# The Impact of Post Covid-19 Pandemic on Employee Performance in Industry-Based Technology 4.0

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**Abstrak**

Penampakan industri pasca pandemi saat ini tentunya akan terlihat berbeda dengan apa yang terjadi di masa Covid-19 pada saat itu. Pemahaman teknologi berbasis industri 4.0 dan pengembangan industri kreatif merupakan suatu keharusan dalam pengambilan langkah agar dapat memenangkan persaingan. Untuk itu, perusahaan perlu mengetahui terlebih dahulu bagaimana pengaruh pasca pandemi pada kinerja karyawan dalam teknologi berbasis industri 4.0.Penelitian ini bertujuan untuk menguji pengaruh pasca pandemi Covid-19 pada kinerja karyawan dalam teknologi berbasis industri 4.0. Penelitian ini menggunakan metode kuantitatif, dengan menggunakan data primer yang berasal dari kuesioner yang dibagikan melalui google form. Sampel terdiri dari 31 responden yang bekerja sebagai koordinator, administrator, manajer, dan direktur di perusahaan manufaktur Kota Batam. Penelitian ini menggunakan analisis regresi sederhana dan uji *Moderated Regression Analysis* (MRA), sedangkan untuk menguji pengaruh hipotesis menggunakan uji-t dan uji-f menggunakan SPSS V27. Teknik purposive sampling juga digunakan dalam penelitian ini. Hasil dari penelitian ini menunjukkan bahwa pengaruh pasca pandemi covid-19 tidak berpengaruh signifikan terhadap kinerja karyawan. Hasil selanjutnya adalah teknologi berbasis industri 4.0 tidak berpengaruh signifikan terhadap hubungan antara pengaruh pasca pandemi covid-19 dan kinerja karyawan.

**Kata kunci: Pasca Pandemi Covid-19, Kinerja Karyawan, Teknologi Berbasis Industri 4.0**

***Abstract***

The current appearance of the post-pandemic industry will certainly look different from what happened during Covid-19 at that time. Understanding industry based technology 4.0 and developing creative industries is a must in taking steps to win the competition. For this reason, companies need to know in advance what the post-pandemic impact will be on employee performance in industry based technology 4.0. This study aims to examine the effect of post pandemic Covid-19 on employee performance in industry-based technology 4.0. This study uses quantitative methodology, using primary data from questionnaires distributed via Google Form. Total samples in this study was 31 coordinators, administrator, manager, and directors employees of Batam manufacturing company. This study uses simple regression analysis and Moderated Regression Analysis (MRA) test, whereas t-test and f-test using the SPSS V27 package is used to test the effect of hypothesis. Purposive sampling was utilized in this study's. The result of the study showed that implications in post Covid-19 pandemic don't have a significant effect on employee performance. The other results state that the industry-based technology 4.0 don't have a significant effect on the relationship between implications in post Covid-19 pandemic and employee performance.

**Keywords: Post Covid-19 Pandemic, Employee Performance, Industry-Based Technology 4.0**

## 1. Introduction

Covid-19 triggers the occurrence of interventions such as social distancing, travel restrictions, virtual work or remote, and restrictions on the continuation of previous processes, thus changing the way employees work (G. Tortorella et al., 2021). At the

time of entering the post Covid-19 pandemic, companies will be greatly affected by changes in the way employees work. At the same time, the emergence of Industry 4.0 in the corporate manufacturing sector provides a new impact in technology (Frank et al., 2019). The Ministry of Industry of the Republic Indonesia noted, with the implementation of industry 4.0, the production power of the domestic manufacturing industry improved, as of September 2020, the profit of the domestic manufacturing sector reached 55.3 percent or increased by around 15 to 25 percent from the previous 30 to 40 percent at the beginning of the Covid-19 pandemic. With this, of course it will provide new challenges for companies.

The appearance of the post pandemic industry today will certainly look different from what happened during the Covid-19 period at that time. Understanding industry based technology 4.0 and creative industry development is a must in taking steps to win the competition. Companies from various industrial fields currently require modern resources, both in technology and human resources. For this reason, companies need to know in advance how the post pandemic impact on employee performance in industry based technology 4.0. This research is a replication of inversely proportional modification of research (Narayanamurthy & Tortorella, 2021). Where the study aims to determine the effect of Covid-19 on employee performance (i.e. quality and delivery of results), and verify the moderating role of industry based technology 4.0 on employee performance. Researchers are interested in conducting this research in manufacturing companies in the Batam City, because Batam bears the tittle of Batam Industrial City. In addition, data in Batam City shows that currently moving towards the industrialization of Batam application of industrial technology 4.0 in industrial operational systems. This research was conducted with the aim of knowing how post pandemic impact on employee performance in industrial based technology 4.0.

## 2. Literatur Review and Hypothesis

### 2.1 Pinch, T. J., & Bijker, W. E. : Social Construction of Technology (SCOT) Theory

Social Construction of Technology theory explains that technological artifacts are culturally constructed and interpreted, in other words, the interpretative flexibility of technological artifacts must be demonstrated. SCOT theory explains how various social factors and forces shape the often non-linear development of technology, technological change, and the meanings associated with technology (Bijker, 2008; Pinch & Bijker, 1984).

### 2.2 James H. Davis, F. David Schoorman & Lex Donaldson : Stewardship Theory

This theory was proposed by (Davis et al., 1997), stewardship theory is a theory that shows a condition where the executive or management in the company does not prioritize his personal interests, but is more concerned with the company's main target results. Stewardship theory will encourage the effectivenes of stewards to achieve company goals compared to personal goals. In essencs, stewardship motivates itself to work hard for the benefit of the company with no sign of appreciation (Daniel J I Kairupan, S.AB., 2021).

### 2.3 Employee Performance

Performance is something that is achieved or work ability. Achievement of the success of targeted company goals is one definition of performance. The description of the level of achievement of the implementation of the company's vision and mission that has been designed in the formulation of strategic planning of a company is the definition of employee performance (Rani & Mayasari, 2015).

### 2.4 Industry Based Technology 4.0

The internet of things, data, and services are the latest industrial revolution that will enter in industry 4.0. According to (Davies, 2015), industry 4.0 is a term used by a group of changes in system operations and services, design, manufacturing, and manufacturing products.

### 2.5 Hypothesis Development

Post Covid-19 pandemic is a period or a condition that is still in the shadow of a pandemic but focuses on recovery, adaptation, and innovation in every aspect of human life so that the changes caused have a positive impact on every community. In an effort to revive and restore the economy of the Batam community, the Batam Business Agency seeks to improve the infrastructure development of Batam City. Along with increase in infrastructure development, of course the community or employees also need more initiatives to take part in mentoring, guidance, and formal training to create new skills, and also new ways to easily engage internally and externally to adjust to the increased progress of the company in the post pandemic period. In this post pandemic period, employees need to improve their approach on how to foster an efficient and satisfying digital work experience in order to overcome certain problems such as the lack of face-to-face communication skills with new employees and clients. So it is hypothesized as follows:

**H1** : Post Covid-19 pandemic impacts on employee performance.

To hypothesize the impact of industrial technology 4.0 on the relationship between the post Covid-19 pandemic impact on employee performance, the authors use the theoritical lens Social Construction of Technology (SCOT). SCOT theory explains how various social factors and forces shape the often non-linear development of technology, technological change, and the meanings associated with technology (Bijker, 2008; Pinch & Bijker, 1984). (Bijker, 2008; Pinch & Bijker, 1984) argue that technology does not determine human behavior, but rather technology is shaped by human action. The basic technology of industry 4.0 summarize technologies that provide connectivity and intelligence of front-end technologies organized in four main dimensions, namely smart manufacturing, smart products, smart supply chain, and smart work (Frank et al., 2019). In the case of industrial technology 4.0, organizations and their stakeholders are relevant social groups conceptualizing the utility of automation to extract value and improve performance (Narayanamurthy & Tortorella, 2021). Industry 4.0 technology not only positively impacts the way manufacturing companies are managed, but also affects the organization's business models, products, and services (G. L. Tortorella et al., 2019). Thus applying industrial technology 4.0 can help reduce product or service problems, such as quality control and marketing time efficiency. So it can be hypothesized:

**H2** : Technologies based Industry 4.0 impacts on the relationship between post Covid-19 pandemic and employee performance.

Based on the expansion of the hypothesis above, the following research model can be used.

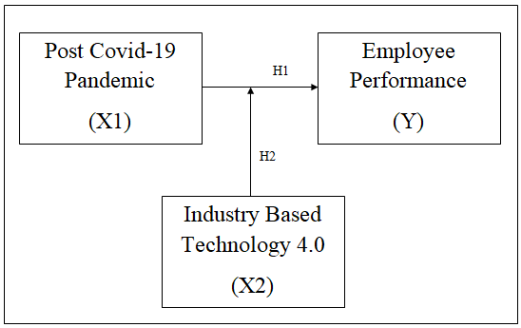


**Figure 1: Reseacrh Model**

## 3. Research Methods

This study aims to examine the effect of post Covid-19 pandemic on employee performance in industry based technology 4.0. Quantitative methods are used in this study, besides that this study uses primary data derived from questionnaires distributed via google form. The quantitative method was chosen because there is a hypothesis that the researcher wants to test. The research instrument used a questionnaire adopted from research (Narayanamurthy & Tortorella, 2021). This study uses a six-point Likert scale scaling method. The assessment indicators in the post Covid-19 pandemic variable (X1) are job security, office environment, and virtual connections. The variable industry based technology 4.0 (X2) has assessment indicators of big data, internet of things, cloud computing, and analytics. The assessment indicators on employee performance (Y) are quality

and delivery. This research took place in Batam City in middle 2023 to early 2024. It can be said that the population of this study is very large, so researchers are unable to take samples that represent the entire population. (Sugiyono, 2013) says, if the population in the study is large and the researcher is unlikely to take the entire population, then the researcher is sufficient to take a sample of the population, so the sample size for this study has an average number of 30 to 500 respondents. Researchers aslo used the Lemeshow formula as a guide in determining the number of samples in this study. The results of the Lemeshow formula calculation became the benchmark for researchers as a guide in determining the sample size. A sample with a minimum number of thirty respondents is suitable for conducting representative research.

### 3.1 Descriptive Statistics

In this study, the independent variable (X1) the post Covid-19 pandemic, the moderating variable (X2) industry based technology 4.0, and the dependent variable (Y) employee performance are presented in the form of descriptive statistics. Frequency distribution describes descriptive statistical measures such as mean, median, quartile, percentile, standard deviation, and others (Mathematics, 2016).

### 3.2 Validity Test

Validity is tested on each question item to analyze the item, namely correlating the score of each question item with the total score (Assiroj et al., 2022). To ascertain whether the questionnaire questions in this study are really ready and suitable for use as a data collection tool, the researcher must of course test the questionnaire questions, in other words, the researcher must test the validity and reliability of the questionnaire.

### 3.3 Reliability Test

The extent to which the results of a measurement can be trusted is the definition of reliability test according to (Assiroj et al., 2022). Cronbach Alpha using the SPSS V27 program was used to measure reliability in this study.

### 3.4 Normality Test

According to (Assiroj et al., 2022), the normality test is a test used to measure whether the data obtained from distributing questionnaires has a normal distribution, so that the data can be used in parametric statistical research (inferential statistics). If the normality test results show a probability value (sig.) ≥ 0.05, it can be said that the data is normally distributed.

### 3.5 Multicollinearity Test

Multicollinearity test is a test to determine whether the independent variables in a multiple linear regression model have a correlation between their variables (Poenya, 2021). Multicollinearity occurs if the tolerance value of the test results is greater that 0.10 or the Variance Inflation Factor (VIF) value of the test results obtained is greater than 10.

### 3.6 Simple Linear Regression Test and T-Test

T-test is a test that serves to test whether or not the influence on the hypothesis is true (Syafriani et al., 2023). Regression is a measuring tool used to measure how much the effect of regression influence between the independent variable and the dependent variable (Mathematics, 2016). The simple linear regression test uses the SPSS V27 program with a simple linear regression equation, namely:

$$Y = a + bX \quad (1)$$

Description:

Y = Employee performance

a = Constant

b = Regression coefficient X1

X = Post Covid-19 Pandemic

### 3.7 Moderating Regression Analysis (MRA) and F-Test

The F-test is used to test whether the independent variables in the study together (simultaneously) affect

the dependent variable. The interaction test is a test that can only be performed on multiple linear regression, where the regression equation has an element of interaction (multiplication of two or more independent variables) (Rahadi & Farid, 2021). The hypothesis to be tested is H2, namely whether industrial technology 4.0 impacts the relationship between post Covid-19 pandemic and employee performance. So, the higher the value of variables X1 and X2, the higher the effect on variable Y. To test H2, the regression equation is made as follows:

$$Y = a + b1X1 + b2X2 + b3X1X1 \quad (2)$$

Description:

Y = Employee performance

a = Constant

b1 = Regression coefficient X1

b2 = Regression coefficient X2

b3 = Regression coefficient X1X2

X1 = Post Covid-19 pandemic

X2 = Industry based technology 4.0

## 4. Results and Discussion

In this study, respondents were given a questionnaire distributed via Google form. In this study there were 31 people who participated to be sampled. The following is a summary of the questionnaire distribution:

**Table 1**

**Summary of Questionnaire Distribution**

| No | Description | Total Questionnaire |
|---|---|---|
| 1. | Questionnaire distributed | 31 |
| 2. | Questionnaire not completed | 0 |
| 3. | Questionnaire returned | 31 |
| 4. | Questionnaire processed | 31 |
| 5. | Charging amount | 100% |
| 6. | Data used | 100% |

31 questionnaires were distributed (100%) and 31 questionnaires were returned (100%), while 0 questionnaires not filled (0%). Therefore, 31 questionnaires or 100% of the data can be utilized.

1. Based on gender

According to the gender of the 31 employees of manufacturing companies who were respondents, it turned out that 15 respondents (48.4%) were male, while there were 16 female respondents (51.6%).

2. Based on role

Based on the sample taken, 31 respondents (100%) have the role of supervisor or coordinator in the company and 0 respondents (0%) have the role of manager or director.

3. Based on work experience

It was noted that there were 19 respondents (61.3%) who had less than 5 years of work experience and 12 respondents (38.7%) who have more than 5 years of work experience as a supervisor or coordinator.

4. Based on company ownership

The most common answer for company ownership was private ownership with 27 respondents (87.1%) and public ownership with only 4 respondents (12.9%).

5. Based on company type

Based on the answers obtained, most respondents work in multinational companies with a total of 27 people (87.1%) and the rest work in single country companies totaling 4 people (12.9%).

**Table 2**

**Characteristics of Respondents Based on Company Type**

| | N | % |
|---|---|---|
| Multinational | 27 | 87,1% |
| Single Country | 4 | 12,9% |

Source: Data Processed by SPSS Version 27

6. Based on company size

There are 25 respondents (80.6%) who work in companies that have a population of less than 5000 employees and 6 respondents (19.4%) work in companies that have more than 5000 employees.

**Table 3**

**Characteristics of Respondents Based on Company Size**

| | N | % |
|---|---|---|
| <5000 employees | 25 | 80,6% |
| >5000 employees | 6 | 19,4% |

Source: Data Processed by SPSS Version 27

7. Based on company sector

**Table 4**

**Characteristics of Respondents Based on Company Sector**

| | N | % |
|---|---|---|
| Various Industries | 25 | 80,6% |
| Consumer Goods | 1 | 3,2% |
| Basic and Chemistry | 5 | 16,1% |

Source: Data Processed by SPSS Version 27

Based on the most answers, 25 people (80.6%) came from various industrial sectors, followed by the basic and chemical industry sector with 5 people (16.1%), and the consumer goods industry sector with 1 people (3.2%).

### 4.1 Descriptive Statistics

The descriptive statistical test results show that respondents answer to the post Covid-19 pandemic variable (X1), on average, have a value of > 5, meaning that they agree. This indicates that the average respondent agrees that there will be post Covid-19 pandemic impacts, such as changes in communication system between employees and changes in working hours and locations. In industry based technology 4.0 (X2) shows that the average value on this variable is > 5, meaning that the tendency of respondents to answer agree. This means that industry based technology 4.0 has been implemented in most manufacturing companies in Batam City. This shows that the four basic technologies are big data, internet of things, cloud computing, and analytics have been implemented so that they will help reduce product or service problems, such as quality control and marketing time efficiency. On the employee performance variable (Y), respondents also answered agree with an average of > 5, meaning that respondents agreed that there was a perceived change in performance in the last two months. This illustrates that in terms of quality of production results and on-time delivery, respondents managed to improve their performance from the previous months.

### 4.2 Validity Test

R table in this study is 0.4556 (df = n-2 = 31-2 = 29, significant 0.01). Based on the calculated r table, the minimum pearson correlation value is 0.4556. Based on the results of SPSS processing, all pearson correlation for each item are above 0.4556, so the data obtained from the field can be declared valid.

### 4.3 Reliability Test

A variable is said to be reliable if it has a Cronbach's Alpha value of more than 0.50. The post Covid-19 pandemic variable (X1) has a Cronbach's Alpha value of 0.882, the industry based technologies 4.0 variable (X2) has a Cronbach's Alpha value of 0.676, and the employee performance variable (Y) has a Cronbach's Alpha value of 0.880 which indicates that the three variables in this study are reliable because they have a value of more than 0.50.

### 4.4 Normality Test

The significant criterion for One-Sample Kolmogorov-Smirnov measurement is the distribution of regression models that have normality at 5%. The test results show that the post Covid-19 pandemic variable (X1), the industry based technology 4.0 variable (X2), and the employee performance variable (Y) meet the One-Sample Kolmogorov-Smirnov statistical test value which has an asymp.sig value of 0.083 which exceeds the required criterion value of 0.05, so it can be said that the data is normally distributed.

### 4.5 Multicollinearity Test

Based on the results of SPSS processing, it shows that the post Covid-19 pandemic variable (X1) has a tolerance value of 0.850, while the industrial based technology 4.0 variable (X2) has a tolerance value of 0.850. The VIF value on variables X1 and X2 is 1.177, this indicates that the VIF values is < 10, so it can be interpreted that there is no multicollinearity.

### 4.6 Simple Linear Regression Test and T-Test

Simple regression analysis was used to measure the strength of the relationship between post Covid-19

pandemic variable and employee performance variable, as well as to show the direction of the relationship between these variables.

**Table 5**

**Simple Linear Regression Test Results**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 6,473 | 3,227 | | 2,006 | ,054 |
| | Post Covid-19 Pandemic | ,047 | ,041 | ,209 | 1,152 | ,259 |
| a. Dependent Variable: Employee Performance | | | | | | |

Source: Data Processed by SPSS Version 27

Based on the results of the SPSS simple linear regression test, the regression equation can be written as follows:

$$\mathbf{Y = 6.473 + 0.047X} \quad (3)$$

From the above equation, it can be interpreted that:

1. The positive constant coefficient of 6.473 indicates that employee performance in manufacturing companies will continue to increase even though the company does not consider any changes that will occur in the post Covid-19 pandemic period.
2. The post Covid-19 pandemic regression coefficient is positive at 0.047, indicating that every 1 constant increase in the post Covid-19 pandemic variable will increase employee performance by 0.047. The positive regression coefficient indicates that the better the changes that occur in the post Covid-19 pandemic period, the better employee performance.

**Table 6**

**T-Test Results**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | ,209[a] | ,044 | ,011 | 2,28389 |
| a. Predictors: (Constant), Post Covid-19 Pandemic | | | | |

Source: Data Processed by SPSS Version 27

The coefficient of determination ($R^2$) in the t-test is used to measure the model's ability to explain variations in the dependent variable. From the results of the SPSS t-test, it shows that the coefficient of determination of the value of R Square ($R^2$) is 0.044, meaning that only 0.44% of employee performance variable can be explained by post Covid-19 pandemic variable. While the remaining 99.66% is explained by other causes outside the model.

Based on the results of the SPSS simple linear regression test, the significant value for the post Covid-19 pandemic variable is 0.259 is greater than 0.05, meaning that individually the post Covid-19 pandemic variable has no significant impact on employee performance, so **H1 is not accepted**, meaning that the post Covid-19 pandemic variable has no impact on the employee performance variable.

## 4.7 Moderated Regression Analysis (MRA) Test and F-Test (Simultaneous)

**Table 7**

**Moderated Regression Analysis (MRA) Test Results**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 11,018 | 8,696 | | 1,267 | ,224 |
| | Post Covid-19 Pandemic | -3,381 | 2,409 | -,532 | -1,403 | ,181 |
| | Technology Based Industry 4.0 | 2,441 | 3,099 | ,406 | ,788 | ,443 |
| | Post Covid-19 Pandemic*Technology Based Industry 4.0 | ,001 | ,005 | ,188 | ,278 | ,785 |
| a. Dependent Variable: Employee Performance | | | | | | |

Source: Data Processed by SPSS Version 27

Based on the results of the SPSS Moderated Regression Analysis test, the regression equation can be written as follows:

$$\mathbf{Y = 11.018 - 3.381X1 + 2.441X2 + 0.001X1X1} \quad (4)$$

From the above equation, it can be interpreted that:

1. The positive constant coefficient of 11.018 indicates that employee performance in manufacturing companies will continue to increase even if the company does not consider changes that will occur in the post Covid-19

pandemic, industry based technology 4.0, and post Covid-19 pandemic in industry based technology 4.0.

2. The post Covid-19 pandemic regression coefficient is negative at -3.381, indicating that every 1 constant increase in the post Covid-19 pandemic variable will reduce employee performance by 3.381. The negative regression coefficient -3.381 indicates that the higher the change that occurs in the post Covid-19 pandemic period, the more employee performance will decrease.
3. The regression coefficient of industry based technology 4.0 is positive at 2.441, indicating that any constant increase in the industry based technology 4.0 variable will increase employee performance by 2.441. The positive regression coefficient indicates that the more industry based technology 4.0 is applied, the more employee performance will increase.
4. The moderation regression coefficient of post Covid-19 pandemic*industry based technology 4.0 is positive at 0.001, indicating that every constant increase in the moderation variable will increase employee performance by 0.001. The positive regression coefficient indicates that the higher the relationship between post Covid-19 pandemic*industry based technology 4.0, the higher employee performance will be.

**Table 8**

**F-Test results**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 22,974 | 2 | 11,487 | 2,379 | ,111[b] |
| | Residual | 135,219 | 28 | 4,829 | | |
| | Total | 158,194 | 30 | | | |
| a. Dependent Variable: Employee Performance | | | | | | |
| b. Predictors: (Constant), Industry Based Technology 4.0, Post Covid-19 Pandemic | | | | | | |

Source: Data Processed by SPSS Version 27

The calculated F value obtained is 2.379 which is smaller than the F table value of 4.20 (df1 = k-1 = 2-1 = 1, while df2 = n-k-1 = 31-2-1 = 28). Therefore, post Covid-19 pandemic variable and industry based technology 4.0 statistically do not impact the dependent variable, namely employee performance in manufacturing companies in Batam City, as indicated by Fcount < Ftable (2.379 < 4.20).

Based on the results of the MRA test, the coefficient of determination of the R Square value ($R^2$) is 0.345, meaning that only 3.45% of the employee performance variable can be explained by the independent variables of post Covid-19 pandemic, industry based technology 4.0, and post Covid-19 pandemic*industry based technology 4.0. The remaining 96.55% is explained by other factors outside the model. Based on the MRA test results, the significant value of the variable post Covid-19 pandemic*industry based technology 4.0 is 0.785. Because the probability value > 0.05 so that **H2 is not accepted**, meaning that the variable post Covid-19*industry based technology 4.0 has no impact on the employee performance variable.

### 4.8 Discussion of Analysis

Identifying factors that impact employee performance is the direction of this research. Review of research results includes:

**1. Post Covid-19 pandemic on employee performance**

The results of this research analysis show that post Covid-19 pandemic has no impact on employee performance. The results above prove that the post Covid-19 pandemic variable has no significant impact on employee performance, which is indicated by a significant value of 0.259 > 0.05, but the descriptive test results produce an average answer value of > 5 on the post Covid-19 pandemic variable in manufacturing companies in Batam City, which means that the majority of respondents agree that there are changes in the aspects of job insecurity, office environment, and virtual connections that occur in the post Covid-19 pandemic period. The descriptive test value on employee performance also produces an average value of > 5, which also shows that the majority of respondents agree that there are changes in performance in terms of quality and delivery that have increased significantly in the last

two months. The post Covid-19 pandemic period in manufacturing companies in Batam City does not impact employee performance, perhaps due to the quality factor of employees who are able to adjust in the post Covid-19 pandemic period, in accordance with stewardship theory where employees will do their best for the success of their company, perhaps also due to company policies that are able to create a reliable work system in the post Covid-19 pandemic period, or other possibilities that can occur for the results of this study. The findings in this study contradict the results of research (Narayanamurthy & Tortorella, 2021), the study found that the impact of work during a pandemic has an impact on employee performance. The findings in the t-test show that there is an effect of 4.4% on the post Covid-19 pandemic variable on employee performance, with an R Square value of 0.044.

**2. The impact of industry based technology 4.0 between post Covid-19 pandemic on employee performance**

The test findings show that industry based technology 4.0 in the post Covid-19 pandemic on employee performance has no impact. The findings of the Moderated Regression Analysis test prove that the results of the significant value of 0.785 > 0.05 support the insignificant results of this study. This means that the moderating variable in this study, namely industry based technology 4.0, does not impact the relationship between post Covid-19 pandemic and employee performance, but the results of the descriptive statistical test which produce an average respondent answer value of > 5 indicate that respondents agree that there is an impact of big data, internet of things, cloud computing, and analytics in indutry based technology 4.0 found in the manufacturing company where the respondents work. Stewardship theory supports the answer to why industry based technology 4.0 cannot moderate the relationship between the post Covid-19 pandemic on employee performance, of course the management in the company will give their best and prioritize the interests of the company where they work, so that even though there is an impact of industry based technology 4.0 in the company, employee performance will remain good and even increase every month. From the results of the f-test that has been carried out, it is found that the variables of post Covid-19 pandemic and industry based technology 4.0 simultaneously have no impact on employee performance in manufacturing companies in Batam City, as evidenced by the results of the f-test that Fcount < Ftable (2.379 < 4.20) and significant > α (0.111 > 0.05). The second hypothesis, which shows that the post Covid-19 pandemic in industry based technology 4.0 simultaneously has no impact on employee performance, is rejected and not proven by the data.

## 5. Conclusion

This study has the main objectives, namely to determine the impact of post Covid-19 pandemic on employee performance, and to determine the impact of industry based technology 4.0 as a moderating variable on the relationship between post Covid-19 pandemic and employee performance on management level employees in manufacturing companies in Batam City. Based on the results of the discussion above, it can be concluded that post Covid-19 pandemic has no impact on employee performance. This shows that there are many factors that make employee performance continue to increase significantly despite the changes that have occured in the post Covid-19 pandemic period. Industry based technology 4.0 does not impact in the relationship between post Covid-19 pandemic and employee performance. This shows that industry based technology 4.0 does not act as a moderating variable in strengthening or weakening the relationship between post Covid-19 pandemic and employee performance.

The results of this study produce post Covid-19 pandemic variable in industry based technology 4.0 has no impact on employee performance. Future research is expected to expand the criteria sample in research used, future research is expected to be carried out on different types of companies or in

different regions, to be able to generalize the research results.

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