

RESEARCH ARTICLE



The Influence of Situational Leadership on Employee Work Productivity with Work Environment as a Mediating Variable At BUMN Defense Industry (Study at PT Len Industri Persero)

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Published online: 25 June 2024

Abstract

This study aims to analyze the effect of situational leadership on employee productivity with work environment as a mediating variable at PT Len Industri (Persero), a state-owned enterprise in the defense industry sector. The research method used is quantitative method with associative approach. Data were collected through questionnaires distributed to employees of PT Len Industri (Persero). The research sample was taken using the slovin formula, with a total of 220 respondents. Data analysis was carried out using Structural Equation Modeling (SEM) with the help of PLS version 3 software. The results showed that situational leadership has a significant influence on employee work productivity by 3.037. In addition, it was found that work environment acts as a significant mediating variable in the relationship between situational leadership and employee work productivity by 5.980. This means that effective situational leadership can increase employee work productivity directly, as well as through improving the quality of the work environment. This research provides a practical contribution for PT Len Industri (Persero) in implementing an adaptive leadership style and creating a conducive work environment to increase employee work productivity.

Keyword: Situational Leadership, Employee Productivity, Work Environment, PT Len Industri (Persero), Defense Industry

Introduction

Human resources are a very important asset in a company because they can support the company with their work, talent and creativity. One of the problems facing companies today is how to create quality human resources who are able to provide optimal performance so that company goals can be achieved (Wicaksono, Norisanti, & Saori, 2022). The more complex a company is, the more it needs good human resources, both in terms of quality and quantity. Human resources manage the workforce in an organization. If human resources in an organization are low, quality will decrease. Therefore, human resource management in an organization must always be implemented to achieve organizational goals effectively and efficiently (Rismayanti, Faizal Mulia, & Komariah, 2020).

State-owned enterprises (BUMN) are business entities whose capital is wholly or partially owned by the government. The important role of BUMN is also reflected in the mission of the Ministry of BUMN (Ministry of BUMN, 2002) which, among other things, includes (1) increasing company value through restructuring, privatization and business cooperation between BUMN on the basis of healthy business principles, (2) increasing competitiveness through innovation and increasing efficiency to provide quality goods and services at competitive prices and high quality services, (3) increasing the contribution of BUMN to the country (Mokoginta, 2023). The main problems and challenges faced by BUMN are grouped into two parts, namely

internal challenges and external challenges. Internally, the problems and challenges faced by BUMN can be seen from the unsatisfactory performance of BUMN. Meanwhile, the challenges faced by BUMN are reflected externally in globalization which has an impact on various aspects of business such as issues of competition, financing, information technology, the environment and others (Mokoginta, 2023).

Table 1. Number of State-Owned Companies 2018-2023

No	Year	Persero	Persero Tbk	Corporation	Total
1	2018	88	14	16	118
2	2019	87	14	16	117
3	2020	84	13	14	111
4	2021	69	12	14	95
5	2022	52	12	13	77
6	2023	40	12	13	65

(Source: Ministry of BUMN 2023)

Here we can see a phenomenon, namely the reduction in the number of Persero BUMN from year to year. This data shows that the performance of several BUMNs is experiencing problems so that the number of BUMNs is decreasing. The gap between BUMN which is expected to provide large revenues as a source of income in the State Revenue and Expenditure Budget (APBN), and the reality which shows that BUMN will find it difficult to achieve targets. State-Owned Enterprises (BUMN) operating in the defense industry are companies owned and operated by the government of a country in the defense sector. This BUMN usually plays a role in producing and providing various types of military equipment, defense systems and related services to meet the country's defense needs. The defense industry BUMN realized this with the formation of the Defense Industry BUMN Holding, Defense Industry Indonesia (DEFEND ID). This holding

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is a combination of five state-owned companies operating in the defense industry.

Table 2. Defense Industry BUMN Holding Table 2023

No	Company name	Number of employees
1	PT. Len Industri (Persero)	488
2	PT. Pindad (Persero)	2,536
3	PT. Aerospace Indonesia (Persero)	3,612
4	PT. PAL Indonesia (Persero)	1,300
5	PT. Dahana (Persero)	1,052

(Source: Ministry of BUMN 2023)

The formation of the Defense Industry BUMN Holding (Defend ID) is a form of empowering national resources in order to strengthen national defense. Each member of the Holding has a different focus. PT Len Industri as the parent Holding focuses on Command, Control, Communication, Computers, Cyber-Defense, Combat Systems, Intelligence, Surveillance and Reconnaissance (C6ISR) Platform along with Maintenance, Repair and Overhaul (MRO) and integration solutions for 3 (three) TNI dimensions through Network Centric Warfare (NCW).

Employee productivity in a company is a topic that is always hot and there is no end to discussion. Productivity issues are also a strategic issue for companies that program for workforce issues. There are many internal and external aspects that support the creation of effective and efficient workforce productivity in a company. Especially if it is related to the current issue of globalization, the impact of which we are currently feeling. To achieve high work productivity, according to Harahap (2020), human factors are important, because the success or failure of a company is largely determined by the behavior of the people who do the work. One of the variables that influences employee work productivity and is related to behavior is discipline, and one form of employee discipline is low levels of absenteeism. To increase labor productivity in a company, the company must maintain the company's survival. In other words, a company's existence is influenced by its quality and competitive ability with staff. To achieve the goals of a company it does not only depend on modern equipment or complete facilities and infrastructure but is more dependent on the resources that do the work. In the current era of globalization, many companies are realizing the importance of a leader who has high personality and ability as well as decision-making skills, the quality of a leader who has knowledge, abilities, desires, feelings and drive to move the company forward. The success of a company certainly cannot be separated from the function of a leader and the support of subordinates who are committed to maintaining work stability for the sake of mutual progress within a company (Fajrin and Susilo 2018).

Leadership style is a series of behaviors that a person carries out to change and influence thinking so that the person wants to follow the instructions and directions given. In this case, the nature of leadership style is not static (fixed), but dynamic, where the leadership style applied can change depending on the surrounding situation (number of followers, culture, social, interaction, etc.) (Hatari Marwina Siagian, M. Joharis Lubis & Darwin 2022). Leadership style is closely related to the productivity of workers, both in private and government workers in achieving productive performance through activities directed by a leader who acts as an actor in producing good work productivity. In other words, good labor productivity is achieved due to the leadership's efforts to mobilize workers in a work environment. This means that leaders who mobilize workers are a very important aspect compared to technological and economic aspects. Leadership has a significant influence in organizations, people in organizations can work collectively if they follow the leadership of their leader. Organizational leaders can carry out activities in various ways to influence their subordinates to take actions that are always aimed at achieving maximum employee productivity. The existence of a leader has a very high impact on the progress and decline of the company.

Leaders who have a leadership style that is desired by subordinates and a work environment that will influence employee work productivity. The leadership style that many subordinates like is the situational leadership style. Where this situational leadership style tends to focus more on subordinates, until finally the leadership assignment to subordinates will first see the readiness of their subordinates (Meylani Dwi Pristanti, Suradi & Muflik Malikun, 2022). Situational leadership has developed into an effective approach to directing and motivating people to be successful, because the situational leadership approach opens lines of communication and supports their actions, cooperation between the leader and the people who are supported by and depend on the leader.

Situational leadership is based on the belief that each person can and wants to develop and that no one leadership style can best support development. Leaders must adapt their leadership style to the current situation. Situational leadership consists of four basic leadership styles, namely instruction, consultation, participation, and delegation. Through these four basic situational leadership styles, leaders can choose the most appropriate way to lead followers through situations that arise in the company (Darwaman, Poppy & Susilo, Heru, 2018). Efforts to achieve organizational goals apart from supporting leadership style, the work environment is also an important variable in increasing work productivity. In general, it can be said that the employee work environment is the impact or result of employee work productivity and employee success at work. The work environment is a place to do work in accordance with a previously agreed work contract. Work environment factors influence the relationship to getting productivity support. A comfortable and conducive work environment creates awareness among employees and leaders, so both parties need to create that work environment. A common business problem is productivity as a result of which the number of employees decreases in an uncomfortable working environment (Maludin Panjaitan, 2017). Apart from that, a comfortable, healthy and clean work environment can increase employee performance productivity. The work environment is a place that employees use every day to complete their work (Bindiab, Natsir, and Miru 2017). A supportive work environment provides a feeling of comfort for employees at work. A good work environment will increase employee enthusiasm to complete work effectively and efficiently. When concluding the concepts of leadership style, work environment, and work productivity, leaders must pay attention to each situation, the relationship between the leader and his subordinates, the structure of the tasks given and the power and position of the leader must be taken into account. The employee work environment is a challenge in itself for leaders, because by organizing a good work environment, employees will be enthusiastic about working so that it will increase employee work productivity.

This research was conducted at PT Len Industri which is located on Jl. Soekarno Hatta 442, Bandung City. PT Len Industri is a State-Owned Enterprise (BUMN) whose shares are fully owned by the Indonesian government. This company is one of the industries operating in the electronics sector. The National Electrotechnical Institute (LEN), is the root of PT. Len Industri which is one of the maintenance and development units within the Indonesian Institute of Sciences (LIPI).

In carrying out its business activities, the company has gained various experiences in the field of urban transportation development such as the Soekarno Hatta Airport Skytrain, Jabodetabek LRT, Jakarta LRT, and South Sumatra LRT. Solar power plants (PLTS) have been installed in several regions in Indonesia. Railway signaling system on the islands of Sumatra and Java as the main route, Electronics as air, sea and land defense. The main products in the defense sector spectrum include Combat Management Systems (CMS), tactical radios and radars on warships, and telecommunications infrastructure networks spread evenly in remote areas and large cities. Broadcasting, hundreds of radio and TV channels installed in various regions of Indonesia for more than 30 years. Realizing the big vision of becoming a trusted World Class Technology

Company is not easy. This requires trust and dedication from every employee. The increase in sales every year at this company is proof that this company has good human resource management. Therefore, cooperation between leaders and subordinates as well as teamwork is needed which will further improve the quality of the company's work over time. The leadership style applied by the leader by looking at the existing situation in this company is the most appropriate way to provide support to PT Len Industri employees in order to create a better work environment for employees, so that employees while they are there are able to do their work. Productivity will also increase. Based on the results of the author's interview with Human Capital Service (HCS) PT. Len Industri found problems with fluctuations in employee attendance levels, this can be seen from the following table:

Table 3. Total Employee Attendance for January-December 2023

No	Month	Number of employees	Number of Permits	Without explanation	Total Attendance
1	January	488	125	4	359
2	February	488	78	3	407
3	March	488	132	18	338
4	April	488	45	8	435
5	May	488	102	20	366
6	June	488	77	25	386
7	July	488	98	43	347
8	August	488	86	18	384
9	September	488	89	20	379
10	October	488	115	32	341
11	November	488	93	12	383
12	December	488	58	15	415

(Source: PT Len Industri Internal Data, 2023)

The table shows the total employee attendance of PT Len Industri from January to December 2023. It can be seen that the number of employee attendance tends to fluctuate. There was an increase in February, but a decrease in March. This increase occurred again in April. In July and October the decline occurred again compared to the previous month. Based on the results of the author's interview with the Human Capital Service (HCS) unit of PT Len Industri regarding the problems faced by the company, especially the level of employee attendance which fluctuates with ups and downs which will cause instability in work flow and teams, resulting in a lack of consistency in output and a lack of reliability in target achievement. This is due to a lack of situational leadership roles as well as a non-physical work environment, namely a lack of social interaction between employees and a physical work environment lacking several facilities, making employees less comfortable. This can disrupt team collaboration and affect overall productivity.

In research conducted by Kurniawan, Faghmilah and Herawati (2021) stated that situational leadership significantly increases employee productivity. According to Wijaya, Nurmawati and Furkhan (2017) stated that situational leadership has no effect on work productivity. Meylani, Suradi and Malikun (2022) stated that situational leadership influences employee work productivity. According to Eva Fathussyadah and Aar Ardiansyah (2020). Umban Adi Jaya and Sri Sinta Rahmawati (2022) stated that there is a positive and significant influence between the work environment on employee work productivity. According to Sarman Sinaga (2020) Employee Work Productivity has several dimensions, one of which is the attitude dimension, with indicators of signs or behavior that can describe a certain attitude, attitude has an influence on the level of employee attendance because positive attitudes tend to create a positive work environment in the company so that there is an increase employee productivity. Based on this research gap, researchers place the work environment as a mediating variable. This research uses management as a grand theory because

management is the process of planning, organizing, directing and controlling resources (human, financial, material and information) in an organization to achieve predetermined goals. Management involves managing and administering various aspects of an organization including human, financial, operational, marketing and other resources. According to Marwan Syaban (2019) Management is an effort, planning, organizing, directing, coordinating and supervising activities in an organization to achieve the goal of managing it efficiently and effectively. Meanwhile, according to Hasibuan (2017) management is the science and art of managing the process of directing human resources and other resources effectively and efficiently to achieve a goal. Umi Farida (2017) believes that management is the art and science of planning and controlling human resources to achieve predetermined goals.

Then use human resource management as Middle Range Theory because human resource management is a field of management that specifically studies human relations and their role in an agency or organization. As a sequel to definitions from various experts in the field of human resource management: According to Susan (2019) HRM is an activity that must be carried out by organizations, so that their knowledge, abilities and skills are in accordance with the needs of the work they do. Human Resource Management is defined as the activities of planning, procuring, developing, maintaining and using human resources to achieve individual or organizational goals (Zulki Zulkifli, 2018). Syamsurizal (2016) believes that human resource management is managing human resources. Of all the resources available in an organization, human resources are the most important and crucial. All the potential possessed by human resources greatly influences the organization's efforts to achieve its goals. According to Zulkifli Rusby (2017) Human resource management is a process of handling various problems within the scope of employees, employees, workers, managers and other employees to support the activities of an organization or company to achieve predetermined goals.

According to Sarman Sinaga (2020) Work productivity is a worker's ability to produce results compared to the input used. A worker is said to be productive if he can produce goods and services as expected in a short and precise time. Employee productivity is a work requirement that must be met by every employee. (Reni Hindriari (2018) believes that productivity is generally defined as the relationship between output (goods or services) and input (labor, materials, money). Productivity is a measure of productive efficiency, a comparison between output and input. Input is often limited by energy, work, while output is measured in physical terms, form and value. Productivity is a concept that describes the relationship between output (the amount of goods and services produced) and the resources (amount of labor, capital, land, etc.) used to produce that output. The concept of productivity is closely related to the extent to which a process produces output by consuming certain inputs. Productivity is the relationship between input and output with a focus on the output produced by a process. Usually a combination can be used to produce a certain level of output.

According to Hidayatullah (2017) Productivity is an index that measures output (goods and services) compared to input (labor, raw materials, energy and other resources) used to produce output. Thus, the conclusion from the statements above is that employee work productivity is a measure that describes the efficiency and effectiveness of the use of resources, time and individual abilities in achieving set work goals. Productivity can be measured through a comparison between output and input in the production process, and involves the ability of employees to complete tasks with predetermined standards, completeness, cost and speed. According to WA Nugroho and M Tahwin (2022) The work environment is everything that is around the worker and can influence him in carrying out his duties. The work environment is an important part of employee work performance by providing a good work environment or comfortable working conditions which will increase morale. employee work to improve their performance. The work environment is the environment where employees carry out

their daily duties and activities. This happens because when employees feel comfortable with the work environment they like, it will have an impact on improving employee performance as well (MD Pristanti, Suradi & M Malikun, 2022). A good work environment will have a big influence on the level of work productivity, efficiency, motivation and employee performance. Employees really pay attention to their work environment because it relates to the time and way they complete their work (Wulandari, Erry Sunarya & Faizal Mulia, 2023).

Handaru (2019) believes that the work environment is a set of tools and materials encountered, the environment in which a person works, how they work, and their work arrangements both individually and in groups. Eva Fathussyadah & Aar Ardiansyah (2020) argue that the work environment is one of the most important things to pay attention to. Even though this work environment does not carry out the production process in a company, the work environment has a direct influence on the employees who carry out the production. An adequate work environment can increase employee work productivity, while an inadequate work environment can result in decreased productivity. The work environment is a set of tools and materials encountered, the environment in which a person works, how they work, and their work arrangements both individually and in groups. Thus, the conclusion from the statements above is that a good and comfortable work environment can increase employee morale. Employees who feel comfortable with their work environment usually have better performance. Conversely, an inadequate work environment can have a negative impact on employee productivity. The work environment is an important factor that companies must pay attention to. Even though they are not directly involved in the production process, the work environment has a direct influence on the employees who carry out production. Therefore, companies must create a good work environment to improve employee performance and productivity.

Regarding leadership, P Hellen Wijaya (2018) believes that the situational leadership style is an effective leadership style that is needed in this company to be able to improve the performance of all employees in achieving the goals set by the company. Apart from situational leadership style, a factor that influences employee performance is organizational culture. Situational leadership style is a theory that tries to find a middle way between the view that there are universal principles in business and management, and the view that every business is unique and has different situations. needs to be addressed. faced with a certain leadership style (IS Kurniawan 2021). According to NS Tetania (2022) situational leadership is a leadership style that is adaptive to the situation, especially employee maturity. So in implementing a leadership style, a leader is guided more by the willingness of his employees to accept that style. The situational leadership style is based on the belief that everyone can and wants to develop and there is no best leadership style that can achieve this to support development (M Dadi Lado, 2019). According to HM Siagian (2022) situational leadership provides a way to become a professional leader. You are not considered a professional just by writing a prescription. Writing a prescription without a diagnosis first is a practical exercise. Thus, it can be concluded from the statements above that the situational leadership style is an adaptive approach, paying attention to employee maturity and is believed to be able to improve performance in achieving organizational goals. Awareness of organizational culture and belief in individual development are also important factors in implementing this leadership style.

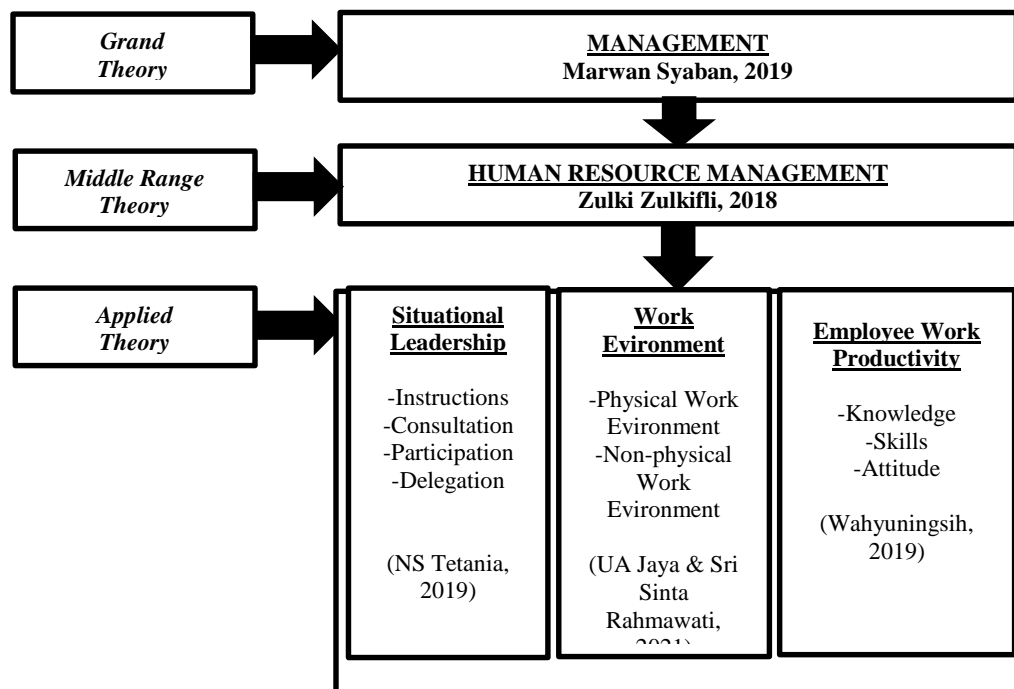


Fig 1. Picture of a Thinking Framework

The author uses the variables situational leadership, work environment, and employee work productivity because there are still many who use these variables for research, in the research conducted Margaretha Dadi Lado, Ronald PC Fanggidae & Tarsisius Timuneno (2019) entitled The Influence of Situational Leadership Style on the Work Productivity of Kupang City PDAM Employees shows that the Situational Leadership

Style has a positive and significant effect on employee work productivity at PDAM Kupang City. Supported by research by NS Tetania & AH Susanto (2022) entitled The Influence of Leadership Style and Work Morale on PT ZZZ Employee Productivity, it is stated that the Situational Leadership Style has a positive effect on Employee Productivity. This is because a boss/leader who can apply an appropriate leadership style will

increase employee productivity at work. This is supported by research by Wijaya, Nurmayanti and Furkhan (2017) entitled The Influence of Situational Leadership Style, Work Environment and Achievement Motivation on Work Productivity, stating that situational leadership style influences the work environment, Research conducted by Umban Adi Jaya and Sri Sinta Rahmawati (2022) with the title The Influence of Individual Characteristics and the Work Environment on Employee Work Productivity, states that there is a positive and significant influence between the work environment on

employee work productivity. Supported by research conducted by Joko Nugroho's Content (2021) entitled Analysis of Workload, Work Motivation and Work Environment on Employee Work Productivity at the Blitar Regency Central Statistics Agency. The work environment influences work productivity at the Blitar Regency Central Statistics Agency.

The first step that the author took was to determine the research paradigm to facilitate the research process to be carried out. The following is a picture of the research paradigm:

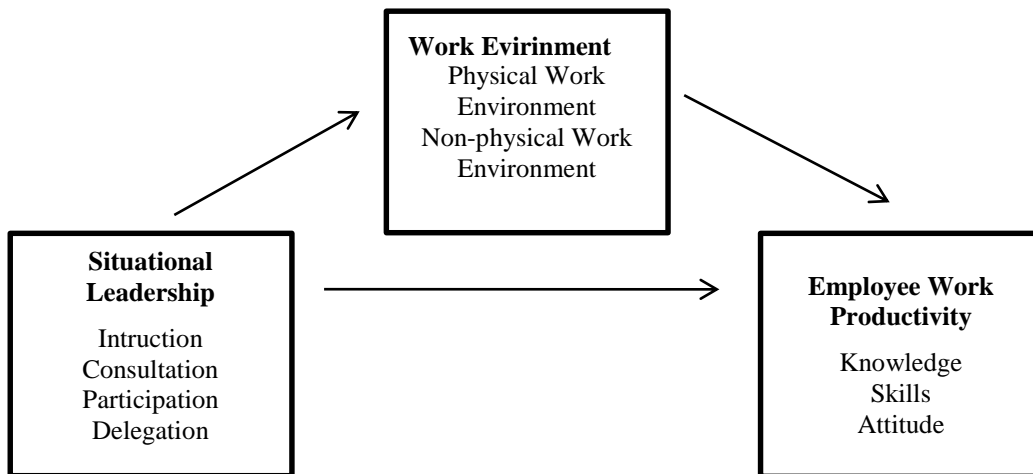


Fig 2. Research Paradigm Image

Method

Research methods are a series of activities in tracing the truth of a research which forms a problem formulation which gives rise to an analysis which ultimately forms a conclusion (Syafrida Hanif Sahir, 2022:1). The method used in this research is a quantitative research method with an associative type. Quantitative research methods are research using data

processing tools using structured statistics from the start of the research to the end (Syafrida Hanif Sahir, 2022:13). The associative research method is a question that is a relationship between two or more variables (Syafrida Hanif Sahir, 2022:15). Research Model or Research Paradigm is defined as a scientific series in making perceptions to solve research problems with conclusions in the form of scientific truth (Syafrida Hanif Sahir, 2022:21). In this research, the author uses the following research model:

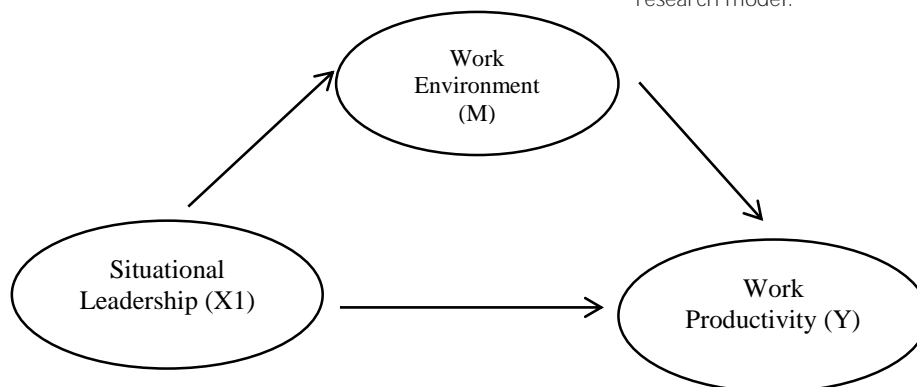


Fig 3. Research Model Image

Sampling procedures

According to Sugiyono (2018) in quantitative research, the sample is part of the number and characteristics of the population. The sample in this study is part of the total population. Determining the sample in this research is very necessary for clarity in distributing the questionnaire that will be carried out. For sampling in this research, a sampling technique is needed. The sampling technique used in this research is Non Probability Sampling using Purposive Sampling. According to Sugiyono (2018), Non Probability Sampling is a sampling technique that does not provide an equal opportunity

for each element (member) of the population to be selected as a sample member.

Based on the statement above, in determining the number of samples to be taken in this research, the author used the Slovin formula as a measuring tool to calculate the sample size. Because the population of employees is 488, the Slovin formula used to determine the research sample is as follows:

$$n = \frac{N}{1 + N \cdot e^2}$$

Information:

n = Sample Size

N = Population Size

e = Percentage Error Tolerance Limit (5%)

Substitute into Slovin's formula

Is known:

$N = 488$, $e = 0.05$ (5%)

$$n = \frac{488}{1 + (488 \cdot 0,05^2)}$$

$n = 219.8$ (rounded to 220)

It can be seen from the results of the substitution of the Slovin formula above that it is known that the number of n (samples) in this research is 220. Thus, the distribution of this research questionnaire was only carried out to a few employees out of 220 people who were directly related to superiors at PT Len Industri.

Data collection technique

If we look at the data source, data collection can use primary sources and secondary sources. Primary sources are data sources that provide data directly to data collectors, and secondary sources are sources that do not provide data directly to data collectors, for example through other people or through documents (Sugiyono, 2018).

Primary data

The following data collection techniques were used in this research:

Table 4. Examples of Semantic Differential Scale Statements

No	Statement	Range	1	2	3	4	5	6	7	8	9	10	Range
1	Team members feel that the instructions given by the leader are clear and easy to understand	Very not agree											Strongly agree

3) Interview

Interviews are used as a data collection technique when the author wants to conduct a preliminary investigation to find the problem he wants to investigate, and also when the author wants to know something about the respondent in more depth (Sugiyono, 2018). And in this research, unstructured interviews were conducted where the author did not use an interview guide that was prepared systematically and comprehensively for data collection, but only outlined the problems that would be asked.

Secondary Data

In this research, the secondary data used is by reviewing books or journals related to the problem being studied.

Results And Discussion

Data Processing Results

Model Measurement (Outer Model)

Evaluation of measurement models with a reflective model can be done through *convergent validity*, *discriminant validity* and *composite reliability tests*. The following are the results of the measurement model.

Convergent Validity

Convergent validity is a test that shows the relationship between reflective items and latent variables. An indicator is said to be satisfactory if the factor loading value is > 0.5 . The Loading Factor value shows the weight of each indicator/item as a measure of each variable. Indicators that have a high loading factor indicate that the indicator measures the strongest (dominant) variable.

Table 5. Table of Convergent Validity Values

Variable	Indicator	Outer Weights	Loading Factor	Information
Situational	X1	0.257	0.981	Valid

1) Observation

Observation, namely a data collection technique, has a distinctive characteristic compared to other techniques by directly observing the activities carried out (Sugiyono, 2018).

2) Questionnaire

A questionnaire is a data collection technique that is carried out by giving respondents a series of questions or written statements to answer. (Sugiyono, 2018). The semantic differential scale, namely the attitude measurement scale, is arranged in a continuum with very positive answers on the right side of the line, and very negative answers on the left side of the line, or vice versa. The semantic differential scale contains a set of bipolar (two-pole) features such as: hot-cold. These bipolar characteristics have three basic dimensions of a person's attitude towards objects, namely:

- Potential is the physical power or attractiveness of an object.
- Evaluations are things that are favorable or unfavorable about an object.
- Activity is the level of movement of an object.

Data obtained through measurements with a differential semantic scale is interval data. The following is an example of using a differential semantic scale in Table 4:

I Leadership (X)	X2	0.255	0.987	Valid
	X3	0.256	0.980	Valid
	X4	0.251	0.983	Valid
Employee Work Productivity (Y)	Y1	0.205	0.972	Valid
	Y2	0.207	0.972	Valid
	Y3	0.206	0.970	Valid
	Y4	0.208	0.975	Valid
	Y5	0.204	0.970	Valid
Work Environment (Z)	Z1	0.337	0.980	Valid
	Z2	0.342	0.980	Valid
	Z3	0.341	0.984	Valid

Source: Data processed by researchers, 2024 (Using SmartPLS 3)

Discriminant Validity (Cross Loading)

Cross Loading Value Table

Indicator	Situational Leadership	Work environment	Employee work productivity
X.1	0.981	0.967	0.961
X.2	0.987	0.953	0.960
X.3	0.980	0.955	0.965
X.4	0.983	0.936	0.948
Y.1	0.942	0.951	0.972
Y.2	0.962	0.955	0.972
Y.3	0.942	0.963	0.970
Y.4	0.958	0.966	0.975
Y.5	0.933	0.948	0.970
Z.1	0.938	0.980	0.965
Z.2	0.963	0.980	0.965
Z.3	0.953	0.984	0.969

Source: Data processed by researchers, 2024 (Using SmartPLS 3)

cross loading values, each variable has a value of more than 0.7. This shows that the manifest variables in this study are able to explain the latent variables correctly and prove that all items are valid.

Composite Reliability

Table 6. Table of Composite Reliability and Cronbach's Alpha Values

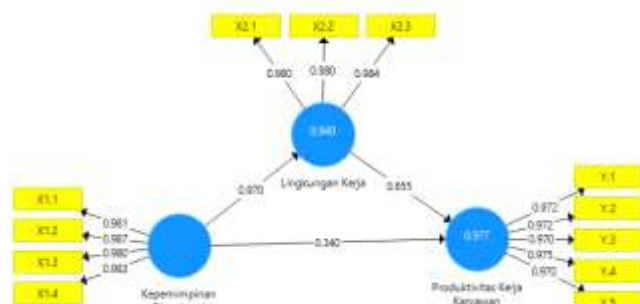
Variable	Composite Reliability	Cronbach's Alpha	Information
Situational Leadership	0.991	0.988	Reliable
Work environment	0.987	0.981	Reliable
Employee Work Productivity	0.988	0.985	Reliable

Source: Data processed by researchers, 2024 (Using SmartPLS 3)

Based on the test results in the table, the *composite reliability value* for the situational leadership variable is 0.991; the work environment variable is 0.987 and the employee work productivity variable is 0.988. Meanwhile, the *Cronbach's alpha value* for the situational leadership variable is 0.988; the work environment variable is 0.981 and the employee work productivity variable is 0.985. This means that all the variables above are said to be reliable because *composite reliability* is greater than 0.7 and *Cronbach's alpha* is greater than 0.6, so the questionnaire can produce stable or constant measuring results. In other words, stable and constant results indicate that the measurement instrument (questionnaire) can reliably produce comparable results both within a certain time period (stable) and between different items in the same instrument (constant). A composite reliability value greater than 0.7 and Cronbach's alpha greater than 0.6 indicates that the instrument has a high level of reliability so that the measurement results can be relied upon.

Structural Model (Inner Model)

After testing *the outer model*, the next step is to test *the inner model*. Inner model or structural model testing was carried out to see the relationship between constructs, significance values and *R square* of the research model.



Source: PLS version 3 processing results

The inner model can be evaluated with the Coefficient of Determination R^2 (*R-Square*), Predictive Relevance Q^2 (*Q-Square*) and *Goodness of Fit* (GoF).

Coefficient of Determination (R- Square) R^2

Table 7. R Square Value Table	
Variable	R. Square
Work environment	0.940
Employee Work Productivity	0.977

Based on the table above, the *R-square value* of the work environment variable is 0.940 or 94.0%. This value shows that 94.0% of work environment variables can be explained by

situational leadership. Meanwhile, the remaining 6.0% was influenced by other variables not included in the research. The R^2 value for the employee work productivity variable is 0.977 or 97.7%. This value shows that this variable can be explained by the situational leadership variable of 97.7%, while the remaining 2.3% is influenced by other variables not included in the research.

Predictive Relevance (Q- Square) Q^2

The next step in measuring the structural model is with *Predictive Relevance (Q- Square) Q^2* . *Q-Square* for structural models that measures how well the model produces values, as well as its parameter estimates. The model has predictive relevance if the *Q-square value* is > 0 , on the other hand, it shows that the model has less predictive relevance if the *Q-square value* is < 0 (Ghozali & Latan, 2015). The criteria for model strengths and weaknesses measured based on *Q-Square* are 0.35 (strong model), 0.15 (medium model) and 0.02 (weak model) (Ghozali & Latan, 2015). *Q-Square* calculations are carried out using the formula:

$$Q^2 = 1 - (1 - R^2_1) (1 - R^2_2)$$

2 in this study can be obtained as follows:

$$Q^2 = 1 - (1 - 0.940) (1 - 0.977)$$

$$Q^2 = 1 - (0.06) (0.023)$$

$$Q^2 = 1 - (0.00138)$$

$$Q^2 = 0.999$$

$$= 0.999 \times 100 = 99.9\%$$

From the results of Q^2 above, a value of 0.999 was obtained, which shows that the model has good predictive relevance because the value obtained is greater than 0 (zero). Thus it can be concluded that 99.9% of employee work productivity is influenced by situational leadership through the mediating variable of the work environment. Meanwhile, the remaining 0.01 or 1% is influenced by other factors not included in the research model.

Goodness of Fit (GoF)

The next evaluation of the structural model is by measuring *the Goodness of Fit (GoF) Index*, which is one of the PLS path modeling *indices*. Measuring the index at this stage results in the validity of a variable from exogenous variables and endogenous variables. *The Goodness of Fit (GoF) Index* in the book (Ghozali & Late, 2015) has three assessment categories, namely: 1) 0.1 for low GoF values, 2) 0.25 for medium GoF values, and 3) 0.36 for high GoF values. The following is the formula for the Goodness of Fit (GoF) Index, namely:

$$GoF = \sqrt{AVE \times R^2}$$

Table 8. Table of Average AVE and R- Square

	AVE	R- Square
Situational Leadership	0.966	
Work environment	0.963	0.940
Employee Work Productivity	0.944	0.977
Average	0.9577	0.9585

Source: Data processed by researchers, 2024

$$\text{Then } GoF = \sqrt{0.9577 \times 0.9585} = 0.9179555$$

From the results above, the GoF value is 0.918, which indicates a GoF higher than 0.36 as a requirement for a good instrument. The GoF value of 0.577 indicates that the data sample taken is in accordance with the model studied. From the R^2 , Q^2 , and GoF tests that have been carried out it can be seen that the model formed is strong, so hypothesis testing can be carried out.

Hypothesis Testing

The following are the coefficient results for each hypothetical path (Path Coefficients) and the T-Statistics values obtained from the SmartPLS bootstrapping output results:

Table 9. Table of T-Statistics Coefficients and Paths

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
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Situational Leadership -> Work Environment	0.970	0.970	0.009	108,127	0,00 0
Situational Leadership -> Employee Work Productivity	0.340	0.346	0.112	3,037	0.00 3
Work Environment -> Employee Work Productivity	0.655	0.649	0.110	5,977	0,00 0
Situational Leadership -> Work Environment -> Employee Work Productivity	0.635	0.630	0.106	5,980	0,00 0

The following are the results of testing the profit hypothesis for each hypothesis based on the table:

The influence of situational leadership on the work environment produces a t-statistic of $108.127 > 1.98$. It can be concluded that situational leadership has a significant effect on the work environment at PT. Len Industri. Based on these results, H1, which suspects that situational leadership has a significant effect on the work environment, **can be accepted**. This means that situational leadership has a significant influence on the work environment at PT. Len Industri.

The influence of situational leadership on employee work productivity produces a t-statistic of $3.037 > 1.98$. It can be concluded that situational leadership has a significant effect on employee work productivity at PT. Len Industri. Based on these results, H2, which suspects that situational leadership has a significant effect on employee work productivity, **can be accepted**. This means that situational leadership has a significant effect on employee work productivity at PT. Len Industri.

The influence of the work environment on employee work productivity produces a t-statistic of $5.977 > 1.98$. It can be concluded that the work environment has a significant effect on employee work productivity at PT. Len Industri. Based on these results, H3, which suspects that the work environment has a significant effect on employee work productivity, **can be accepted**. This means that situational leadership has a significant effect on employee work productivity at PT. Len Industri.

The influence of situational leadership on employee work productivity through the work environment produces a t-statistic of $5.980 > 1.98$. It can be concluded that situational leadership has a significant effect on employee work productivity through the work environment at PT. Len Industri. Based on these results, H4, which suspects that situational leadership has a significant effect on employee work productivity, **can be accepted**. This means that situational leadership has a significant effect on employee work productivity through the work environment at PT. Len Industri.

The discussion in this thesis was carried out by researchers who used descriptive and associative research methods, namely purposive research methods to provide an overview and develop a company, especially regarding situational leadership and its influence on employee work productivity with the work environment as a link, which was then compiled, explained and then analyzed. come to a conclusion. Based on the conceptual framework explained by researchers in the previous discussion when analyzing the influence of situational leadership on employee work productivity with the work environment as a connecting variable and using analysis of the indicators which are components of all the variables studied and expressed in statements in the form of a questionnaire. Analysis was carried out by referring to mean and category values. The average respondent assessment score ranges from 1 to 10 consisting of the following five categories:

Range of Scale Categories/Score Scale	Interpretation Value
1.00-2.80	Very poor/Very low
2.81-4.60	Not good/Low
4.61-6.40	Fair/Moderate
6.41-8.20	Good/High

8.21-10.00	Very Good/Very High
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Situational leadership is based on the belief that each person can and wants to develop and that no one leadership style can best support development. Leaders must adapt their leadership style to the current situation. Situational leadership consists of four basic leadership styles, namely instruction, consultation, participation, and delegation. Through these four basic styles of situational leadership, leaders can choose the most appropriate way to lead followers through situations that arise in the company. To be able to find out the general picture of situational leadership at PT Len Industri, the researchers provided statements in the form of a questionnaire which was distributed to 220 employees of PT Len Industri.

Instruction in situational leadership involves flexibility and adaptability to respond to the dynamics that exist in a given situation. Leaders who apply this approach effectively will be able to optimize the performance and development of their team members. A description of the instructions can be seen with clear indicators of direction in assigning tasks given by the leader. Results of data processing from the responses to the instruction dimensions in situational leadership based on the results of a questionnaire on 220 respondents, the most dominant was in the clear range of nine (42.3%) regarding clarity of direction and assignment of tasks by the leader. This can be stated that employees receive clear directions and tasks from the leadership.

In situational leadership, consultation is about receiving and giving input. Leaders not only receive input with empathy, but also provide relevant input, ensuring that all voices are heard and valued. Therefore, consultation strengthens team commitment and enables leaders to make better decisions. The description of the consultation can be seen with indicators of two-way communication carried out by the leader. Data processing results from consultation dimension responses on situational leadership based on the results of a questionnaire on 220 respondents, it can be seen that the most dominant answer is in the very good range of ten (41.4%) regarding receiving input and receiving direction. This can be stated that employees receive input and at the same time receive excellent direction from the leadership.

Participation is an important role in situational leadership, participation opportunities give team members an active role in decision making and tasks, strengthening commitment and motivation. However, it also requires taking full responsibility for decisions and actions, creating an effective balance in achieving shared goals. The picture of participation can be seen using participation opportunity indicators. The results of data processing from responses to the participation dimension in situational leadership based on the results of questionnaires for 220 respondents, it can be seen that the most dominant answer is in the high range of nine (35.5%) regarding opportunities for participation and responsibility for receiving input and receiving direction. This can be stated that employees are given opportunities for participation and responsibility by the leadership.

Proper delegation allows for distribution of responsibilities over time based on individual skills. This not only increases responsibility but also facilitates skill development. However, the level of delegation must be adjusted to the situation. Sometimes leaders must maintain a higher level of control

depending on the speed of decision making or the level of risk. Therefore, leaders must be wise in determining when and to what extent to delegate authority, striking a balance between instilling trust in the team and maintaining necessary situational control. The description of delegation can be seen with the delegation intensity indicator. The results of data processing from responses to the delegation dimension of situational leadership based on the results of questionnaires on 220 respondents, it can be seen that the most dominant answer is in the high range of nine (35.5%) regarding the intensity of delegation of authority. This can be stated that leaders are able to determine when and to what extent to delegate authority to employees.

The work environment is a place to do work in accordance with a previously agreed work contract. Work environment factors influence the relationship to getting productivity support. A comfortable and conducive work environment creates awareness among employees and leaders, so both parties need to create that work environment. To get a general picture of the work environment at PT Len Industri, the researchers provided statements in the form of a questionnaire which was distributed to 220 employees of PT Len Industri. The results of data processing from responses to non-physical work environment dimensions in the work environment based on the results of questionnaires for 220 respondents, the most dominant answer was in the high range of nine (38.2%) regarding ease of communication with co-workers. It can be stated that ease of communication with colleagues in the company can create a good work environment. The results of data processing from responses to the dimensions of the physical work environment in the work environment based on the results of a questionnaire on 220 respondents, the most dominant answer in the first statement is in the very high range of ten (39.5%) regarding the breadth of time at work, and it can also be seen that the most dominant in the second statement is a very high range of ten (29.1%) regarding the family atmosphere in the workplace. It can be stated that free time at work and a family atmosphere in the workplace can have a big impact. Flexible hours can increase employee satisfaction and productivity, while a warm and inclusive atmosphere strengthens engagement and teamwork.

Knowledge is the key to understanding and progress. It includes information, skills and understanding gained through experience and education. Knowledge enables individuals to make decisions, solve problems and innovate. The picture of knowledge can be seen with indicators of orientation towards intelligence, thinking ability and mastery of knowledge. The results of data processing from the knowledge dimension responses to employee work productivity based on the results of a questionnaire on 220 respondents, the most dominant answer in the first statement is in the high range of nine (39.5%) regarding the ability to continue learning for employees, and it can also be seen that the most dominant in the second statement is a very high range of ten (36.8%) regarding making decisions effectively and rationally, in the third statement it can be seen that the most dominant answer is in the high range of nine (40.9%) regarding employee understanding of work.

Skills are human abilities to use their thoughts, ideas and creativity to change something or add more value, so that something has more meaningful value. Skills are an important aspect that includes various skills needed to increase efficiency and effectiveness in carrying out duties and responsibilities in the workplace. A description of skills can be seen with talent indicators in completing work. The results of data processing from the knowledge dimension responses to employee work productivity based on the results of questionnaires on 220 respondents, the most dominant answer in the first statement was in the high range of nine (32.7%) regarding suitability of talent to job. It can be stated that matching talent with work in the company will increase the company's operational efficiency because employees who work based on their talents and skills tend to be more productive because they feel more competent and motivated.

Attitude is a learned mental and emotional readiness that influences a person to respond consistently to certain objects, situations or events, both positive and negative. Attitudes are formed by personal experience, social influence and learning, and are influenced by cultural values and social norms. An overview of attitudes can be seen with indicators of employee attitudes at work. The results of data processing from responses to the attitude dimension on employee work productivity based on the results of a questionnaire on 220 respondents showed that the most dominant answer in the first statement was in the very high range of ten (32.3%) regarding pleasant attitudes towards work. This can be stated that employees have a positive attitude and are enthusiastic in completing tasks, resulting in increased productivity.

The Influence of Situational Leadership (X1) on the Work Environment (X2)

Hypothesis testing produces a t-statistic value of 108.127. Hypothesis testing between situational leadership variables and the work environment shows a value of $108.127 > 1.96$. Based on the results of hypothesis testing, it shows that there is a significant influence between situational leadership on the work environment.

The Influence of Situational Leadership (X1) on Employee Work Productivity (Y)

Hypothesis testing can produce a t-statistic value of 3.037. Hypothesis testing between situational leadership variables and employee work productivity shows a value of $3.037 > 1.96$. Based on the results of hypothesis testing, it shows that there is a significant influence between situational leadership on employee work productivity.

Influence of Work Environment (X2) on Employee Work Productivity (Y)

Hypothesis testing produces a t-statistic value of 5.977. Hypothesis testing between work environment variables and employee work productivity shows a value of $5.977 > 1.96$. Based on the results of hypothesis testing, it shows that there is a significant influence between the work environment on employee work productivity.

The Influence of Situational Leadership (X1) on Employee Work Productivity (Y) through the Work Environment (X2)

Hypothesis testing produces a t-statistical value of 5.980 in hypothesis testing between work environment variables on employee work productivity through the work environment as a mediating variable showing a value of $5.980 > 1.96$. Based on the results of hypothesis testing, it shows that there is a significant influence between the work environment on employee work productivity through the work environment. Based on this, it can be interpreted that this influence is not only direct, but also occurs through mediation mechanisms involving the work environment. This means that a good work environment will increase employee productivity both directly and indirectly. The work environment as a mediating variable means that changes or improvements to the work environment can increase or mediate a positive influence on employee productivity.

Limitation Of The Study

This research has several limitations that need to be acknowledged. First, this research was conducted at one state-owned company (PT Len Industri Persero) in the defense industry sector, thereby limiting the generalizability of the findings to other industries or companies. Specific organizational cultures and industry-specific factors may influence the results, thereby affecting the broader applicability of the results. Second, this research uses a quantitative approach using a questionnaire for data collection. This method relies on self-reported data, which can introduce biases such as social desirability bias or inaccurate self-assessment by respondents. This bias has the potential to affect the validity and reliability of the data collected, thereby causing inappropriate interpretations of the relationship between situational leadership, work environment, and employee productivity. In addition, the sample size of 220 respondents, determined using

the Slovin formula, although statistically significant, may not cover the full diversity of employee experiences and perceptions at the company. This can limit the depth of insight regarding the differences in the influence of situational leadership and the work environment on productivity in various departments and roles at PT Len Industri. This research also utilizes Structural Equation Modeling (SEM) with PLS software for data analysis. Although SEM is a powerful analytical tool, it assumes linear relationships and may not fully capture the complexity and potential non-linear interactions between variables. Additionally, the cross-sectional study design provides a snapshot at one point in time, which limits the ability to draw conclusions about the long-term impact of situational leadership on productivity. Finally, focusing on situational leadership and work environment as primary variables may ignore other important factors that influence productivity, such as individual employee characteristics, team dynamics, or external economic conditions. Future research may benefit from a more comprehensive model that includes these additional variables to provide a more holistic understanding of the determinants of employee productivity. In conclusion, although this study offers valuable insights into the role of situational leadership and the work environment in increasing employee productivity at PT Len Industri (Persero), these limitations highlight the need for careful interpretation of the findings and provide directions for future research. and expand the scope and depth of this research.

Conclusions And Suggestions

Based on the results of PLS analysis using SmartPLS and the discussion explained in the previous chapter, it shows that all hypotheses are accepted, or in other words there is a significant influence between the independent variables and the dependent variable. Conclusions that can be drawn from the results of the analysis are:

Situational leadership has a significant positive influence on employee work productivity. This means that leaders who are able to adapt their leadership style according to the situation and needs of their individual or team tend to be able to increase employee work productivity.

Situational leadership has a significant positive influence on the work environment. This means that when leaders are able to adapt their leadership style to the specific situation and needs of a team or individual, they can create a better work environment.

The work environment has a significant positive influence on employee work productivity. This means that a good and conducive work environment can increase employee productivity.

Situational leadership has a significant positive influence on employee work productivity through the work environment. This means that leaders who are able to adapt their leadership style to the situation and needs of the team or individual can create a better work environment. This good work environment, in turn, increases employee productivity. So, the positive influence of situational leadership on employee productivity occurs because this leadership creates supportive working conditions, which then motivates employees and improves their performance.

Suggestion

Researchers will provide recommendations that can be used as input for better results based on research findings, analysis and discussion. The researchers break down these recommendations into direct theoretical and practical recommendations, specifically as follows:

Theoretical

Researchers hope that research on the influence of situational leadership on employee work productivity with the work environment as a connecting variable can provide insight into the state of business as a place to apply the knowledge gained during college.

Practical

For Companies

Companies are advised to conduct situational leadership training for leaders and managers. In addition, companies need to regularly assess employee needs and conditions to create a supportive work environment, both physically and psychologically. Encouraging flexibility in leadership styles and work policies, as well as providing autonomy and empowerment to employees is also important. Finally, regular monitoring and evaluation of leadership effectiveness and the work environment must be carried out to continue to improve organizational performance.

For Other Parties

Researchers hope that this research can be used as reference material for conducting research in the field of management science, especially human resource management. It is also hoped that we can look for broader variables in conducting research with a similar theme.

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