

# The Effect of Organisational Restructuring and Work Motivation on Employee Performance Moderated by Workforce Agility at the Regional Secretariat of NTB Province

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# Abstract

This study examines the effect of organisational restructuring and work motivation on employee performance at the Regional Secretariat of NTB Province. And how moderating factors in the form of workforce agility can moderate the relationship between variables. This research focuses on employees in the Regional Secretariat of NTB Province. The number of respondents in this study were 81 people. The method used in this research is associative quantitative method. This study uses a closed questionnaire with a Likert scale of one to five distributed using the google form application. The data was processed and analysed using the Smart-PLS version 3.2.7 application. The results in this study indicate that organisational restructuring has a positive and significant effect on employee performance. Work motivation also has a positive and significant effect of organisational restructuring on employee performance or the effect of work motivation on employee performance.

**Keywords:** Organisational Restructuring; Work Motivation; Employee Performance; Workforce Agility; Regional Secretariat

# Introduction

The quality of an organisation's human resource management (HRM) will be reflected through performance starting from the individual employee level to collective performance at the work group level and the organisation as a whole. According to Mangkunegara, (2017) states employee performance as a quality and quantity of work achieved by an employee in carrying out his duties in accordance with the responsibilities given to him. according to Hewett *et al*, (2018; Diamantidis & Chatzoglou, 2019) Employee performance is an important factor that determines organisational performance, this confirms that the effect of employee performance at the individual level can have an impact on overall organisational performance.

The Regional Secretariat of West Nusa Tenggara Province as a government agency is still experiencing performance quality problems, this is indicated by data where the performance of employees still shows fluctuations in the last 5 years. This causes inconsistencies in the agency's performance

achievements and needs to be addressed immediately for the realisation and achievement of more optimal targets.

In general, performance is influenced by two things, namely, internal factors related to individual psychology and external factors related to things outside the individual such as the work environment, work system, and interpersonal relationships between individuals in the organisation. One form of predictor of external factors that determine performance is organisational restructuring.

According to Sedermayanti, (2000) suggests that restructuring efforts in an organisation can be carried out through management efforts by *reorganising* or *reengineering* so that the organisation or company can adapt to environmental changes, so that the company will survive. The purpose of restructuring according to Gouillart & Kelly, (1995) is "Preparing the organisation to be able to achieve an optimal level of competence and competitive ability.

Several previous studies have examined the effect of organisational restructuring on performance such as those conducted by Jillyta *et al.*, (2019) and Isnaeni, (2022) state that organisational restructuring can improve employee performance where the findings show that organisational restructuring has a positive and significant effect on employee performance. Different findings are shown by Mathisen *et al.*, (2023) and Frone & Blais, (2020) stating that organisational restructuring has had a negative impact on work environment conditions such as the emergence of negative employee perceptions of change (restructuring and hiring) which may have a domino effect such as a decrease in employee performance and the organisation as a whole.

Another predictor that can affect the level of employee performance is work motivation which is an internal factor of employees. According to Purnama (2018), work motivation is a psychological state and human mental attitude that provides energy, encourages activities or moves and leads / guides behaviour towards achieving needs that provide satisfaction or reduce imbalance. According to Hong, *et al.*, (2015) employee performance is an indicator of the success of an organisation.

Several previous studies have examined the effect of work motivation on performance such as those conducted by Aidan, *et al.*, (2018) which revealed that there is a positive relationship between work motivation and employee performance. The results of Muduli's research (2016) also revealed that work motivation and employee performance have a positive and significant relationship. The results of Nabatchian's research, *et al.*, (2016) also state that work motivation has a positive and significant impact on employee performance. However, different results with the findings of Saleem & Amin (2013) and Lecat *et al.*, (2018) state that work motivation does not have a positive and significant impact on employee performance.

Based on the findings of previous studies that still show inconsistencies in results, this study tries to validate the results of previous findings and involve *workforce agility* as an intermediate variable in the influence of organisational restructuring and work motivation on performance because the content related to *workforce agility*, especially associated with employee performance, has not been widely discussed and still holds research gaps that have not been explored by previous research. The idea of *workforce agility is* discussed as a key issue for creating *organisational agility to* achieve superior environmental responsiveness in the context of turbulence and change (Benitez-amado, 2015). According to Sherehiy & Karwowski, (2014) clearly define *workforce agility* or agile behaviour as observable behaviour in the workplace where various aspects of agile workforce performance are grouped into three main dimensions: proactiveness, adaptiveness, and resilience.

### Literature Review

# **Organisational Restructuring**

According to Sedermayanti (2000), restructuring efforts in an organisation can be carried out through management efforts by *reengineering*. In line with this, Robbins (2008) defines organisational restructuring as a process of redesigning or rearranging the existing bureaucratic order. Meanwhile, according to Handoko (2006), organisational restructuring or organisational design can be defined as the formal mechanisms by which organisations are managed where the organisational structure shows the framework and arrangement of the manifestation of a fixed pattern of relationships between functions, parts or positions as well as people who show, different tasks of authority and responsibility in an organisation. According to Gitosudarmo (2001), organisational structure is related to the relatively fixed relationship between the various tasks that exist in the organisation where the process of creating the structure, and making decisions about alternative structures is called organisational design.

### **Work Motivation**

Work motivation theory studies psychological explanations of what motivates people in organisations (McKenna and Beech, 2002). According to Aidan, *et al* (2018), work motivation is something that creates work enthusiasm or drive. Work motivation as a driver of work enthusiasm. The strength and weakness of a work motivation of a workforce also determines the size of his achievements. Meanwhile, according to Mangkunegara, (2017) work motivation is a condition (energy) that moves within individuals who are directed to achieve organisational goals. According to Suryatni et al., (2023) work motivation plays a key role in determining the level of productivity and achievement of employee performance where employees who have high motivation will show good performance quality and vice versa.

### **Employee Performance**

Performance is the level of employee achievement of job requirements efficiently and effectively (Simamora, 2006). This explains employee performance as a work achievement, which is a comparison between the results of work that can be seen in real terms with the work standards set by the organisation. Then Robbins (2008) defines performance as a result achieved by employees in their work according to certain criteria that apply to a job. Magnier-Watanabe *et al.* (2020), said that employee performance is the result of the implementation of tasks and activities carried out.

# Workforce Agility

Workforce agility is the ability to act in a competitive environment due to constant change (Muduli 2016). Meanwhile, according to Isnaeni (2022), workforce agility is related to the ability for rapid response from individuals to market changes when operating in an increasingly competitive environment. Zhang & Sharifi (2000) suggest that workforce agility is a set of capacities possessed by individuals to identify and utilise opportunities in the face of difficult situations. Sherehiy & Karwowski, (2014) clearly define workforce agility or agile behaviour as observable behaviour in the workplace where various aspects of agile workforce performance are grouped into three main dimensions: proactive, adaptive, and resilience. The proactive dimension refers to "situations when a person initiates activities that have a positive effect on environmental change. The adaptive dimension is based on "changing or modifying oneself or one's behaviour to better fit the new environment. The Resilience dimension describes the ability to function efficiently under stress.

# **Conceptual Framework**

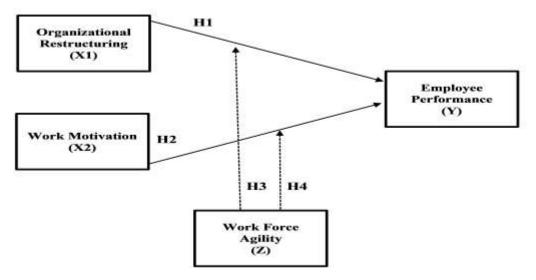


Figure 1. Conceptual Framework

# Hypothesis

H1: Organisational restructuring has a positive and significant effect on employee performance.

H2: Work motivation has a positive and significant effect on employee performance

H3: Workforce agility moderates the effect of organisational restructuring on employee performance.

H4: Workforce agility moderates the effect of work motivation on employee performance

# Methods

This research uses associative quantitative methods. This research focuses on employees of the Regional Secretariat of NTB Province who are affected by organisational restructuring. Respondents in this study totalled 81 employees. The data collection tool is a closed questionnaire distributed using the google form application. The scale used to score each item in the research statement is a Likert scale worth 1 to 5. After tabulating the questionnaire data, it is processed using the Smart-PLS version 3.2.7 application. The following are the characteristics of the respondents shown in the table below:

Table 1	. Majority	of Respondents
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Characteristics	Category	Frequency	Percentage
Gender	Women	52 People	64,20%
Age	50-60 Years	48 People	59,26%
Education	S1	54 People	66,67 %
Marital Status	Married	81 People	100 %
Monthly Income	IDR. 5,000,000 - IDR 10,000,000	65 People	80,25 %
Length of Service	16-25 years old	42	52%

Based on the table above, it can be seen that the majority of respondents in this study were women as many as 52 people or 64.20%. In addition, when viewed from the most age in the range of 50-60 years. The average education of respondents is strata 1. The average marital status is married with an income between IDR. 5,000,000-10,000,000 and a very long working period of 16-25 years.

# **Results and Discussion**

# Results

# Validity Test Results

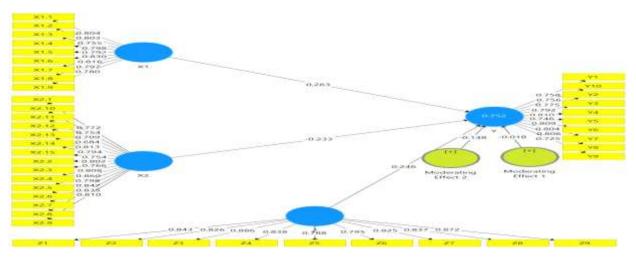


Figure 2. Outer Loading Test

Based on the picture above, it can be seen that all outer loading values of all variables are declared valid because the value is> 0.7. After testing the outer loading, the next stage is to test AVE, Croncbach' alpha and composite reliability.

# **Reliability Test Results**

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
X1	0.934	0.944	0.654
X2	0.957	0.961	0.625
Y	0.944	0.952	0.665
Z	0.951	0.958	0.717

Table 2. Test AVE, Cronbach's Alpha and Composite Reliability

Based on the table above, it can be seen that the AVE value of all variables is> 0.50 so that it is declared valid. In addition, the Cronbach's alpha and composite reliability values for each variable are> 0.7 so that they are declared reliable or have good reliability.

# **R-Square Test Results**

Table 3. R-Square Test Results			
	R Square		
<b>Employee Performance (Y)</b>	0.890		

Based on the table above, it can be seen that the *output* result of the *R-Square* value of employee performance is 0.890. These results indicate that the construct variables of organisational restructuring, work motivation and workforce agility can explain the variability of employee performance constructs by 89%, while the remaining 11% is influenced by other factors that are not included in this research variable.

# **Hypothesis Test Results**

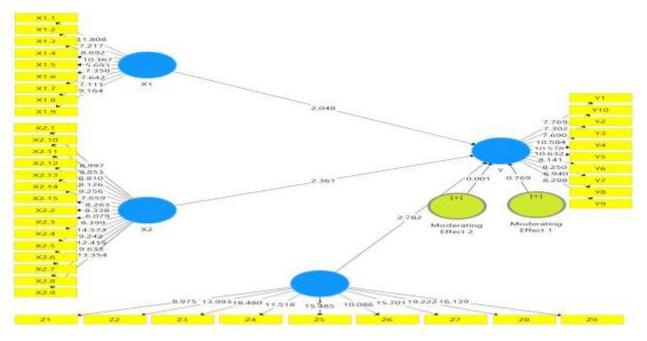


Figure 3. Boostrapping test

Table 4.	<b>Hypothesis</b>	Testing or	Boostrapping	2 Results
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Hypothesis	Influence between Variables	Original Sample	t-Statistics	P Values	Description
H1	X.1 -> Y	0.210	2.048	0.041	Accepted
H2	X.2 -> Y	0.217	2.361	0.019	Accepted
H3	Moderating Effect 1 -> Y	0.095	0.769	0.442	Rejected
H4	Moderating Effect 2 -> Y	0.000	0.001	0.999	Rejected

Based on the table above, it can be seen that H1 and H2 are accepted because the t-statistcs value> 1.96 and the p-value> 0.05. Conversely, H3 and H4 are rejected because the values do not meet the standard.

#### Discussion

### The Effect of Organisational Restructuring on Employee Performance

Based on the results of the first hypothesis test (H1), it shows that there is a significant positive effect of organisational restructuring on the performance of employees of the Regional Secretariat of NTB Province, which means that (H1) is proven. The findings in this study indicate that the restructuring strategy carried out by the Regional Secretariat of NTB Province has an impact on improving employee performance. This can be seen from the employees feeling that their tasks are in accordance with their competence. In addition, employees experienced an increase in productivity levels during restructuring. Organisational restructuring has encouraged the process of teamwork where employees find it easier to cooperate with other colleagues to complete the tasks they have.

One of the factors that determine the level of performance according to Nogi (2005) is the organisational structure in accordance with the vision of the organisation and the human resources they have. Robbins, (2008) defines organisational restructuring as a process of redesigning or rearranging the existing bureaucratic order when there are dynamics in the environment both internally and externally.

According to Magnier-Watanabe *et al.* (2020), said that employee performance is the result of the implementation of tasks and activities carried out by employees in carrying out their roles for the organisation. Fahmi (2016), emphasizes the definition of performance as a result obtained by an organisation that is *professional oriented* and *non-oriented* produced during one period of time. The findings of this study are in line with several previous studies such as those conducted by Isnaeni (2022) and Gouillart and Kelly (2015) which state that organisational restructuring has a positive and significant impact on employee performance.

#### The Effect of Work Motivation on Employee Performance

Based on the results of the first hypothesis test (H2) shows a significant positive effect of work motivation on the performance of employees of the Regional Secretariat of NTB Province. This means that (H2) is proven. The research findings show that the employees of the Regional Secretariat of NTB Province have high work motivation. This can be seen from the attitude of employees who have high responsibility for work, roles, and duties. Further findings show that employees have an adaptive attitude towards change which illustrates their commitment and dedication to the organisation. Through this high motivation, it will encourage their productivity in completing tasks and responsibilities such as by collaborating or cooperating with their colleagues which will have an impact on the efficiency of processing time and will ultimately improve performance both at the individual and organisational levels.

According to George & Jones (2005) "work motivation can be defined as a psychological drive to a person that determines the *direction of a* person's behaviour in the organisation, the *level of effort*, and the level of *persistence*". The existence of high work motivation in employees can produce good employee performance. Employee performance is an indicator of the success of an organisation (Hong & Kim, (2018).

According to Magnier-Watanabe *et al.* (2020), said that employee performance is the result of the implementation of tasks and activities carried out by employees in carrying out their roles for the organisation. Fahmi (2016) emphasizes the definition of performance as a result obtained by an organisation that is *professional oriented* and *non-oriented* produced during one period of time. The findings of this study are in line with several previous research findings such as those conducted by Aidan, *et al.*, (2018), Muduli (2016), and Nabatchian, *et al.*, (2016) which state that work motivation has a positive and significant effect on performance.

#### Workforce Agility Moderates the Effect of Organisational Restructuring on Performance

Based on the results of the first hypothesis test (H3) shows that Workforce Agility is not able to moderate the relationship of organisational restructuring to the performance of employees of the Regional Secretariat of NTB Province. This means that (H3) is not proven. The research findings show that employees have high Workforce Agility which is caused by having adaptability, a high spirit of innovation, and also high work maturity, conditions that make employees have a broad understanding of the work environment and the ability to provide positive responses. However, although the findings of this study show that employees have high Workforce Agility, it is not able to moderate the effect of organisational restructuring on employee performance.

Based on the perspective of the three dimensions of Workforce Agility from Sherehiy & Karwowski, (2014) namely proactive, adaptive, and resilience, employees only show their Workforce Agility capacity in only two dimensions, namely, proactive and adaptive abilities. However, related to the resilience dimension, the findings were not able to clearly reveal how employees maintain their performance levels, especially in situations of organisational changes such as the restructuring steps taken by the Regional Secretariat of NTB Province. The findings of this study do not support the findings of previous research conducted by Chung, et al., (2019) which states that employee agility in responding to work environment conditions that experience changes can strengthen the relationship of change processes to improve organisational performance.

# Workforce Agility Moderates the Effect of Work Motivation on Performance

Based on the results of the first hypothesis test (H4) shows that Workforce Agility is not able to moderate the relationship of work motivation to the performance of employees of the Regional Secretariat of NTB Province. This means that (H4) is not proven. The research findings show that the employees of the Regional Secretariat of NTB Province have high Workforce Agility, one of which is their readiness to face changes in tasks and their willingness to adapt to existing changes. In addition, employees also have high readiness and ability, especially when faced with problems related to completing their tasks.

Although the employees of the NTB Provincial Secretariat showed high Workforce Agility, it was not able to have a moderating effect on the effect of work motivation on their performance. This result allows the role of other variables that may moderate the effect of work motivation on employee performance such as commitment to the organisation and their attitude towards the changing situation in the organisation. Based on the findings related to the moderating role of workforce agility on the effect of work motivation on employee performance which shows insignificant results, this study does not support previous research conducted by Raut, et al., (2022) and Hosein, (2012) that workforce agility moderates the relationship between motivation and performance.

#### **Conclusions and Suggestions**

Based on the analysis that has been carried out, this study answers the inconsistencies in the results of previous studies. So that this *research is* expected to fill the *research gap* or *research gap of* previous research, the conclusions of this study can be drawn as follows: Organisational restructuring has a positive and significant effect on employee performance at the Regional Secretariat of NTB Province. The findings in this study state that the majority of employees feel that the restructuring has resulted in the tasks assigned after restructuring in accordance with their competencies. so that this can improve performance such as the willingness and ability to align the attitudes and actions of civil servants to achieve organisational goals. Work motivation has a positive and significant effect on employee performance. The research findings show that the employees of the Regional Secretariat of NTB Province have high work motivation. This can be seen from the attitude of employees who have high responsibility for work so that it can lead to good performance as well. Work force agility is not able to moderate the

effect of organisational restructuring on performance. This means that even though the workforce agility of employees tends to be high, it cannot strengthen the effect of organisational restructuring on employee performance. This is because the average employee has a long working period so that he has been able to deal with various changes and new tasks well so that he will continue to improve his performance. Work force agility is not able to moderate the effect of work motivation on employee performance at the Regional Secretariat of NTB Province. This means that even though the workforce agility of employees is in a high category, it is not able to strengthen the influence of work motivation on employee performance. This happens because each employee already has a commitment in his job so that he can strengthen his motivation and lead to increased performance.

The suggestion in this study is that the organisational restructuring applied to the Regional Secretariat of NTB Province is already in the effective category. This means that it can still be improved so that the division of tasks and authority can be carried out properly according to the abilities and capacities possessed by each employee to achieve organisational goals and by providing various trainings to increase the capacity possessed by employees. Work motivation owned by employees of the Regional Secretariat of NTB Province is already in the high category. This means that it can be improved by providing social support in the workplace to strengthen personal relationships or various encouragement that is positive so that it can improve the performance of employees. This can be done by giving awards or various forms of appreciation in work that can increase the motivation possessed by employees, besides that it can be done with activities outside office hours such as gathering and outbound activities. Workforce agility owned by employees of the Regional Secretariat of NTB Province is included in the good category. This means how an agency is able to direct employees to have agility and agility which is expected to have high initiation in completing work on time. This can be done by providing socialisation and training to form workforce agility at work.

# References

- Aidan, Alibabaei & Hassan, (2018). Identify the Relationship between Employer Brand Attractiveness, Job Satisfaction, Organizational Commitment and Workforce Agility in Telecom Industries based on Structural EquationModeling (SEM) (Case Study: Huawei Technologies Service Iranian). *Journal of Ecophysiology and Occupational Health, Vol* 18(1&2), DOI 10.18311/jeoh/2018/21068, p. 6-11.
- Benitez-amado, J., Llorens-montes, F., & Fernandez-perez, V. (2015). IT Impact On Talent Management and Operational Environmental Sustainability. *Information Technology and Management*, 16(3), 207-220.
- Chung, T.-T., Liang, T.-P., Peng, C.-H., Chen, D.-N., & Sharma, P. (2019). Knowledge Creation and Organizational Performance: Moderating and Mediating Processes from an Organizational Agility Perspective. AIS Transactions on Human-Computer Interaction, 79–106. https://doi.org/10.17705/1thci.00114.
- Diamantidis, A.D. and Chatzoglou, P. (2019), —Factors affecting employee performance: an empirical approach<sup>II</sup>, *International Journal of Productivity and Performance Management*, Vol. 68, No. 1, pp. 171-193.
- Fahmi, Irham. (2016). Analisa Kinerja Keuangan. Bandung: Alfabeta.
- Frone, M. R., & Blais, A.-R. (2020). Organizational Downsizing, Work Conditions, and Employee Outcomes: Identifying Targets for Workplace Intervention among Survivors. International Journal of Environmental Research and Public Health, 17(3), 719. doi:10.3390/ijerph17030719.

- George, J. M., & Jones, G. (2005). *Understanding and managing organizational behavior*. New Jersey: Upper Saddle River.
- Gitosudarmo, Indriyo, (2001). ManajemenStrategis. Yogyakarta: BPFE.
- Gouillart dan Kelly (2015), Transforming the Organization, Mc Graw Hill, NewYork USA.
- Handoko, T. Hanny, (2006). ManajemenPersonaliadanSumberDayaManusia. Yogyakarta: BPFE.
- Hong, A. J., & Kim, H. J. (2018). College Students' Digital Readiness for Academic Engagement (DRAE) Scale: Scale Development and Validation. Asia-Pacific Education Researcher, 27(4), 303–312. https://doi.org/10.1007/s40299-018-0387-0.
- Hosein, Z. Z. (2012). The role of emotional intelligence on workforce agility in the workplace. *International Journal of Psychological Studies*, 4(3), 48.
- Isnaeni, Etik (2022) Pengaruh Job Satisfaction Dan Employee Engagement Terhadap Workforce Agility Serta Dampaknya Pada Kinerja Pegawai (Sensus pada Pegawai Non Struktural BPS di Priangan Timur). Pascasarjana thesis, Universitas Siliwangi.
- Jillyta., Sendow, G. M., & Pandowo, M. H. (2019). Pengaruh Restrukturisasi Organisasi, Employee Engagement, Kepuasan Kerja Terhadap Kinerja Karyawan PT. Jasa Raharja Sulut. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi*, 7(4).
- Lecat, A., Beausaert, S., & Raemdonck, I. (2018). On the Relation Between Teachers' (In)formal Learning and Innovative Working Behavior: the Mediating Role of Employability. Vocations and Learning, 11(3), 529–554. https://doi.org/10.1007/s12186-018-9199-x.
- Magnier-Watanabe R., Uchida T., Orsini P., Benton Caroline F. (2020). —Organizational virtuousness, subjective well-being, and job performance: Comparing employees in France and Japanl, Asia-Pacific Journal of Business Administration, Vol. 12 No. 2, pp. 115-138.
- Mangkunegara, A. P. (2017). Evaluasi Kinerja SDM. Bandung: PT Refika Aditama.
- Mathisen, G. E., Tjora, T., Bergh, L. I. V., Jain, A., & Leka, S. (2023). The differential impact of organizational restructuring and downsizing on the psychosocial work environment and safety climate in the petroleum industry. *Safety Science*, 166. https://doi.org/10.1016/j.ssci.2023.106255.
- McKenna, E. & Beech, N. (2002). *The Essence of Human Resource Management*. Yogyakarta: Andi Ofset dan Pearson Education Asia.
- Muduli, A. (2016). Exploring The Facilitators and Mediators of Workforce Agility an Empirical Study. *Management Research Review*, 39(12), 1567-1586.
- Nabatchian, G., Moosavi, S. J., & Safania, A. M., 2014. Reviewing the Relationship between Organizational Agility & Job Satisfaction Staff in the Ministry of Youth Affairs and Sports Iran. *International Journal of Modern Communication Technologies & Research* (IJMCTR) ISSN: 2321-0850, Volume-2, Issue-2, Februari 2014 p. 10-13.
- Nogi, H. (2005). Manajemen Publik. Jakarta: PT Gramedia. 71 Peraturan Gubernur Daerah Istimewa Yogyakarta Nomor 39 Tahun 2011 tentang Tata Naskah Dinas.
- Purnama, R. (2018). Penagaruh Motivasi Terhadap Produktivitas Pegawai Produksi CV . Epsilon Bandung. Jurnal Strategic, 7(14), 58–82. https://doi.org/10.1109/IGARSS.2013.6723489.

- Raut, P. K., Das, J. R., Gochhayat, J., & Das, K. P. (2022). Influence of workforce agility on crisis management: Role of job characteristics and higher administrative support in public administration. *Materials Today: Proceedings*, 61, 647–652. https://doi.org/10.1016/j.matpr.2021.08.121.
- Robbins, Stephen P., (2008). Perilaku Organisasi (alih bahasa Drs. Benjamin Molan), Edisi Bahasa Indonesia, PT Intan Sejati, Klaten.
- Saleem, S., & Amin, S., (2013). The Impact of Organizational Support for Career Development and Supervisory Support on Employee Performance: An Empirical Study from Pakistani Academic Sector. *European Journal of Business and Management*, 5(5), 194-207.
- Sedarmayanti, (2000), Restrukturisasi dan Pemberdayaan Organisasi untuk Menghadapi Dinamika Perubahan Lingkungan, Bandung, Masdar Maju
- Sherehiy, B., & Karwowski, W. (2014). The relationship between work organization and workforce agility in small manufacturing enterprises. *International Journal of Industrial Ergonomics*, 44(3), 466–473. https://doi.org/10.1016/j.ergon.2014.01.002.
- Simamora, H., (2006). Manajemen Sumberdaya Manusia. Yogyakarta: Sekolah Tinggi Ilmu Ekonomi YKPN.
- Suryatni, M. Suarmini, I. G. A. M., & Nururly, S., (2023). Pengaruh Kemampuan Kerja, Motivasi Kerja Dan Disiplin Kerja Terhadap Kinerja Karyawan Pd Indah Permai Group Kota Mataram. Jmm Unram-Master Of Management Journal, 12(4), 388-399.

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