

Organizational Commitment and Work Productivity: A Case of Occupational Health and Safety in Indonesia

Suyono Thamrin^a, Rita Ambarwati^{b}, Uning D. Ariati^c, Mudji Astuti^d,^aUniversitas Pertahanan, Faculty of Defense Management, ^{b,d}Universitas Muhammadiyah Sidoarjo, Faculty of Business Law and Social Science, ^cInstitut Teknologi Sepuluh Nopember Surabaya, Department of Management Technology,*

Abstract-Work productivity is an essential thing in the company because the work productivity that is achieved will affect the sustainability of the company. Work productivity will be achieved if the management has a strong commitment, according to the company vision. The work productivity is achieved organizational commitment and commitment to Occupational Health and Safety (OHS). The purpose of this study was to determine the relationship between the dimensions of organizational commitment to work productivity through OHS commitment as a mediator variable. This research is a quantitative study with the design of collecting data on samples using questionnaires and interviews. Samples are operational employees working in the field who work on the construction of buildings spread over several areas as projects in Indonesia. As a condition to fulfill the criteria as a sample, the requirements are a minimum of one-year working period, aged between 20-50 years and a minimum of high school/vocational education. From the data that has been analyzed, it is expected to know the interaction relationship between variables of organizational commitment, OHS commitment, and work productivity. The implications of this study can give recommendations for companies to make continuous improvements in terms of the application of OHS in Indonesia.

Keywords: Organizational commitment, Occupational Health and Safety, work productivity.

Introduction

In today's global competition, construction companies must be able to compete to meet customer demand and satisfaction. In response to the competition, construction companies must increase regeneration to develop products, services, productivity, and processes continuously (Guo, Yiu, & González, 2016). Problems related to work productivity are also strategic issues for the company, mainly so that the company continues to develop sustainably (Schwatka & Rosecrance, 2016). Many aspects support the creation of effective and efficient work productivity in a company. One indicator that influences efforts to increase productivity effectively and efficiently is how internal organizational commitment and stakeholder commitment in carrying out occupational health and safety (OHS) (Taylor & Snyder, 2017).

Organizational commitment is the attitude or form of a person's behavior towards the organization in the way of loyalty and the achievement of the organization's vision, mission, values, and goals (Stackhouse & Turner, 2019; Handiwibowo, Noer, Ambarwati, & Arumsari, 2020). Someone said to have a high commitment to the organization can be recognized by the characteristics, including trust and strong acceptance of the goals and values of the organization, a strong willingness to work for the organization, and a strong desire to remain a member of the organization (Kuimet, Jarvis, Virovere, & Hartšenko, 2016; Ambarwati & Handiwibowo, 2018). Related to this, if the company expects to develop sustainably, it is necessary to have an internal organizational commitment that includes both the affective, sustainable, and normative dimensions (Horwitz & Horwitz, 2017).

Occupational safety and health (OHS) are united in the employment system and human resources (McGonagle, Childress, Walsh, & Bauerle, 2016). OHS is not only very important in improving the social security and welfare of its workers, but far from it, OHS has a positive impact on the sustainability of work productivity (Bavafa, Mahdiyar, & Marsono, 2018). Therefore, the issue of OHS at this time is not only an obligation that must be considered by workers but must also be fulfilled by a working system (Alingh, Van Wijngaarden, Van De Voorde, Paauwe, & Huijsman, 2019). In other words, at this time, OHS is not merely an obligation but has become a necessity for every worker and every form of work activity. The success or failure of an organization in achieving its intended goals (Ambarwati, Fathurochman, & Rizal, 2019). It depends on the leader, how to direct and motivate employees to

provide the best for the company (Alingh et al., 2019). For leadership to be effective, leaders must be able to use leadership styles that are appropriate to the circumstances and situations faced by the organization so that there will be an integration between leadership styles and conditions faced by the organization (Reader, Mearns, Lopes, & Kuha, 2017). The achievement of OHS is maximally due to many factors. It often happens is the factor that can be anticipated from the beginning, namely the existence of commitment to the organization and commitment to all components in the organization of the importance of OHS (Korkmaz & Park, 2018).

Many theories about organizational commitment, work productivity, and occupational safety and health theory, all of which are intended to be understood by all stakeholders in the company so that the company can achieve optimal productivity and can realize zero accidents for employees and the company (Haseeb et al., 2020). The company always hopes that there will be developments in new theories from scientists so that productivity and occupational safety and health continue to be guaranteed in a sustainable manner (He et al., 2016). However, business people in the company feel the lack of development of new theories that can be utilized by stakeholders. On the other hand, with the approach that is ready to be put into practice in companies, it seems that the consistency of stakeholders is still very minimal in using occupational safety and health standards to achieve work productivity, so productivity has not been reached optimally, and zero accident has also not been completed (Yiu, Sze, & Chan, 2018).

Indonesia has many companies engaged in the construction sector whose work involves operational employees in completing projects in the field requires an outstanding commitment at the top management level to the lower level, the importance of OHS (Haslam, O'Hara, Kazi, Twumasi, & Haslam, 2016). Facing these problems requires efforts to increase employee productivity in supporting company performance by increasing the commitment of the importance of total quality management, organizational commitment, and commitment to the implementation of OHS (Yiu et al., 2018). Commitment to organization influences productivity improvement through job involvement, motivation, and job satisfaction.

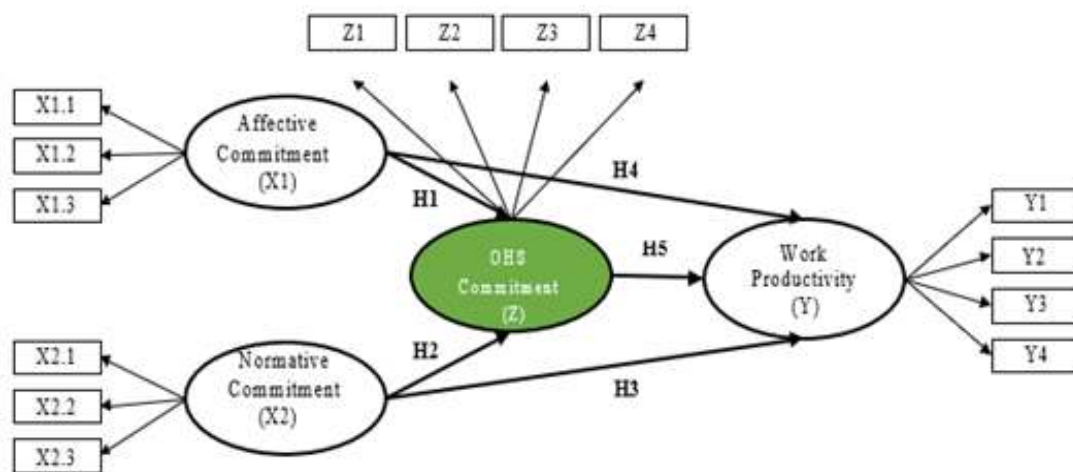


Figure 1. Research Framework.

Method

This study was conducted to test the hypotheses intended by using research methods that have been designed with the variables studied in order to obtain accurate results. In the chapter of this research method described matters relating to research design, population and sample research, classification and definition of operational variables, study and measurement instruments, data collection procedures, development of research instruments and data analysis techniques. This research is based on confirmatory research, which is research that intends to examine and explain the relationship between organizational commitment and occupational health and commitment commitments and their effects on work productivity. The unit of analysis of this research is the operational staff, supervisors, and managers of the company. In contrast, the chosen employees of the functional section, supervisors, and managers as the unit of analysis are considered relevant to their fields who know the variables of organizational commitment, commitment to health, and occupational health and work productivity. The research flow chart can be seen in Figure 1.

Result and discussion

Partial Least Square (PLS) or we can say variance-based SEM is used when the assumption of standard sample and multivariate sizes in covariance-based SEM (CB-SEM) is not met. Testing multivariate normal assumptions are made by using the Skweenes and Kurtosis method. Multivariate normal assumptions are met if the CR value in the skewness and kurtosis test statistics is less than 2.58. Multivariate normal test results are presented in full in Table 1.

Tabel 1: Normality data testing

Variable	min	max	skew	c.r.	kurtosis	c.r.
Y4.2	2,000	5,000	-,317	-1,313	-,495	-1,026
Y4.1	1,000	5,000	-,836	-3,463	,742	1,538
Y3.2	1,000	5,000	-,373	-1,543	,453	,938
Y3.1	1,000	5,000	-,430	-1,783	-,097	-,202
Y2.3	1,000	5,000	-,610	-2,527	-,553	-1,145
Y2.2	1,000	5,000	-,469	-1,942	,785	1,626
Y2.1	1,000	5,000	-1,035	-4,290	,703	1,456
Y1.3	1,000	5,000	-,483	-2,003	-,773	-1,602
Y1.2	1,000	5,000	-,695	-2,879	,847	1,754
Y1.1	2,000	5,000	-,290	-1,200	-,455	-,942
Z4.2	1,000	5,000	-,614	-2,543	-,047	-,097
Z4.1	1,000	5,000	-,999	-4,140	,492	1,018
Z3.2	1,000	5,000	-1,012	-4,195	-,365	-,756
Z3.1	1,000	5,000	-,974	-4,035	,556	1,152
Z2.2	1,000	5,000	-1,087	-4,505	1,026	2,126
Z2.1	1,000	5,000	-1,284	-5,319	1,308	2,709
Z1.2	1,000	5,000	-1,127	-4,667	,774	1,603
Z1.1	1,000	5,000	-,923	-3,823	-,344	-,712
X2.3.3	1,000	5,000	-,027	-,111	-,564	-1,168
X2.3.2	1,000	5,000	,018	,075	-,536	-1,110
X2.3.1	1,000	5,000	-,026	-,108	-,600	-1,243
X2.2.2	1,000	5,000	-,857	-3,549	,329	,682
X2.2.1	1,000	5,000	-1,003	-4,154	1,057	2,190
X2.1.2	1,000	5,000	-,528	-2,190	-1,108	-2,296
X2.1.1	1,000	5,000	-,798	-3,306	,265	,549
X1.3.4	1,000	5,000	-,859	-3,559	-,240	-,497
X1.3.3	1,000	5,000	-,381	-1,579	-,408	-,845
X1.3.2	1,000	5,000	-,394	-1,633	,225	,466
X1.3.1	1,000	5,000	-,728	-3,018	-,761	-1,576
X1.2.3	1,000	5,000	-,257	-1,064	-,987	-2,045
X1.2.2	1,000	5,000	-,423	-1,753	,553	1,146
X1.2.1	1,000	5,000	-,548	-2,272	,006	,012
X1.1.3	2,000	5,000	-,175	-,725	-,892	-1,847
X1.1.2	1,000	5,000	-,546	-2,263	-,664	-1,376
X1.1.1	1,000	5,000	-,356	-1,474	,359	,745
Multivariate					127,952	12,758

The next convergent validity test is carried out at the first-order level, which is to test whether the indicator variables can form these variables properly. The testing at the first-order level is done by looking at the loading factor value at the indicator level if the value of the loading factor is > 0.5. The indicator is declared valid or can

form variables properly. The results of convergent validity testing at the first-order level are presented in Table 2 below.

Tabel 2: Convergent validity testing

Variable	Indicator	Loading Factor	Description
Affective Commitment (X1)	Perception of Organizational Objectives (X1.1)	0,934	Valid
	Perception of Organizational Value (X1.2)	0,930	Valid
	Perception if Remains In Organization (X1.3)	0,951	Valid
Normative Commitment (X2)	Pressure from Other Members in the Organization (X2.1)	0,901	Valid
	Level of Attention to Suggestions and Feedback From Other Members in the Organization (X2.2)	0,828	Valid
	Consideration on the Assessment of Leaders and Other Members When Exiting the Organization (X2.3)	0,666	Valid
OHS Commitment (Z)	Work Accident Prevention Commitment (Z1)	0,903	Valid
	Commitment to Preparing a Healthy Work Environment (Z2)	0,899	Valid
	Responsive for Occurrence of Work Accidents (Z3)	0,905	Valid
	Responsive to Unhealthy Work Environments (Z4)	0,798	Valid
Work Productivity (Y)	Work-targeted achievements by time (Y1)	0,828	Valid
	Work-targeted achievement based on quality measures (Y2)	0,870	Valid
	Value of Satisfaction from Service Users (Y3)	0,760	Valid
	Value of satisfaction from employees for their work (Y4)	0,759	

The results of discriminant validity testing at the second-order level in this study indicate that all loading values for each question item are higher than the cross-loading value for other indicators in the research model. Thus it can be stated that all question items in this study already have discriminant validity at an excellent second-order level. The next discriminant validity test is carried out at the first-order level, which is the latent variable formed by the indicator. The results of discriminant validity testing at the first-order level are explained in the following table 3.

Tabel 3: Discriminant validity testing

	KA	KN	KOHS	PK
X1.1	0,694	-0,040	0,091	0,101
X1.2	0,785	-0,037	-0,124	0,006
X1.3	0,733	0,077	0,047	-0,101
X2.1	0,436	0,642	-0,082	0,331
X2.2	-0,216	0,665	0,069	0,054
X2.3	-0,110	0,805	-0,045	-0,584
Z1	0,216	-0,145	0,746	-0,136
Z2	-0,004	0,019	0,751	-0,075
Z3	0,032	-0,131	0,731	0,153
Z4	-0,362	0,364	0,724	0,105
Y1	-0,134	-0,004	-0,010	0,720
Y2	0,054	-0,103	-0,019	0,707
Y3	-0,154	0,082	0,052	0,711
Y4	0,316	0,079	-0,017	0,655

Evaluation of construct reliability construct models is done by looking at the value of composite reliability is to determine whether the construct has high reliability or not. A contract is declared reliable if the composite reliability value is greater than 0.600. The first evaluation is done at the second-order level, which is to see whether each question item in one indicator is reliable or reliable so that it can be used in further studies.

Table 4: Construct reliability testing

Variable	Composite Reliability	Description
Affective Commitment (X1)	0,921	Reliable
Normative Commitment (X2)	0,938	Reliable
OHS Commitment (Z)	0,806	Reliable
Work Productivity (Y)	0,887	Reliable

Testing the direct effect by testing the significance of the path coefficient of partial least square (PLS), the path coefficient shows the magnitude of the influence of an exogenous variable on its endogenous variables. If the path coefficient value is significant, it can be said that the exogenous variable has a significant effect on the endogenous variable.

Table 5: Direct testing

Tested Influence	Path Coefficient	P-Values	Description
Affective Commitments -> OHS Commitments	-0.069	0.465	Not significant
Affective Commitment -> Work Productivity	0.073	0.497	Not significant
OHS Commitment -> Work Productivity	0.327	0.000	Significant
Normative Commitments -> OHS Commitments	0.607	0.000	Significant
Normative Commitment -> Work Productivity	0.440	0.000	Significant

The results of hypothesis testing in table 4.14 can be described as follows. The Effect of Affective Commitment on OHS Commitment is not significant at $\alpha = 0.05$, seen through the p-value of 0.465. The value is greater than 0.05 ($\alpha = 5\%$). The coefficient of -0.069 is positive, indicating the relationship between the two is in the opposite direction but not significant, meaning that the affective commitment possessed by the employees of the company has no impact on the OSH Commitment of Company. The Effect of Affective Commitment on Work Productivity is not significant at $\alpha = 0.05$, seen through the p-value of 0.497, the value is greater than 0.05 ($\alpha = 5\%$). The coefficient of 0.073 is positive, indicating the relationship between the two is in the same direction but not significant, meaning that the affective commitment possessed by the employees of the Company has no impact on the Work Productivity of Company. The influence of Normative Commitment on OHS Commitment is significant at $\alpha = 0.05$, seen through the p-value of 0,000, the value is smaller than 0.05 ($\alpha = 5\%$). The coefficient of 0.327 is positive, indicating the relationship between the two is in the same direction and significant. It means that the better the Normative Commitments owned by the employees of the company will increase the OHS Commitment of the employees, and vice versa, the worse the Normative Commitments owned by the employees of the company will reduce the OHS Commitment from the employee. The Effect of Normative Commitment on Work Productivity is significant at $\alpha = 0.05$, seen through the p-value of 0,000, the value is smaller than 0.05 ($\alpha = 5\%$). A coefficient of 0.607 is positive, indicating the relationship between the two is in the same direction and significant. It means that the better the Normative Commitments held by the employees of the company will increase employee productivity, and vice versa, the worse the Normative Commitments held by the employees of the company will reduce the work productivity of these employees. The effect of OSH Commitment to Work Productivity is significant at $\alpha = 0.05$, seen through the p-value of 0,000, the value is smaller than 0.05 ($\alpha = 5\%$). A coefficient of 0.440 is positive, indicating the relationship between the two is in the same direction and significant. It means that the better the OHS Commitment owned by the employees of Company will increase the Work Productivity of these employees, and vice versa, the worse the OHS Commitment owned by the employees of Company which is owned by an institution will reduce the Work Productivity of the employee.

An indirect effect is known by looking at the coefficient of indirect effect obtained by multiplying the path coefficient of the direct effect of the independent variable with the mediating variable with the path coefficient of the direct effect of the mediating variable with the dependent variable. Testing is done by looking at the p-value on the Sobel test for indirect effects. The results of testing the indirect effect are explained in the following table

Table 6: Indirect testing

Tested Influence	Path Coefficient	Values	Description
Affective Commitment (X1) Towards Work Productivity (Y) Through OHS Commitment (Z)	-0,023	0,498	Not significant
Normative Commitment (X1) Towards Work Productivity (Y) Through OHS Commitments (Z)	0,198	0,003	Significant

Table 6 shows the coefficient of indirect effects and the t-test p-value. The indirect effect is declared significant if the p-value of the Sobel test results $< \alpha = 0.05$ (5%) and vice versa. The detailed test results can be explained as follows: the indirect effect between affective commitment on work productivity Through OHS Commitments, obtained from the product of the direct influence between affective commitment on OHS Commitments and the direct impact between OHS Commitments on Work Productivity, so the indirect effect of -0.023. Testing the indirect effect using the Sobel test. It is known that the p-value calculated using the Sobel formula of 0.498 is higher than the value of $\alpha = 0.05$ (5%), so it is stated that there is no significant indirect effect between Affective Commitment To Work Productivity Through OHS Commitments; the indirect effect between Normative Commitments on Work Productivity Through OHS Commitments, obtained from the product of the direct influence between Normative Commitments on OHS Commitments and the direct influence between OHS Commitments on Work Productivity, so the indirect effect of 0.198. Testing the indirect effect using the Sobel test. It is known that the p-value calculated using the Sobel formula of 0.003 is smaller than the value of $\alpha = 0.05$ (5%), so it is stated that there is a significant indirect effect between the Commitments Normative Towards Work Productivity Through OHS Commitments. The positive indirect effect coefficient indicates that the better the Normative Commitments owned by the employees will increase the employees' OHS Commitments, which then have an impact on improving the productivity of the employees of the company.

Conclusion

Based on the results of data analysis and discussion, this research can be concluded as follows: affective commitment, in this case, are matters related to loyalty and love for the company that does not have a positive and significant impact on workplace safety and health commitments. In the affective commitment variable, the dominant indicator with the most significant loading factor is Perception of Organizational Goals (X1.1), and the indicator with the lowest loading factor is Perception of Organizational Value (X1.2). Management directives to create programs that are consistent and integrated with the company's goals and objectives. The management must be implemented so that the company's goals and objectives are well understood by employees and implemented in programs that support worker safety and health commitments and are oriented towards achieving the company's Vision and Mission.

Normative commitment, in this case, is a feeling that requires to survive in the organization due to obligations and responsibilities to the organization based on norm considerations, environmental influences, and opinions that develop in the environment have a positive and significant impact on occupational safety and health commitments. There is a reasonably strong relationship between the two variables, meaning that the higher the value of the normative commitment variable, the higher the value of occupational safety and health commitment. In the normative commitment variable, the indicator with the highest loading factor value is Pressure from Other Members in the Organization (X2.1). The indicator with the lowest loading factor value is the Consideration of Leadership and Other Members' Assessments When Exiting the Organization (X2.3). An understanding of the same occupational safety and health commitments between members of the organization will contribute to the achievement of occupational safety and health commitments. The provision of basic training on OHS and the application of daily programs to cultivate OHS in regular implementation needs to be improved and applied more so that the creation of working environment safety and a healthy climate.

Normative commitment has a positive and significant effect on work productivity. There is a reasonably healthy relationship between the two variables, meaning that the higher the value of the normative commitment variable, the higher the amount of work productivity. In the normalizing commitment variable, the indicator with the highest loading factor value is Pressure from Other Members in the Organization (X2.1). The indicator with the lowest loading factor value is the Consideration of Leadership and Other Members' Assessments When Exiting the Organization (X2.3). Different perceptions between members of the organization make each employee have different assumptions on the rules that apply in the company so that it brings an effect on the achievement of productivity. Socializing regulations from management and making operational guidelines for company regulations will increase the creation of high productivity.

Affective commitment has a positive and significant effect on work productivity. The result is evident from the results of testing that there is a positive influence on affective commitment to productivity, but the value is not significant. The finding contradicts the results of other studies. It means that at the Indonesian company, its affective commitment has not significantly affected productivity. Most likely, due to the lack of affective commitment that employees have towards the company.

Commitment to occupational safety and health has a positive and significant impact on work productivity. There is a fairly strong relationship between the two variables, meaning that the higher the value of the occupational safety and health commitment variable, the higher the value of work productivity. In the Occupational Safety and

Health variable, the indicator with the highest loading factor value is Responsive for Occurrence of Work Accidents (Z3). The indicator with the lowest loading factor value is responsive over unhealthy work environment (Z4). Response and decision making when work accidents and an unhealthy environment will affect work productivity. Employees will feel comfortable and safe, working in a healthy environment that guarantees their security and safety to increase employee productivity.

References

- [1]. Alingh, C. W., Van Wijngaarden, J. D. H., Van De Voorde, K., Paauwe, J., & Huijsman, R. (2019). Speaking up about patient safety concerns: The influence of safety management approaches and climate on nurses' willingness to speak up. *BMJ Quality and Safety*. <https://doi.org/10.1136/bmjqs-2017-007163>
- [2]. Ambarwati, R., Fathurochman, A. G., & Rizal, A. (2019). Competitive Force Model for Indopipe Industry with Analysis of Customer Requirements. *Journal of Physics: Conference Series*, 1424, 12046. <https://doi.org/10.1088/1742-6596/1424/1/012046>
- [3]. Ambarwati, R., & Handiwibowo, G. A. (2018). The Relationship of Outdoor Management Development and Organizational Mission. In 1st International Conference on Intellectuals' Global Responsibility (ICIGR 2017) (pp. 202–205). Atlantis Press. <https://doi.org/https://doi.org/10.2991/icigr-17.2018.49>
- [4]. Bavafa, A., Mahdiyar, A., & Marsono, A. K. (2018). Identifying and assessing the critical factors for effective implementation of safety programs in construction projects. *Safety Science*. <https://doi.org/10.1016/j.ssci.2018.02.025>
- [5]. Guo, B. H. W., Yiu, T. W., & González, V. A. (2016). Predicting safety behavior in the construction industry: Development and test of an integrative model. *Safety Science*. <https://doi.org/10.1016/j.ssci.2015.11.020>
- [6]. Handiwibowo, G. A., Noer, L. R., Ambarwati, R., & Arumsari, Y. K. (2020). Determining the local community indicators on corporate social responsibility activities (case study in Indonesia). {IOP} Conference Series: Earth and Environmental Science, 423, 12017. <https://doi.org/10.1088/1755-1315/423/1/012017>
- [7]. Haslam, C., O'Hara, J., Kazi, A., Twumasi, R., & Haslam, R. (2016). Proactive occupational safety and health management: Promoting good health and good business. *Safety Science*. <https://doi.org/10.1016/j.ssci.2015.06.010>
- [8]. Haseeb, M., Suryanto, T., Hartani, N. H., & Jermisittiparsert, K. (2020). Nexus Between Globalization, Income Inequality and Human Development in Indonesian Economy: Evidence from Application of Partial and Multiple Wavelet Coherence. *Social Indicators Research*. <https://doi.org/10.1007/s11205-019-02178-w>
- [9]. He, Q., Dong, S., Rose, T., Li, H., Yin, Q., & Cao, D. (2016). Systematic impact of institutional pressures on safety climate in the construction industry. *Accident Analysis and Prevention*. <https://doi.org/10.1016/j.aap.2015.11.034>
- [10]. Horwitz, S. K., & Horwitz, I. B. (2017). The effects of organizational commitment and structural empowerment on patient safety culture: An analysis of a physician cohort. *Journal of Health, Organisation and Management*. <https://doi.org/10.1108/JHOM-07-2016-0150>
- [11]. Korkmaz, S., & Park, D. J. (2018). Comparison of Safety Perception between Foreign and Local Workers in the Construction Industry in Republic of Korea. *Safety and Health at Work*. <https://doi.org/10.1016/j.shaw.2017.07.002>
- [12]. Kuimet, K., Järvis, M., Virovere, A., & Hartšenko, J. (2016). Linking Human Resource Management and Knowledge Management via Commitment to Safety. *Safety of Technogenic Environment*. <https://doi.org/10.1515/ste-2015-0003>
- [13]. McGonagle, A. K., Childress, N. M., Walsh, B. M., & Bauerle, T. J. (2016). Can Civility Norms Boost Positive Effects of Management Commitment to Safety? *Journal of Psychology: Interdisciplinary and Applied*. <https://doi.org/10.1080/00223980.2016.1143798>
- [14]. Reader, T. W., Mearns, K., Lopes, C., & Kuha, J. (2017). Organizational support for the workforce and employee safety citizenship behaviors: A social exchange relationship. *Human Relations*. <https://doi.org/10.1177/0018726716655863>
- [15]. Schwatka, N. V., & Rosecrance, J. C. (2016). Safety climate and safety behaviors in the construction industry: The importance of co-workers commitment to safety. *Work*. <https://doi.org/10.3233/WOR-162341>

- [16]. Stackhouse, M., & Turner, N. (2019). How do organizational practices relate to perceived system safety effectiveness? Perceptions of safety climate and co-worker commitment to safety as workplace safety signals. *Journal of Safety Research*. <https://doi.org/10.1016/j.jsr.2019.04.002>
- [17]. Taylor, W. D., & Snyder, L. A. (2017). The influence of risk perception on safety: A laboratory study. *Safety Science*. <https://doi.org/10.1016/j.ssci.2017.02.011>
- [18]. Yiu, N. S. N., Sze, N. N., & Chan, D. W. M. (2018). Implementation of safety management systems in Hong Kong construction industry – A safety practitioner’s perspective. *Journal of Safety Research*. <https://doi.org/10.1016/j.jsr.2017.12.011>