

Analysis of the Relationship of the Role of Organizational Support, Work Engagement on the Success of the Mh02 Driving Monitoring System in Coal Mining

Bagus Pranugroho¹, Miftachudin¹, Aprian Krisna Bakti¹, Ahmad Syamil²

Magister Management Program, BINUS Business School Bina Nusantara University, Jakarta 10270, Indonesia¹

Magister Manajemen Binus University, Bandung, Indonesia²

Corresponding Author*: bagus.pranugroho@binus.ac.id , miftachudin@binus.ac.id ,
aprian.bakti@binus.ac.id , asyamil@binus.edu

ABSTRACT

Purpose: This research proposes to examine the role of organizational support, work engagement between and MH02 technology in coal mining

Design/methodology/approach: The quantitative research technique is referred to as the research method. The target of this research is PT. Pamapersada Nusantara, and the research sample, which consists of 279 respondents, refers to the structural equational modelling model

Findings: The findings demonstrated that the respondents believed that each and every hypothesis had been confirmed.

Research limitations/implications: This study only focused on analyzing the relationship between the role of organizational support and work engagement which is linked to the successful implementation of the MH02 driving monitoring system technology in coal mining. Other factors, such as performance expectancy, effort expectancy, social influence, facilitating conditions, are not explored in depth. It is important for future research to investigate these additional factors and their potential impact on job performance at Pamapersada Nusantara. Despite these limitations, this research contributes to the understanding of factors influencing work performance in the mining industry and provides insights for practitioners to develop effective interventions to improve work performance among employees.

Practical implications: The managerial implications of this research are that companies can increase job satisfaction and work engagement, improve employee performance, achieve their goals, and gain competitive advantage. To support this, PAMA management facilitates the implementation of MH02 technology at the site BRCB (Berau coal site Binungan). This technology is really needed so that incidents and fatigue symptoms can be reduced and detected earlier, so that with reduced incidents the company's performance will increase.

Originality/value: This report originates from research conducted inside a single mining business

Paper type: Research paper

Keyword: Organizational support, Work engagement, Driving monitoring system, User satisfaction, Net benefit

Received : October 6th

Revised : December 18th

Published : January 31th

I. INTRODUCTION

In the implementation of a system, if the organization provides support to employees for their tasks, the employees will enjoy their work and improve performance through the use of the new system. In addition, when employees feel the same connection with their job or workplace. In mining activities, operators have the potential for high levels of fatigue because production activities are carried out 24 hours and are divided into 2 shifts. In anticipation of accidents caused by fatigue, PT Pamapersada Nusantara is currently developing technology in the unit cabin that can detect indications of operator fatigue when operating the unit. The technology in question is

DMS/MH02 (Driving Monitoring System / Mata Hati 2). Basically, engaged employees do better because they feel more connected to the company as a whole. This journal proposes an integrated model to measure and validate the success factors of user involvement in information system development DMS/MH02.

A. Problem Statement

The development of technology and information systems has become widespread and is considered important in all fields. Information systems have developed rapidly and have diverse applications. Meanwhile Al Moghrabi (2002) calls this system one of the most successful means of facing the challenges of the times because it is all integrated activities aimed at obtaining information and knowledge through technological means for managers to make different location decisions. However, despite the technological advances of a system, it is still necessary to evaluate perceived use, user satisfaction and net benefit. Therefore, attention is paid to the users of information systems, and organizations must proceed in parallel lines when developing and implementing appropriate information. And attention to information technology users (Msallam, A. A. et al., 2019).

The company will continue to improve its image with its customers and increase satisfaction with services and prices by improving the quality of its services and increasing the efficiency of employee performance, one of which is by improving integrated information/technology systems. This system is the pillar of procedure development. Employee performance and increase in functional abilities, and influence the behavior of individuals and work groups to create performance results that are consistent with the company's corporate goals, and provide workers with the ability to achieve the tasks and obligations assigned to them and develop their ability to assume additional responsibilities to achieve a high level job satisfaction, adapting to the work environment, and thus being able to explore the elements of human performance in terms of efficiency and productivity, which are reflected in having an impact on overall organizational effectiveness (Msallam, A. A. Et al., 2019).

In implementing a system, if the organization provides sufficient support to employees for their tasks, employees will enjoy their work more and improve their performance through the use of the new system (Lee, D.H. Et al, 2010). According to Abusamhadhana G.A.O., et al. (2019) user work engagement combines user participation and user involvement factors. It shows the behavior and psychological activities of the users involved during the development of an information system. Several previous studies claim that these two factors contribute positively to the success of information systems. However, in general there is still no understanding in the literature regarding the measurement and validation of the influence of these two factors.

Work engagement occurs when employees feel a shared connection with their work or workplace. Basically, engaged employees perform better because they feel more connected to the company as a whole. Companies have begun investing in various types of benefits in an effort to engage their employees. However, employee involvement is often forgotten when there is a system development project within the company, such as when implementing the DMS/MH02 system.

Organizational Support and Work Engagement are vital factors in the implementation of DMS/MH02, because basically we need to develop strategies to ensure that employees are informed about the implementation of the system, how the changes affect their jobs specifically, and the expectations of the organization.

In this journal, we propose an integrated model to measure and validate success factors for user involvement in information system development DMS/MH02.

C. Literature Review

1. Fatigue

Fatigue is a symptom that often appears in various activities and especially in jobs that rely on the physical condition of workers. The Centers for Disease Control and Prevention in the United States (CDC, 2015) estimates that one in three adults does not get enough sleep, labeling fatigue a public health problem.

In an investigative study of hauling truck accidents from 2010-2014 in open-pits in Kalimantan, it was found that there were several contributing factors, namely lack of visibility, road conditions, operator behavior, operational conditions and weather conditions (Sudiyanto et al., 2018). Fatigue is a combination of several symptoms that can reduce work performance, such as lack of attention, slow response times, errors in decision making, poor performance in jobs that require skills and an increase in a person's chances of falling asleep (Energy Institute, 2014).

2. Driving Monitoring System Mata Hati 02 (DMS MH02)

According to research by Kong et al (2015), there is a lot of research that focuses on imaging and computer vision data processing by using detectors for the condition of the eyes when they are closed or vice versa (eye blinking detection) and identifying the condition of a person when driving a device when it is not yawning or vice versa (mouth detection) according to research by Gu&Ji (2004) using a fatigue detector by identifying facial movements of the driver.

There are several causes of signs of fatigue in workers (Talebi et al., 2021), and this has a negative effect on endurance and safe operations for operators in mining. Percentage of Eye Closure (PERCLOS) is a common practice. However, the activities and conditions at home or in the work area also greatly influence the physical endurance of heavy dump truck operators. The PERCLOS system does not assess and include this aspect in the fatigue algorithm aspects that appear. Due to the limitations of the PERCLOS system, it would be interesting if it were also studied using activity or workload factors as well as environmental conditions.

Existing literature argues that the usability of an information/technology system can be measured by the extent to which an individual uses, with some frequency, nature and duration, the entire spectrum of features provided by the system (Aldholay et al., 2018). In the journal Tam and Oliveira (2017) also argue that continuous use of the information system or technology provided provides high quality information, supported by a technical and functional structure that is easy to use and reliable and has a reasonable level of customer/user service and support. , usually leads to increased user satisfaction (User Satisfaction).

3. Organizational support

Robbin & Judge in Waileruny (2014) researched that each worker thinks that their company will fully support when rewards are given fairly, workers should have the right to have an opinion when in discussions to make a decision, and superiors will be considered very supportive. Caesens, et al (2017) said that the things that are useful from organizational support are:

1. Support from the organization/company, able to facilitate both visible and invisible needs of workers and a mutually beneficial relationship can be obtained from workers who are sensitive and care about the company achieving its vision and mission. With support from the organization/company, the aim is for workers to always be active and show their best in terms of skills, quality as well as loyalty to the company which will benefit both parties.
2. Support from the organization/company will be received by workers so that it can foster a spirit of ownership of the company. It could be said that with a positive attitude from workers, a mutually beneficial relationship will arise for the existence of the worker's role. So that it has an impact on the moral equality of workers towards the company.

4. Work Engagement

In the literature (Molino, M. et al, 2020), a positive relationship between work engagement and performance outcomes has been found, such as in-role and extra-role performance, team performance, customer loyalty, service quality and care. Thus, work engagement is widely considered as a benefit to the organization. As for direct implications, we investigate user acceptance and among its antecedents we consider two user personal characteristics (resilience and goal orientation) and organizational resources (opportunities for information and training); Both personal and job resources have been considered in previous research investigating the determinants of work engagement.

D. Review Hypothesis

1. Relationship between organizational support and work engagement and use

A study (AL-Moasher and Al-Khasabah, 2006) shows that the effect of the role of the organization (Organizational Support) in the implementation of system management information in the banking sector. In this study, it was found that there was a statistically significant effect of technical and organizational variables in the Management Information System application. This study led to the need to involve employees and users in the planning process for developing the information/technology system.

H1: The influence that Organizational Support has on work engagement is positive and significant

H2: The influence provided by Organizational Support on DMS/MH02 use is positive and significant

2. Relationship between work engagement and user satisfaction

According to the DeLone and McLean Information System Success Model, user satisfaction is an outcome variable that is affected by system quality, information quality, and service quality (Delone and Mclean,2003). Work engagement, which is a psychological state reflecting an employee's level of involvement, enthusiasm, and commitment to their work, is not explicitly included in the mode (Delone and Mclean,2002). However, it is possible that work engagement indirectly affects user satisfaction through its impact on service quality[2]. Highly engaged employees may be more likely to provide high-quality service to users, which could lead to higher levels of user satisfaction (Delone and Mclean,2002).

H3: The influence that work engagement has on user satisfaction is positive and significant

3. Relationship between use and user satisfaction and net benefit

In the journal Tam and Oliveira (2017) also argue that continuous use of the information system or technology provided provides high quality information, supported by a technical and functional structure that is easy to use and reliable and has a reasonable level of customer/user service and support. , usually leads to increased user satisfaction (User Satisfaction). Apart from that, according to Balaban et al. (2013), the same positive relationship tends to emerge between the continued use of IS provided by students and the benefits (Net Benefit) attached to its users.

H4: DMS/MH02 Use has a positive influence on DMS/MH02 User Satisfaction

H5: Positive influence is given by DMS/MH02 Use to DMS/MH02 Net Benefit

4. Relationship between user satisfaction and net benefit

According to Delone and Mclean (2004) and Baraka et al. (2013), the existence of a good level of user satisfaction with something provided by IST will have an impact on the emergence of benefits related to the use of the technology in question, hence the interpretation that when the user is satisfied with the information system or technology, the level of individual success is triggered.

H6: DMS/MH02 user satisfaction has a positive effect on DMS/MH02 net benefit

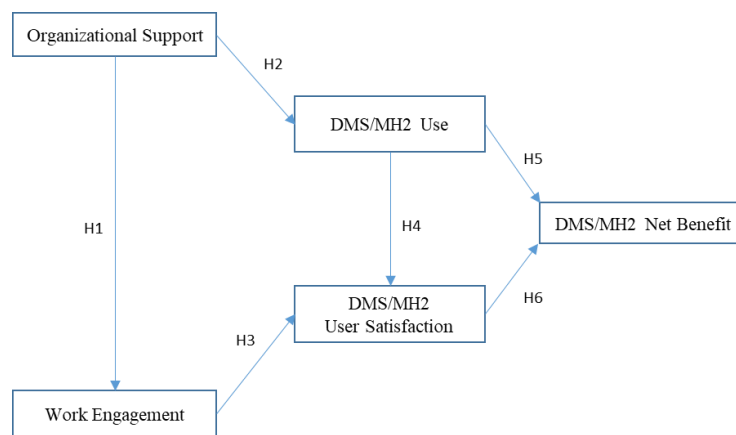


Figure 1. Theoretical Framework

II. METHODS

In this research, it is typical to relate validity to the quantitative descriptive type because with the existing subjective method measurement questionnaire, we will test its validity compared to the objective method. There is research from Chandra and Madiono (2017), Handoyo and Setiawan (2017) supporting the theory from Anitha J (2014), namely "Determinants of employee engagement and their impact on employee performance" saying that Employee Engagement has a good impact and provides something meaningful to quality of work of workers. Robinson et al. (2008) said that the quality of employee performance is dominant which causes good employee engagement and employees who have a good attachment to the corporation and boost performance so that it has an effect on the continuity of the corporation (Ramadhan & Sembiring, Indonesian Management Journal, Vol. 14 - no. 1 April 2014). There are several studies that have been studied which show that there is a close correlation between employee loyalty towards work and their place of work, which leads to performance and profits for the company (Choo et al, 2013). With this explanation, it is closely related to the quality of work provided by workers to their company. So research experts agree that work engagement has a big impact on the quality of workers' work. Therefore, workers have attachment and loyalty to their company, this really helps the company to carry out its company goals.

Robbin & Judge (2008) and Waileruny (2014) researched that each worker thinks that their company will fully support when rewards are given fairly, workers should have the right to have an opinion when in discussions to make a decision, and superiors will be considered very supportive.

To test the research hypothesis empirically, researchers collected data through questionnaires. The research population was employees in the production department and coal mine hauling site department of BRCB-Pama Persada Nusantara. The target population to be selected is the position of operator and head of section 2 of the department.

Determining the number of samples taken can be determined using the Slovin formula, the Slovin formula is a formula or formula for calculating the number of samples that are not known with certainty. Slovin is used in survey research where the sample size is usually very large, so a formula is needed to get a small sample but can represent the entire population. Solvin's formula, Umar (1997), To determine the number of respondents filling out the questionnaire and to determine the amount in measuring waste generation and composition, researchers use a confidence level value of 75%, so the error rate is 5%. So that researchers can determine the minimum sample limit that meets the 5% sample error requirement to be included.

By using the formula above, researchers can find out the amount minimum sample for measurement, with a total population (N) = 660, the sample size (n) = 249 is obtained. Actually, we took a sample of 279.

The data collection method used in this research is by using a questionnaire instrument, which is a set of questions to obtain information from respondents. On this research questionnaire sheet there are two types of statements, questions: (1) statements related to variable measurement; (2) questions related to respondent data. Questionnaires are made from structured statements/questions and provide answers in the form of a scale with answers adapted to the statements/questions to be made. It is easier for respondents to answer and avoid bias. The scale measurement used is Likert where each statement has an answer of 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) to 5 (strongly agree).

In this research we used statistical analysis of the Smart PLS program (version 3.2.9) for Reability, Validity, Convergent Validity, Internal consistency reliability analysis. To test the hypothesis using the Smart PLS program (version 3.2.9).

III. RESULTS AND DISCUSSION

The following is an analysis of the description and respondents :

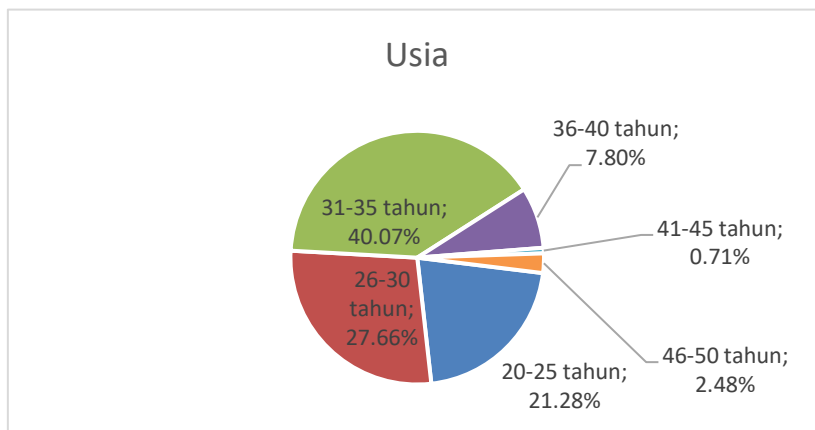


Figure 2. Respondent Age

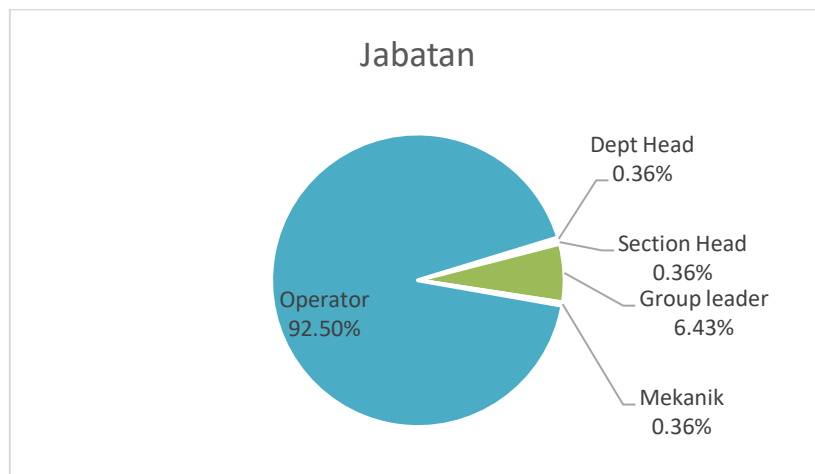


Figure 3. Respondent's Position

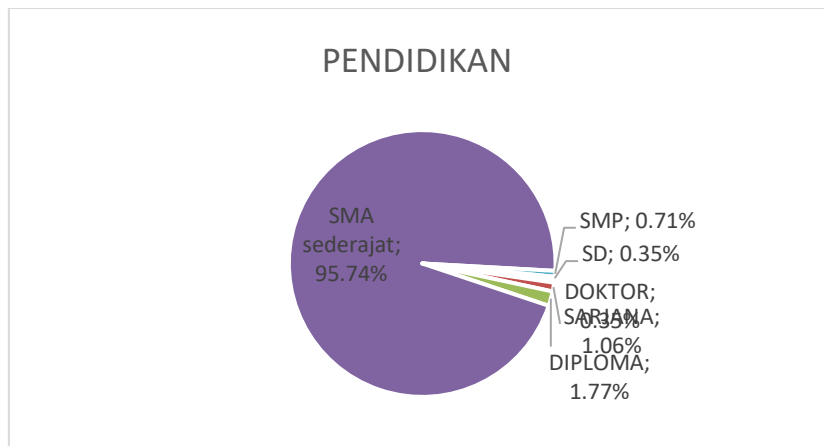


Figure 4. Respondent's Education

Reliability and validity checks are also carried out using Smart PLS (version 3.2.9). To test reliability, you must check the Reability indicator and Outer loading is the correlation value between the latent variable and its indicator, according to Hulland (1999) who said that a good outer loading value is 0.70 or more. According to Gaston (2013), if the outer loading value is > 0.7 , more than 50% of the information from the indicator has been successfully absorbed by the latent variable. From the processed data in Figure 24, the outer loading table contains several values less than 0.7, namely:

1. Work engagement with P3 whose outer loading value is 0.659
2. Organizational support with v11 whose outer loading value is 0.68
3. Organizational support with v12 whose outer loading value is 0.641

This means that it shows that it has not been able to absorb the indicator values, because this research includes exploratory research which has a definition of research that aims to explore and deepen knowledge and look for new ideas to formulate problems in more detail and then decide to carry out new research, according to Hulland (1999) so for exploratory research the outer loading value is above 0.4 so that the 3 items with an average outer loading value of 0.6 still have data reliability.

To test reliability, internal consistency reliability is also checked and the following is the composite reliability display:

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
dms/mh02 use	0.913	0.913	0.945	0.851
dms/mh02 user satisfaction	0.965	0.965	0.973	0.876
net benefit	0.972	0.972	0.978	0.899
organizational support	0.941	0.945	0.949	0.589
work engagement	0.927	0.936	0.942	0.701

Figure 5. Table of Construct Reliability and Validity

A good composite reliability value is 0.7 or more and if exploratory research a good value is 0.6 or more (Bagozzi and Y, 1998) and from the analysis in Figure 25 of the Construct Reliability and Validity table then all items get a value above 0.7 with an average average at 0.9. So that after checking the reliability of the indicators and the reliability of internal consistency, it can be said that the data processed has fulfilled the elements of reliability.

1. Validity Test

As for the validity test which will be analyzed using Smart PLS using convergent validity and discriminant validity, for convergent validity itself from the construct reliability and validity table you can see the "AVE" value, according to Bagozzi and YI (1988) a good "AVE" value is 0.5 or more and from the existing data processing it can be seen that the AVE values all exceed 0.5 and are said to be valid. And an ideal discriminant validity test

was also carried out using "AVE" data and correlation latent variable data. According to Fornell and Larcker (1981), recommend that the "square root" of the AVE of each latent variable should be greater than the correlation between the latent variables.

	dms/mh02 use	dms/mh02 user satisfaction	net benefit	organizational support	work engagement_
dms/mh02 use	0.923				
dms/mh02 user satisfaction	0.828	0.936			
net benefit	0.911	0.873	0.948		
organizational support	0.397	0.416	0.451	0.768	
work engagement_	0.496	0.503	0.555	0.718	0.837

Figure 6. Table of Discriminant Validity

From reading the discriminant validity table it can be concluded as follows:

1. The root value of AVE dms/mh02 use is 0.923 higher than the correlation with dms mh02 user satisfaction, netbenefit, organizational support, work engagement.
2. The root value of AVE dms mh02 user satisfaction is higher than the correlation of netbenefit, organizational support, dms/mho2 use, work engagement.
3. The root value of AVE net benefit is higher than the correlation of organizational support, dms/mho2 use, dms mh02 user satisfaction, work engagement.
4. The root value of AVE organizational support is higher than the correlation of net benefit, dms/mho2 use, dms mh02 user satisfaction, work engagement.
5. The root value of AVE work engagement is higher than organizational support, net benefit, dms/mho2 use, dms mh02 user satisfaction.

From the results of this research it can be concluded that all discriminant validity at the variable level is acceptable because each variable has a larger AVE root compared to the correlation of other variables. This shows that the construct shares higher variance with the measurement items that measure it compared to items on other variables.

hypothesis testing is carried out based on the results of inner model testing (structural model) which includes r-square output, parameter coefficients and t-statistics. to see whether a hypothesis can be accepted or rejected, include paying attention to the significance values between constructs, t-statistics and p-values. this research hypothesis testing was carried out with the help of smartpls (partial least square) 3.0 software. these values can be seen from the bootstrapping results. the rules of thumb used in this research are t-statistics > 1.96 with a significance level of p-value of 0.05 (5%) and the beta coefficient is positive. the value of testing this research hypothesis and for the results of this research model can be illustrated

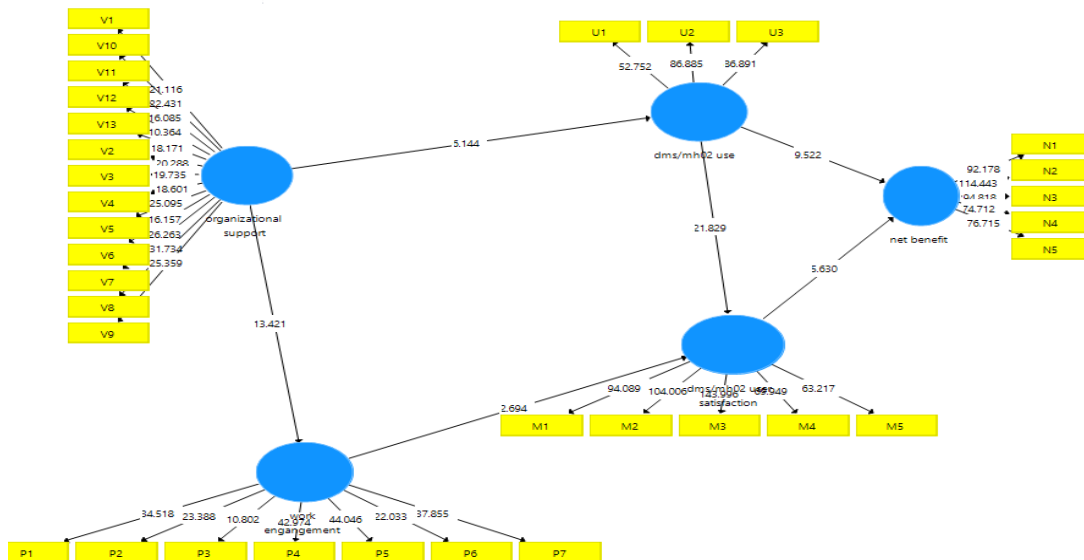


Figure 7. Research Model Result

IV. CONCLUSION

	Original S	Sample M	Standard	T Statistics (O/STDEV)	P Values
dms/mh02 use -> dms/mh02 user satisfaction	0.767	0.769	0.035	21.829	0.000
dms/mh02 use -> net benefit	0.599	0.594	0.063	9.522	0.000
dms/mh02 user satisfaction -> net benefit	0.377	0.382	0.067	5.630	0.000
organizational support -> dms/mh02 use	0.397	0.405	0.065	6.144	0.000
organizational support -> work engagement_	0.718	0.724	0.053	13.421	0.000
work engagement_ -> dms/mh02 user satisfaction	0.123	0.125	0.046	2.694	0.007

Figure 8. Table of Path Coefficients

In Table 3, it reflects the path coefficient which is the result of direct effect testing so that it can be concluded as follows:

1. The results of the analysis show that the beta coefficient value of the moderate effect of Organizational support on the Work Engagement relationship is 0.718 and the t-statistic is 13.421 p value 0.000 so that the first hypothesis is accepted, this proves that Organizational support is proven to have a positive influence on Work Engagement
2. The results of the analysis show that the beta coefficient value of the moderate effect of Organizational support on the relationship between MH02 use is 0.397 and the t-statistic is 6.144 p value 0.000 so that the second hypothesis is accepted, this proves that Organizational support is proven to have a positive influence on DMS/MH02 use
3. The results of the analysis show that the beta coefficient value of the moderate effect of work engagement on the DMS/MH02 user satisfaction relationship is 0.123 and the t-statistic is 2.694 p value 0.007 so that the third hypothesis is accepted, this proves that work engagement is proven to have a positive influence on DMS/MH02 user satisfaction
4. The results of the analysis show that the beta coefficient value of the moderate effect of DMS/MH02 Use on the DMS/MH02 user satisfaction relationship is 0.767 and the t-statistic is 21.829 p value 0.000 so that the fourth hypothesis is accepted, this proves that DMS/MH02 use is proven to have a positive influence on DMS/ MH02 user satisfaction
5. The results of the analysis show that the beta coefficient value of the moderate effect of DMS/MH02 Use on the DMS/MH02 net benefit relationship is 0.599 and the t-statistic is 9.522 p value 0.000 so that the fifth hypothesis is accepted, this proves that DMS/MH02 use is proven to have a positive influence on DMS/ MH02 net benefits
6. The results of the analysis show that the beta coefficient value of the moderate effect of DMS/MH02 User satisfaction on the DMS/MH02 net benefit relationship is 0.377 and the t-statistic is 5.630 p value 0.000 so that the sixth hypothesis is accepted, this proves that DMS/MH02 user satisfaction is proven to have a positive influence on DMS/MH02 net benefits.

Analysis of hypothesis 1 for organizational support is proven to have a positive influence on work engagement. This is in accordance with research by Najeemdeen (2018), concluding that the organizational culture obtained and the organizational support obtained influence work engagement between workers. Companies must continue to observe and survey other factors that could have an influence on the totality of work. To know the problems and needs of employees, it is very important for management to have a close relationship with them so that they will feel supported by the organization. Perceived organizational support will increase employee motivation and their willingness to involve themselves in any work.

Analysis of hypothesis 2 for organizational support is proven to have a positive influence on DMS/MH02 use. This is in line with research from Al-Moasher and Al-Khasabah (2006) which shows the role of organizations (organizational support) in implementing Management Information Systems in the banking sector . In this study, it was found that there was a statistically significant effect of technical and organizational variables in the Management Information System application. This study led to the need to involve employees and users in the planning process for developing the information/technology system.

Analysis of hypothesis 3 for work engagement is proven to have a positive influence on DMS/MH02 user satisfaction, in accordance with studies which state that there is a close correlation between work loyalty and the company which leads to company performance and profits (Choo et al. 2013). With this explanation, it is closely related to the quality of work provided by workers to their company. So research experts agree that work engagement has a big impact on the quality of workers' work in implementing a system.

Analysis of hypothesis 4 DMS/MH02 use is proven to have a positive influence on DMS/MH02 user satisfaction. User satisfaction with a particular information system/technology can be interpreted in the positive emotions shown by individuals when interacting with it (Cenfetelli et al., 2008). When discussing the acceptance and use of IST, one can see a proven relationship between the degree of satisfaction with a particular technology and the user's intention to not only intend to use it (Park and Kim, 2014), but also intend to continue using it (Hsiao et al., 2016).

Analysis of hypothesis 5 DMS/MH02 use is proven to have a positive influence on DMS/MH02 net benefit, in accordance with the opinion of Balaban et al. (2013) the same positive relationship tends to emerge between the continued use of IS provided by students and the benefits (Net Benefit) attached to its users.

Analysis of hypothesis 6 DMS/MH02 user satisfaction is proven to have a positive influence on DMS/MH02 net benefit, confirming the opinion of DeLone and McLean (2004) and Baraka et al. (2013), the existence of a good level of user satisfaction with something provided by IST will have an impact on the emergence of benefits related to the use of the technology in question, hence the interpretation that when the user is satisfied with the information system or technology, the level of individual success is triggered.

V. CONCLUSION

From the results of the research that has been carried out, it turns out that DMS/MH02 for user satisfaction, net benefit, use from user perceptions expressed agreement regarding usability, satisfaction and usefulness for the average value of usability (DMS/MH02 use) at 3.6 while for usefulness (net benefit) with an average of 4 and for user satisfaction it has the lowest average value, namely 3.27.

For the role of organizational support in the implementation of DMS/MH02, it is proven to have a positive influence on DMS/MH02 use, this is in accordance with the study (Al-Moasher and Al-Khasabah, 2006) showing that the effect of the role of the organization (organizational support) in the implementation of system management information in banking sector. The study found that there was a statistically significant effect of technical and organizational variables in management information system applications. This study led to the need to involve employees and users in the planning process for developing the information/technology system. Then, if you look at the actual results in the field, it shows that if there is no support from PAMA management, of course the many benefits of DMS/MH02 will not be felt, because the results displayed from DMS/MH02 require fast follow-up to prevent fatigue incidents. For the research we are currently conducting at the PAMA-BRCB site, support from PAMA management at the site itself is very large because here the role of PT customers. Berau Coal also monitors daily and weekly progress which will be evaluated at safety improvement meetings and LK3 between customers and all contractors working at PT. Berau Coal regarding the speed of follow-up response and evaluation of DMS/MH02 findings.

Meanwhile, the role of work engagement on DMS/MH02 user satisfaction proves that work engagement is proven to have a positive influence on DMS/MH02 user satisfaction, but it has the lowest level of significance compared to the other tested items, if you look at the close correlation between work loyalty and the company so that leading to company performance and profits (Choo et al, 2013). With this explanation, it is closely related to the quality of work provided by workers to their company. So research experts agree that work engagement has a big impact on the quality of workers' work in implementing a system. Meanwhile, the actual results in the field that occurred from the results of interviews conducted by many operators were not satisfied with the implementation of DMS/MH02 because there were many findings that did not match the facts in the field, for example the operator's findings that yawning and closed eyes were not able to be captured properly. maximum by DMS/MH02.

By looking at the research results which show that the satisfaction value for DMS/MH02 (DMS/MH02 user satisfaction) is only 3.27 on average compared to net benefit and DMS/MH02 use, it turns out that it is in line with the relationship between work engagement and DMS/MH02 user satisfaction. also has a low value compared to other relationships, this clearly shows that there is a problem with the quality of DMS/MH02, this was also confirmed during an interview with the IT team at BRCB, that DMS/MH02 still needs a lot of improvements in terms of infrastructure so that it can improve the quality of DMS/MH02. Therefore, it is necessary to continue with deeper studies for further research regarding DMS/MH02 quality.

ACKNOWLEDGMENTS

We would like to express our sincere gratitude to all those who have contributed to completing this research. First and foremost, we would like to thank the management of PT. Pamapersada Nusantara for allowing us to

conduct this study in their company. We are also grateful to all the employees who participated in this research and generously shared their time, insights, and experiences. We extend our thanks to the research supervisor, who provided us with valuable guidance and feedback throughout the research process. Additionally, we appreciate the support and resources provided by the research institution. Finally, we thank our families and friends for their love, encouragement, and support throughout the research journey.

REFERENCES

- Abusamhadana, G.A.O., Elias, N.F, Mukhtar, M., Mokhtar, U.A. (2019) User Engagement Model In Information Systems Development . *Journal of Theoretical and Applied Information Technology*. 97(11).
- Aldholay, A., Isaac, O., Abdullah, Z., Ramayah, T., (2018). The role of transformational leadership as a mediating variable in DeLone and McLean information system success model: the context of online learning usage in Yemen. *Telematics Inf.*
- AL-Moasher Ziad, Al-Khasabah, Mohamed (2006), The Effect of Regulatory and Technical Factors in Information Systems Applications. *Management in the Jordanian Banking Sector, Jordanian Journal of Business Administration, Amman*, Volume 4, Volume 2.
- Al-Moghrabi, Abdul Hamid (2002). *Management Information Systems: Principles and Principles*, Mansoura, Modern Library.
- Anitha, J. (2014). Determinant of Employee Engagement and Their Impact on Employee Performance. *International Journal of Productivity and Performance Management*, vol. 63 Iss 3, pp.308-323.
- Balaban, I., Mu, E., Divjak, B., (2013). Development of an electronic Portfolio system success model: an information systems approach. *Comput. Educ.* 60, 396–411.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94.
- Baraka, H., Baraka, H., El-Gamily, I., (2013). Assessing Call Centers' Success: A Validation Of The Delone And Mclean Model For Information System. *Egypt. Inf. J.* 14, 99–108.
- Bauerle, T.; Dugdale, Z.; Poplin, G. Mineworker fatigue: a review of what we know and future directions. *Min. Eng.* 2018, 70, 33.
- Budiono, A. M. S., Jusuf, R. M. S. and Pusparini, A. (2016) Bunga Rampai Hiperkes & KK: Higiene Perusahaan, Ergonomi, Kesehatan Kerja, Keselamatan Kerja. Revisi. Semarang: Badan Penerbit Universitas Diponegoro Semarang.
- Caesens, et al (2017). Perceived organizational support and employees' well being : the mediating roll off organizational dehumanization. *European journal of work and organizational psychology*.
- Cenfetelli, R., Benbasat, I., Al-Natour, S., (2008). Addressing the what and how of online services: positioning supporting-services functionality and service quality for business-to-consumer success. *Inf. Syst. Res.* 19, 161–181
- Centers for Disease Control and Prevention. Insufficient sleep is a public health problem. (2015). Retrieved from: <https://www.cdc.gov/features/dssleep/>.
- Chung, S. H. and Lee, D. H. (2005), "Impacts of TQM activities on employee's satisfaction in the support of task process, and on business performance in medical service industry", *The Korea Service Management Society*, 6(1), 57-85.
- Delone, W., McLean, E., (2003). The DeLone and McLean model of information systems success: a ten-year update. *J. Manage. Inf. Syst.* 19, 9–30.
- Delone, W., Mclean, E., (2004). Measuring e-commerce success: applying the DeLone & McLean information systems success model. *Int. J. Electron. Commerce* 9, 31–47.
- DeLone, W., McLean, E., (2016). Information systems success measurement Foundations and Trends®. *Inf. Syst.* 2, 1–116.
- Dembe AE, Erickson JB, Delbos RG, Banks SM. The impact of overtime and long work hours on occupational injuries and illnesses: new evidence from the United States. *Occupational and environmental medicine.* (2005); 62(9):588–597. [PubMed: 16109814].
- F, Manuti, A., Giancaspro, M.L, Russo, V., Zito, M, & Cortese, C.G. (2020). Wellbeing costs of technology use during covid-19 remote working: an investigation using the Italian translation of the technostress creator scale. *Sustainability*, 12(15), 1-20. doi:10.3390/su12155911.
- Friedman, L. S., Almberg, K. S. and Cohen, R. A. (2019) 'Injuries Associated with Long Working Hours among Employees in the US Mining Industry: Risk Factors and Adverse Outcomes. *Occupational and Environmental Medicine*, 76(6), pp. 389–395.

- Gaston Sanchez, 2013, PLS Path Modeling with R.
- Hafner, M., Stepanek, M., Taylor, J., Troxel, WM., van Stolk, C. RAND Europe. Cambridge, United Kingdom: (2016). *Why sleep matters– the economic costs of insufficient sleep. Research Report #1791.*
- Hair, J.F., Sarstedt, M., Ringle, C.M. & Mena, J.A., (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40(3), 414-433.
- H. Gu and Q. Ji, “An Automated Face Reader for Fatigue Detection,” in *The Sixth IEEE International 2. Conference on Automatic Face and Gesture Recognition (FGR'04), (2004)*, pp. 1–6.
- Handoyo, A. W., & Setiawan, R. (2017). Pengaruh Employee Engagement Terhadap Kinerja Karyawan Pada PT. Tirta Rejeki Dewata, 5(1), 1–8.
- Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: a review of four recent studies. *Strategic Management Journal*, 20(2), 195–204.
- Husein Umar (1997). Riset sumber daya manusia. Jakarta: Gramedia Pustaka Utama
- Kusumah, S. Dloyana. (2010). Pembentukan Norma & Nilai Baru dalam Pranata Keluarga, Studi tentang Peran Ganda Perempuan di Kelurahan Cibaduyut. Yogyakarta: Kepel Press.
- Kristiawan, R. (2018) ‘Faktor Penyebab terjadinya Kecelakaan Kerja pada Area Penambangan Batu Kapur Unit Alat Berat PT. Semen Padang, *Jurnal Bina Tambang* 5(2), pp. 11–21.
- Lee, Jin-Soo, Ki-Joon Back, and Eric Chan. (2015). Quality of work life and job satisfaction among frontline hotel employees: A self-determination and need satisfaction theory approach. *International Journal of Contemporary Hospitality Management* 27: 768–89.
- Lee, D.H. , Lee, S.M., Olson, D.L. (2009). The Effect Of Organizational Support on ERP Implementation. *Industrial Management & Data Systems*. Vol. 110 No. 2, pp. 269-283.
- Leung, M-y., Zhang, H. and Skitmore, M. (2008a) Effects Of Organizational Supports On The Stress Of Construction Estimation Participants. *Journal of Construction Engineering and Management*, 134(2), 84-93.
- Liem Chandra & Dr. Drs. Ec. Eddy Madiono. (2017). Pengaruh Keterikatan dan Persepsi Dukungan Organisasional Terhadap Kinerja Karyawan PT. Sukses Mekar Abadi. *Jurnal AGORA*. Vol 5, No. 3.
- Lombardi DA, Folkard S, Willetts JL, Smith GS. Daily sleep, weekly working hours, and risk of work-related injury: US National Health Interview Survey (2004–2008). *Chronobiology international*. (2010); 27(5):1013–1030. [PubMed: 20636213]
- Marciano, P. L. (2010). Carrots and sticks don’t work build a culture of employee engagement with the principles of respect. Mexico: McGraw Hill.
- Martins, J., Branco, F., Au-Yong-Oliveira, M., Gonçalves, R., Moreira, F., (2019). Higher education student perspective on education management information systems: an initial success model proposal. *Int. J. Technol. Hum. Interact. (IJTHI)* 15.
- Martins, J., Gonçalves, R., Santos, V., Cota, M., Oliveira, T., Branco, F., (2015). Proposta de um Modelo de e-Learning Social RISTI - *Revista Ibérica de Sistemas e Tecnologias de Informação* vol. 16, pp. 92–107.
- Msallam, A.A. et al. (2019). Computerized Management Information Systems and Its Relationship to Improving the Job Performance of the Employees of the Palestinian Cellular Telecommunications Company – Jawwal. *International Journal of Academic Information Systems Research (IJAIRS)*, 3(1), 15-28.
- Nurahma, A. P. et al. (2022). ‘The Relationship Between Mental Workload and Sleep Quantity with Work Fatigue among Haul Dump Truck Operators in Coal Mining’, *The Indonesian Journal of Occupational Safety and Health*, 11(3), pp. 333-342.
- Ramadhan, N., & Sembiring, Jafar., (2014), Pengaruh Employee Engagement Terhadap Kinerja Karyawan Di Human Capital Center Pt Telekomunikasi Indonesia, Tbk, *Jurnal manajemen Indonesia*, vol. 14 - No. 1 April 2014.
- Rhoades, L. and Eisenberger, R. (2002). “Perceived organizational support: A review of the literature. *Journal of Applied Psychology*, vol. 87, pp 698-714.
- Robbins, S. P., & Judge, T. A. (2008). *Perilaku Organisasi (12th ed.)*. Jakarta: Salemba Empat.
- Robbins, Stephen & Judge, Timothy. (2008). *Perilaku Organisasi: Organizational Behavior*. Jakarta: Salemba Empat.
- Samodra, Y. T. J. et al. (2021) ‘Alokasi Waktu Tidur dan Upaya Bugar Sehat di Masa Puasa’, *Tadulako Journal Sport Sciences And Physical Education*, 9(1), pp. 19–29.
- Siddhanta, A., & Roy, D. (2010). Employee engagement ± Engaging the 21st century workforce. *Asian Journal of Management Research*.
- Sudiyanto, J. and Susilowati, I. H. (2018) Causes of Fatal Accidents Involving Coal Hauling Trucks at a Coal Mining Company in Indonesia’, in *ICOSH 2017*, pp. 59–70. doi: 10.18502/klsv4i5.2539.
- Suparno, F. A. D., et al. (2020) ‘Manajemen Risiko Kecelakaan Kerja Akibat Blindspot pada Disposal Area Menggunakan Analisis HIRARC’, *Jeneral: Jurnal Teknologi Sumberdaya Mineral*, 1(1), pp. 31–42

- Talebi, E.; Rogers, W.P.; Morgan, T.; Drews, F.A. Modeling Mine Workforce Fatigue: Finding Leading Indicators of Fatigue in Operational Data Sets. *Minerals* (2021), 11, 621.
- Tam, C., Oliveira, T., (2017). Understanding mobile banking individual performance: the DeLone & McLean model and the moderating effects of individual culture. *Internet Res.* 27, 538–562.
- The Energy Institute. Managing Fatigue Using a Fatigue Risk Management Plan (FRMP). (2014);44(0).
- Uehli K, Mehta AJ, Miedinger D, Hug K, Schindler C, Holsboer-Trachsler E, Leuppi JD, Künzli N. Sleep problems and work injuries: a systematic review and meta-analysis. *Sleep Medicine Reviews.* (2014); 18(1):61–73. [PubMed: 23702220].
- Waileryny, H. T. (2014). Perceived Organizational Support , Job Satisfaction Dan Organizational Citizenship Behavior Pada Pt . Bank Maluku Cabang. *Agora*, 2(2), 1–9.
- W. Kong, L. Zhou, Y. Wang, J. Zhang, J. Liu, and S. Gao, “A System of Driving Fatigue Detection Based on Machine Vision and Its Application on Smart Device,” *Journal of Sensors*, vol. 2015), pp. 1–11, 2015.
- Yazdi, Z. and Haghghi, K. Sadeghniaat. (2015) ‘Fatigue Management in the Workplace’, *Industrial Psychiatry Journal*, 24(1), pp. 12-17.
- Y. Chellappa, N. N. Joshi, and V. Bharadwaj, “Driver Fatigue Detection System,” in *2016 IEEE International Conference on Signal and Image Processing*, (2016), pp. 655–660.