
| | IC 2 | 0,804 | Valid |

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| | | | |
|---|---|---|---|
| | IC 3 | 0,757 | Valid |
| | IC 4 | 0,636 | Valid |
| | IC 5 | 0,682 | Valid |
| Dynamic Capability | DC 1 | 0,753 | Valid |
| | DC 2 | 0,807 | Valid |
| | DC 3 | 0,691 | Valid |
| | DC 4 | 0,726 | Valid |
| | DC 5 | 0,630 | Valid |
| Agility | AG 1 | 0,857 | Valid |
| | AG 2 | 0,835 | Valid |
| | AG 3 | 0,832 | Valid |
| Firm Performance | FP 1 | 0,703 | Valid |
| | FP 2 | 0,760 | Valid |
| | FP 3 | 0,820 | Valid |
| | FP 4 | 0,756 | Valid |
| | FP 5 | 0,764 | Valid |
| | FP 6 | 0,779 | Valid |

**Table 3. Cronbach's Alpha Test Result**

| Question | Cronbach's Alpha | Explanation |
|---|---|---|
| Human Resource Management | 0,806 | Reliable |
| Intellectual Capital | 0,784 | Reliable |
| Dynamic Capability | 0,771 | Reliable |
| Agility | 0,793 | Reliable |
| Firm Performance | 0,857 | Reliable |

**R Square Adjusted Test Result**

R Square adjusted is done to show the fit of the model. If the sample mean value is higher in the R Square Adjusted table, the higher the percentage of independent variables in influencing the dependent variable. It is known that the R Square adjusted in table 4, the relationship between Human Resource Management and Intellectual Capital to Dynamic Capability has a value of 0.867 (86.7%) while the remaining 13.3% is influenced by other variables. In addition, the value of the Agility relationship which is influenced by Dynamic Capability is 0.649 (64.9%) and the remaining 35.1% is influenced by other variables. These results indicate that the Firm Performance variable is explained by 71.3% by Dynamic

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Capability and Agility while other factors and variables not in this study can explain the remaining 28.7% of the Firm Performance variable.

**Table 4. R Square Adjusted Test Result**

| Variable | R Square Adjusted | Explanation |
|---|---|---|
| Dynamic Capability | 0,867 | Moderate |
| Agility | 0,649 | Moderate |
| Firm Performance | 0,713 | Moderate |

***GoF (Goodness of Fit) Index***

This test is used to assess the overall model. Quality Index is measured by the GoF Index with the following calculation method:

GoF = $\sqrt{Comm \times Average\ R^2}$,

Which:

GoF : Goodness Of Fit Criteria to measure the quality index

Comm : Average Variance Extracted / AVE

R2 : R Square Average

Sesuai dengan hasil, maka:

$\overline{Comm} = \frac{0.806 + 0.784 + 0.711 + 0.793 + 0.857}{5} = 0{,}7902$

$\overline{R^2} = \frac{0.867 + 0.649 + 0{,}713}{3} = 0{,}743$

With the result that:

GoF = √(0.7902 x 0.743)= 0.766237

Based on these results, according to the criteria, the resulting model is included in the Strong category.

**Result of Structural Model**

Direct effect test provides evidence of whether there is a direct influence between the independent and the dependent and also the existence of a relationship between these variables mediated by the mediating variable between the relationships of these variables. The test results show a significant relationship if the t-statistic value exceeds 1.96 and the P value is less than 0.05.

**Table 5. Result of Direct Structural Model**

| Path<br>X > Y / Direct | *Original Sample* | T-*Statistics* | P- values | Explanation |
|---|---|---|---|---|
| *Human Resource Management* > *Dynamic Capability* | 0,118 | 1,534 | 0,126 | Not Significant |
| *Intellectual Capital* > *Dynamic Capability* | 0,828 | 12,269 | 0,000 | Significant Positive |
| *Dynamic Capability* > *Firm Performance* | 0,345 | 3,780 | 0,000 | Significant Positive |

**Table 6. Result of Indirect Structural Model**

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| Path<br>X > Y / Indirect | *Original Sample* | T-*Statistics* | P-values | Explanation |
|---|---|---|---|---|
| *Dynamic Capability* > *Agility* > *Firm Performance* | 0,439 | 6,235 | 0,000 | Significant Positive |

## CONCLUSION

The research was carried out with the aim of knowing the effect of the components of the company's performance, namely Human Resource Management, Intellectual Capital, Dynamic Capability on company performance on employees of the manufacturing industry in Batam City. Research conducted in Batam City on employees working in the manufacturing industry in Batam City concluded that:

1. Human resource management has a negative influence on Dynamic Capability. The result of T-statistic value is less than 1.96, which is worth 1.534, and has a significant level of 5%, so this hypothesis was rejected because statistically, the Human Resource Management has no significant effect on Dynamic Capability. For practitioners, human resource management is a very important internal factor affecting company performance. Therefore, manufacturing companies must focus on and maximize the role of dynamic capabilities as a macro factor that encourages improved company performance. This result is supported by (Rusydi et al., 2019).
2. Intellectual capital has an effect on Dynamic Capability. The result of T-Statistics is more than 1.96, more precisely at 12.269 and has a significant value of 5%. Intellectual Capital includes all knowledge of employees, organizations and their abilities to create added value and lead to sustainable competitive advantage. Dynamic capability is the company's ability to integrate and reconfigure resources to respond rapidly to fluctuating markets conditions including integration and reconfiguration capabilities (Singh & Rao, 2016). Intellectual capital has been identified as an intangible set (resources, capabilities and competencies) that drive organizational performance and value creation. So when there are employees who have the ability and competence, intellectual capital here supports the company in supporting the capabilities that the company can provide to customers. This result is supported by (Pangestika, 2010) and (Gunawan & Wahyuni, 2013).
3. Agility as mediation variable has a significant effect through Dynamic Capability and Firm Performance. The result of T-statistic is more than 1.96, which is 6.235 with a significant level of 5%. Organizations with a solid Dynamic capability can regularly sense, scan and observe the environment and monitor activities with partners to achieve greater operational and market agility. Which Agility can be viewed as the firm's ability to work swiftly and regularly in the market environment which results to excellent and efficient performance A strong agility can offer greater reaction time, increase product customization, lowering cost and expanding the performance catalog. Firms tend to gain a competitive edge by improving Organizational agility. By improving organizational agility, companies tend to gain a competitive edge. Dynamic Capability can be said to be a company's ability to adjust its resources to create value in an environment that has a very fast development. So that in the development of a company, dynamic capabilities are needed in order to agile the company in responding to environmental conditions that are very rapidly changing. This is supported by previous research by (Teece et al., 2016).
4. Dynamic capability has a positive influence on firm performance. The test results obtained a T-statistic of more than 1.96, more precisely at 3.780 with a significant value of 5%. Firm Performance is the ability of a company to achieve goals by using resources effectively and efficiently. So that firm performance requires dynamic capability and agility in determining how a company can use its resources effectively and efficiently. The dynamic

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capability view suggests that dynamic capabilities are at the heart of organizational success and failure, thus contributing to a sustainable competitive advantage, particularly in rapidly changing environments. In response to external market dynamics or to meet the desired results of decision makers, dynamic capabilities are characterized as the capabilities that companies use to intentionally develop, change and re-combine their resource base. Dynamic capability helps businesses avoid turning skills into main rigidities that hinder growth and result in stagnation of innovation by adjusting and refreshing resource bases. In this hypothesis it is known that of all the existing variables, Dynamic Capability is the only variable that has a direct relationship to Firm Performance.

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