

Risk Management Performance of the Railway Construction Services Sector Workers

Donny Satria¹, Masjraul Hidayat², Sandriana Marina³, Prasadja Ricardianto⁴, Yana Tatiana⁵,
Zaenal Abidin⁶

^{1,3,4,5,6}Postgraduate Directorate, Trisakti Institute of Transportation and Logistics, Jakarta, Indonesia-13210

²Faculty of Management and Business, Trisakti Institute of Transportation and Logistics,
Jakarta, Indonesia-13410

Email: donnysatria83@gmail.com, rulihid@gmail.com, sandrianamarina@yahoo.co.id, ricardianto@gmail.com,
yana23011972@gmail.com, abidin.zaenal103@gmail.com

Abstract— The research objective was to determine the effect of Occupational Safety and Health (OSH) Skill and governance on work safety performance to mediate the risk management performance. There are still many work accidents that require an increase in the protection of workforce safety through efforts to improve OSH skills, governance and risk management performance. This research uses path analysis statistics to analyze the data. The results of the analysis are then analyzed by using descriptive statistics. A total of 98 supervisors in the double-track railway construction work of the Java Mojokerto-Jombang double-track railway in 2020 was taken as sample using simple random sampling techniques. The results showed, that governance have a positive and very significant effect on work safety protection to mediate the risk management performance, and also, governance have a positive and very significant effect on work safety protection to mediate the risk management performance. As key finding, some consideration, policy-making can utilize the findings of this research. In particular, those attributes crucial in item questionnaire performance of the risk management responded less than the maximum by the supervisor OSH railway double track train cross South of Java, Mojokerto-Jombang.

Keywords— Occupational Safety and Health Skills, Governance, Risk Management Performance, Work Safety Protection.

I. INTRODUCTION

A. Background

Work safety protection for workers in the railway construction service sector is an important thing, so it needs to be taken seriously by companies. However, in reality, the construction work of the double-track railway construction of the southern Java crossing of Mojokerto-Jombang has not been completely free from accidents. There are still workers who have accidents due to various matters that cannot be controlled properly. This condition proves that the level of safety protection in the construction service sector is not fully guaranteed. This situation was confirmed by work accidents throughout 2018 which reached 157,313 cases. Then a labor accident in the railway construction service sector in early 2018 occurred at Jalan Permata, Jatinegara, East Jakarta, which resulted in two victims dying at the location and two victims dying in the hospital and one injured victim [1].

In the Regulation of the Minister of Transportation of the Republic of Indonesia, it is stated that railway safety is a state of safety in the operation of railways. The definition of safety in the operation of trains in article two states that, among other things, it includes efforts to create a place and work environment for railway human resource that is safe, secure, comfortable, and efficient. Some of the problems in railway construction work in Indonesia, including; (1) there is still a lack of work safety protection for workers in the railway construction service sector, (2) lack of OSH skills for workers in the railway construction service sector, (3) corporate governance in the railway construction service sector that must be further improved, (4) risk management performance

which is not good, and (5) the quality of maintenance of work facilities and infrastructure in the railway construction service sector is still lacking.

Most decision makers have embraced the ISO 31000:2009 risk management standard, and this standard has created challenges for those who use a language and approach that is unique to their field of work but different from the new standards and guidelines. [2]. Several preceeding studies about Occupational Safety and Health (OSH) skills, governance and risk management performance have been carried out. According to [3], [4] showed that hard skills affect OSH behavior. Employee skills have been shown to support the mental ability to integrate and coordinate organizational interests and activities [5]. Several studies on risk management have been carried out by [5] which explains that employee skills produce the mental ability to integrate and coordinate organizational interests and activities. The research uses risk management on several aspects of principles, frameworks and risk processes in their respective business fields based on SNI ISO 31000 [6]–[8]. Furthermore, risk management is stated by [9] as a systematic system of risk identification, risk analysis and project risk control.

B. Literature Study and Hypothesis

1. Work Safety Protection

In the perspective of the world of work, work safety is defined by [10] as the protection of job security experienced by the workers both physically and mentally in the work environment. In addition, job security is also defined as a series of attempts to create a working atmosphere that is safe and peaceful for employees who work in a company that cares [11]. Work safety as a condition that is safe or secure from

suffering, damage, or loss in the workplace [12]. In addition, [13] explains that specifically, work safety can be interpreted as protecting employees from injuries caused by work-related accidents. Work safety is something that is very important, so to ensure its performance an effective work safety management is needed, namely by providing employee protection from accidents in the workplace. Meanwhile, [14] define safety as protection of one's physical well-being. According to [15], work safety is a condition where workers are safe, do not experience accidents in carrying out their duties and work.

Therefore, based on the theoretical description of work safety, it can be synthesized that work safety protection is a condition that ensures railway construction service workers are safe, secure, comfortable, and efficient.

2. Governance

The word governance often refers to a company, corporation, or organization. According to [16], corporate governance is a system that regulates, manages, and oversees the business control process to increase share value, as well as a form of concern for stakeholders, employees, and the surrounding community. In addition, the definition of corporate governance is a process and structure used by the company organs such as, shareholders, commissioner, and director to increase business success and corporate accountability to realize long-term shareholder value while still paying attention to stakeholder interests. others, based on statutory regulations and ethical values [17]. Corporate governance, in the Cadbury Report, can also be interpreted as a set of rules that define the relationship between shareholders, managers, creditors, government, employees, and other interested parties both internal and external with respect to their rights and responsibilities [18]. Meanwhile, in the Forum for Corporate Governance in Indonesia (FCGI), the purpose of corporate governance is to create added value for all interested parties (stakeholders) [19].

Therefore, based on the descriptions of these sources, governance can be defined as a system that regulates, manages and supervises the company's operational control processes, with indicators: transparency, accountability, responsibility, independence, and fairness.

3. Occupational Safety and Health (OSH) Skills

According to prevailing theories, there is an effect of hard skills on Occupational Safety and Health (OSH) Skills [20]. [14] define occupational health as a condition that refers to physical, mental, and emotional stability in general. A healthy individual is an individual who is free from illness, injury, and emotional problems mental that can interfere with the activity. According to [13] that employees suffer injuries caused by accidents are always work-related. [20] also said that occupational safety management includes the protection of employees from accidents in the workplace whereas, health refers to the freedom of employees from physical and mental illness.

Based on the theoretical description of the OSH skills, it can be synthesized that OSH skills are the skills to do a job in practice through special knowledge, analytical skills in their specialization, and facilities in using tools and techniques from

specific disciplines to carry out their activities, which include indicators, namely, surviving from suffering.

4. Risk Management Performance

Risk, to provide reasonable assurance about the achievement of the entity's objectives. In The International Organization for Standardization (ISO) 31000: 2009 that a conceptual risk management framework can be built through a number of stages of the risk management process consisting of risk identification, risk assessment, risk evaluation and risk management. According to [21], defines risk management as a process, which is effect by the entity's board of directors, management and other personnel, applied strategic settings and corporate objectives, which are designed to identify potential events that can affect the entity, and are under management. The ISO 31000:2009 standard on risk management, supports a new, simple way of thinking about risk and risk management and is intended to start the process of resolving the many inconsistencies and ambiguities that exist between the many different approaches and definitions [2]. ISO 31000 is a guidance to implementing risk which consists of three elements: principles, frameworks, and processes. The Risk management principles are as the basis for risk management practice or philosophy [22], [23]. Risk management principles provide guidance on the characteristics of effective and efficient risk management. The thing that distinguishes ISO 31000 from other risk management standards is that the perspective of ISO 31000 which is broader and more conceptual than others [8], [24]. Likewise, [25] risk management is seen as a design procedure and implementation of procedures to manage a business risk.

Based on the descriptions of several opinions from several sources, it can be synthesized that risk management performance is the implementation of a structured approach in managing uncertainty related to threats that are reflected in a series of human activities using resource management, with several dimensions, such as risk identification, analysis risk, risk evaluation, risk avoidance, risk mitigation, risk transfer to third parties, and risk acceptance.

5. Hypothesis

H1: OSH skills have a direct effect on work safety protection.

H2: Governance have a direct effect on work safety protection

H3: Risk management performance have a direct effect on work safety protection

H4: OSH skills have a direct effect on risk management performance

H5: Governance have a direct effect on risk management performance

H6: OSH skills have an indirect effect on work safety protection by mediating risk management performance

H7: Governance have an indirect effect on work safety protection by mediating risk management performance

The theoretical framework describing the effect of OSH skills and governance on risk management performance and its impact on workplace safety protection (Figure 1).

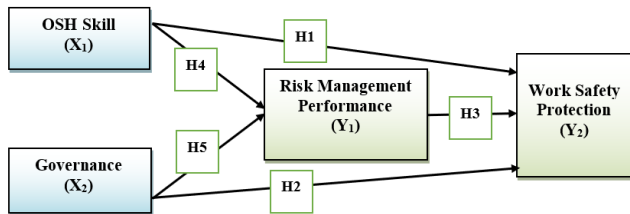


Fig. 1. Framework Model

II. RESEARCH METHODS

This study uses a survey method. The population is a supervisory level workforce at the double track railway construction work for the South Java Mojokerto-Jombang double track railway in 2020, amounting to 129 people. While the sample is 98 supervisor-level workers taken at random simple. Collecting data using a questionnaire instrument in the form of a Likert scale. The data obtained from the instrument were analyzed using a path analysis approach. Four variables are used, namely, the skills of OSH and governance as exogenous variables as well as the performance of the risk management and protection safety work labor services sector of the construction of railways as the endogenous variables. With such conditions, then the design of this research was causal. In some of the stages of the research conducted, among others, descriptive analysis was conducted to explain the conditions of the study variables. The stage of the test requirements analysis or test, the classical assumption, namely normality test with the method of Kolmogorov-Smirnov (K-S). Analysis of parametric statistics (inferential) is path analysis (path analysis). To test the significance of the path coefficient used t-test (t value) and the value of t is obtained.

III. RESULTS AND DISCUSSION

A. Hypothesis-testing

The results of statistical calculations with path analysis processed with the SmartPLS 3 application to test the research hypothesis obtained by path coefficients and t arithmetic which are depicted in the path diagram (Figure 2).

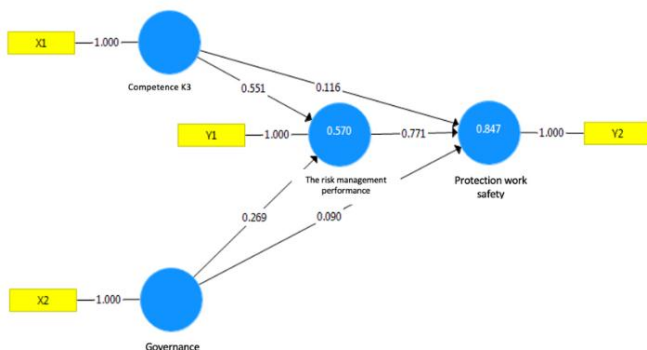


Fig. 2. Path Coefficient of Effect of OSH Skills and Governance on Risk Management Performance and Work Safety Protection

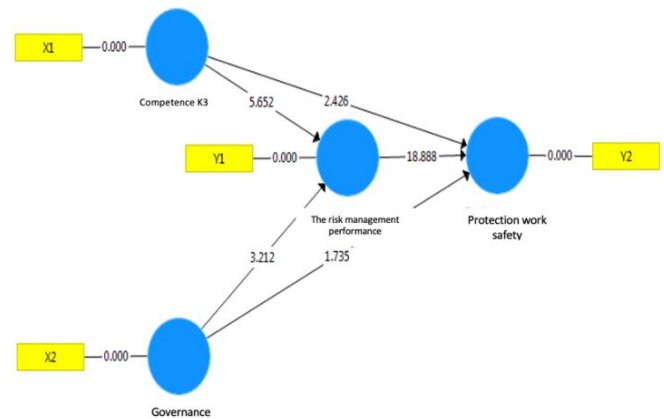


Fig. 3. The Effect of OSH and Governance Skills on Risk Management Performance and Work Safety Protection

From the two diagrams and output of SmartPLS, the results of the path coefficient and t-test can be summarized (Table I).

TABLE I. Summary of Path Coefficients and t-Test

| Path | Coefficient Path | T-statistic | t-table | |
|-------------------|------------------|-------------|---------------|---------------|
| | | | $\alpha=0.05$ | $\alpha=0.01$ |
| $X_1 - Y_2$ | 0.116 | 2.426** | 1.660 | 2.365 |
| $X_2 - Y_2$ | 0.090 | 1.735* | 1.660 | 2.365 |
| $Y_1 - Y_2$ | 0.771 | 18.888** | 1.660 | 2.365 |
| $X_1 - Y_1$ | 0.551 | 5.652** | 1.660 | 2.365 |
| $X_2 - Y_1$ | 0.269 | 3.212** | 1.660 | 2.365 |
| $X_1 - Y_2 - Y_1$ | 0.425 | 5.263** | 1.660 | 2.365 |
| $X_2 - Y_2 - Y_1$ | 0.207 | 3.151** | 1.660 | 2.365 |

* Significant path coefficient (t-statistic > t-table at $\alpha = 0.05$)

** The path coefficient is very significant (t-statistic > t-table at $\alpha = 0.01$)

B. Discussion of Hypothesis Test Results

1. The Effect of the Occupational Safety and Health Skills on the Work Safety Protection

The results of this study empirically prove that Occupational Safety and Health (OSH) Skills have a positive and very significant effect on work safety protection, with an indication of the path coefficient value of 0.116 and the value of t-statistic = 2.426 > t-table value = 2.365. Path coefficient direct effect OSH Skills the improvement of the skills of OSH can lead to increased work safety protection. The results of this study empirically prove that the skills of OSH have a positive and very significant direct effect on the work safety protection. The protection of job security is very important for the workers of the construction of the railway. One of the factors that can support the manufacture of protective safety work is the skill of OSH. OSH Skills is the skill to perform the work practically through special knowledge, analysis skills in their specialty, and facility in the use of the tools and techniques of the specific discipline to carry out their activities, which is reflected in the suffering of life, damage and loss in the workplace as well as the dimensions of health that includes physical, mental and emotional. Skills is the ability to translate knowledge into practice so that the desired work results are achieved [26]. Likewise, [13] explains that specifically, work safety can be interpreted as protecting employees from injuries caused by work-related accidents. When the OSH skills of workers in the railway constructive

service sector, such as physical, mental, and emotional stability, can be properly conditioned, then this will have an effect in increasing work safety protection.

Therefore, this means that the findings of this research right, support and confirm the results of previous studies that the skills of OSH have a direct effect on work safety protection.

2. *The Effect of the Governance on the Work Safety Protection*

The results of this study empirically prove that governance have a positive and significant effect on work safety protection, with an indication of the path coefficient value of 0.090 and the value of t-statistic = 1.735 > t-table value = 1.660. The results of this study also empirically prove that the governance have a positive effect and significant on the protection of work safety protection. Research by [27] also proved that governance have a relationship with safety. Governance such as transparency, accountability, responsibility, and independence of workers in the railway construction service sector can be properly conditioned, then this will affect the protection of work safety. Based on the decree of the government regulation of year 2002 concerning the implementation of corporate governance practices, the principles of corporate governance include; (1) Transparency, (2) Independence, (3) Accountability, (4) Accountability, and (5) Fairness. If governance such as transparency, accountability, responsibility, and independence of workers in the railway construction service sector can be properly conditioned, then this will affect the work safety protection.

Therefore, this means that the findings of this study are appropriate, support, and confirm the results of previous studies that governance have a direct effect on safety protection.

3. *The Effect of the Risk Management Performance on the Work Safety Protection*

The results of this study empirically prove that performance of risk management have a positive and very significant effect on work safety protection, with an indication of the path coefficient value of 0.771 and the value of t-statistic = 18.888 > t-table value = 2.335. The results of this study empirically also prove that risk management performance have a positive and very significant effect on work safety protection. Work safety protection is urgently needed by employees, including railway construction service workers and can be guaranteed properly if there is adequate risk management performance. The risk management strategy is closely related to the aspects of personal protective equipment, and monitoring the work environment for each level [28]. When the various aspects of risk management performance can be properly conditioned in the railway construction service sector workforce, then this will have an impact on improving work safety protection, which is a condition that ensures railway construction service workers are safe, secure, comfortable, and efficient.

Therefore, this means that the findings of this study are in accordance, support, and confirm the results of previous studies that risk management performance have a direct effect on safety protection.

4. *The Effect of the Occupational Safety and Health Skills on the Risk Management Performance*

The results of this study empirically prove that Occupational Safety and Health (OSH) Skills have a positive and very significant effect on risk management performance, with an indication of the path coefficient value of 0.551 and the value of t-statistic = 5.652 > t-table value = 2.365. The path coefficient obtained is positive so it shows that the improvement of the skills of OSH can improve the risk management performance. The results of this study also empirically prove that the skills of OSH have a positive and very significant direct effect on the risk management performance. Each company tries to minimize the risk in its activities. Risk minimization can improve the risk management performance. To support the risk management performance, the expertise of OSH is required, namely the ability to perform the work practically through specialized knowledge, analytical skills in their expertise, and facility in the use of a tool and various techniques specific to carry out their activities, which includes indicators such as safety. On the other hand, risk management performance can be affected by OSH skills [3]. This condition is in accordance with the results of research by [29] which show that capability have an effect on risk management. If OSH skills are in high condition, it will have an impact on increasing risk management performance.

Therefore, this means that the findings of this study are appropriate, support, and confirm the results of previous studies that OSH skills have a direct effect on risk management performance.

5. *The Effect of the Governance on the Risk Management Performance*

The results of this study empirically prove that governance have a positive and very significant effect on risk management performance, with an indication of the path coefficient value of 0.269 and the value of t-statistic = 3.212 > t-table value = 2.365. The path coefficient obtained is positive so it shows that the improvement of governance can improve the risk management performance. The results of this study also empirically prove that governance have a positive and very significant direct effect on risk management performance. Increasing risk management performance is not only effect by the OSH skill factor, but is also can be effect by governance factors, namely the system that regulates, manages, and oversees the operational control process, which is reflected in several indicators such as transparency, accountability, responsibility, independence, and fairness. The findings by [30], [31] explaining that corporate governance and company characteristics affect the existence of risk management, and the existence of risk management affects company performance. Another study by [32] also found that risk management affects firm performance, acting as an intervening variable in the relationship between corporate governance and firm performance.

Therefore, this means that the findings of this study are appropriate, support, and confirm the results of previous studies that governance have a direct effect on risk management performance.

6. The Effect of the Occupational Safety and Health Skills on the Work Safety Protection with the Mediation of the Risk Management Performance

The results of this study empirically prove that Occupational Safety and Health (OSH) Skills have a positive and very significant effect on work safety protection to mediate the risk management performance, with an indication of the path coefficient value of 0.425 and the value of t -statistic = 5.263 > t -table value = 2.365. This condition ultimately has positive implications for the protection of workforce safety in the railway construction service sector, which is a condition that guarantees railway construction service workers in the following conditions: safe, secure, comfortable, and efficient. This condition has the opportunity for an indirect effect of OSH skills on work safety protection in the railway construction service sector by mediating risk management performance. The results of the study by [33] explain the importance of employee safety behavior in improving safety outcomes, as well as the importance of proactive risk management in promoting safety behavior. This finding is very important for management as it provides evidence on the factors that companies should encourage to reduce risk and improve safety performance.

This means that the findings of this study are consistent with, support, and confirm the results of previous studies that OSH skills have an indirect effect on work safety protection by mediating risk management performance.

7. The Effect of the Governance to Work Safety Protection with the Mediation of the Risk Management Performance

The results of this study empirically prove that governance have a positive and very significant effect on work safety protection to mediate the risk management performance, with an indication of the path coefficient value of 0.207 and the value of t -statistic = 3.151 > t -table value = 2.365. Path coefficient obtained is positive and very significant, so it shows that the improvement of governance supported by the risk management performance can increase the work safety protection. The results of this study empirically also prove that the government have the effect of positive and very significant on the work safety protection to mediate the risk management performance.

Therefore, this means that the findings of this study are consistent with, support, and confirm the results of previous studies that governance have an indirect effect on the protection of worker safety by mediating risk management performance.

Based on the results of the hypothesis test, therefore Occupational Safety and Health (OSH) Skills have a positive effect and significant direct on work safety protection, government have a positive effect and significant on work safety protection, risk management performance and positive direct effect to the security significant, and the government have a positive effect and is not directly on work safety protection by mediation risk management performance.

IV. CONCLUSIONS

The ministry of the transportation republic of Indonesia through the Directorate General of Railways and the

management of the company construction services company that becomes the partner of the ministry of Transportation need to issue a policy acceleration that supports the improvement of the performance of risk management is better. As a material consideration, policy-making can utilize the findings of this research, in particular, those attributes crucial in item questionnaire performance of the risk management responded less than the maximum by the supervisor OSH railway double track train cross South of Java, Mojokerto-Jombang.

The Directorate General of Railways Ministry of Transportation Republic of Indonesia and the management of the company-construction services company that becomes the partner of the ministry of Transportation should improve the performance of risk management sustainably to better ensure the protection of safety work labor jobs construction of railways.

Further research is needed to use the sample that is more on the projects of construction work the train in Indonesia as well as adds other variables and indicators relevant others, such as the competence of the machinist, maintenance trains, training, train crew, as well as the facilities and infrastructure of the railway. Further research can use different designs and approach a more complex example of Structural Equation Modeling (SEM) that is processed by using the app Lisrel.

ACKNOWLEDGMENTS

Researcher thanked the leader of East Java Regional Railway Engineering Center and East Java Regional Railway Development Work Unit and some lecturers of Infrastructure Railway in Trisakti Institute of Transportation and Logistics, Jakarta, Indonesia. They have all helped to provide operational data for protection of work safety of workers in the railway construction services sector in supervision of double track construction work for the Southern Cross railroad Java Mojokerto-Jombang, East Java. Thanks also to all respondents who were willing to fill out the questionnaire, Trisakti Foundation, Trisakti Institute Transportation and Logistic who have given assignments to project location of the Southern Cross railroad Java Mojokerto-Jombang.

REFERENCES

- [1] K. Setiawan, "Jambi Arrange Land Planning Trans Sumatra Railroad," 2018.
- [2] G. Purdy, "ISO 31000: 2009—setting a new standard for risk management," *Risk Anal. An Int. J.*, vol. 30, no. 6, pp. 881-886., 2010, doi: 10.1111/j.1539-6924.2010.01442.x.
- [3] A. E. Fianza, D. Nusraningrum, and O. Arofah, "Penerapan Safety Management System Pada Lembaga Penyelenggara Pelayanan Navigasi Penerbangan Indonesia the Implementation of Safety Management," *J. Manaj. Transp. Logistik*, vol. 3, no. 2, pp. 205-215, 2016, doi: 10.25292/j.mtl.v3i2.95.
- [4] P. Tamba, D. Kustono, Purnomo, and Tuwoso, "The Relationship between Hard Skill and OHS Behavior on Students' Welding Practice of State Vocational High School 2 Bitung," *IOSR J. Res. Method Educ.*, vol. 7, no. 1, pp. 82-87, 2017.
- [5] G. M. Onchoke, M. Oloko, and G. O. Obonyo, "Influence of Managerial Skills on Performance of Departmental Heads in Public Secondary Schools: A Survey of KISII Central Sub-County," *Int. J. Bus. Manag.*, vol. 3, no. 2, pp. 135-145, 2015.
- [6] T. G. Abisay and N. Nurhadi, "Manajemen Risiko Pada Bandara Soekarno Hatta Berbasis ISO 31000," *J. Tek. Ind.*, vol. 14, no. 2, pp. 116-130., 2014, doi: 10.22219/JTIUMM.Vol14.No2.116-130.

- [7] H. Tugiman, "Manajemen Risiko Organisasi," *J. Manaj. Indones.*, vol. 9, no. 1, pp. 36–64, 2009.
- [8] Z. Putra, S. Chan, and M. Iha, "Desain manajemen risiko berbasis ISO 31000 pada PDAM tirta meulaboh," *J. EKOMBIS*, vol. 3, no. 1, 2018.
- [9] A. Munang, R. M. Faisal, and A. Mansur, "Occupational safety and health risk management of double track railway construction project," *Appl. Ind. Eng. J.*, vol. 2, no. 1, pp. 8–15, 2018.
- [10] W. Bangun, *Human Resource Management*. Jakarta: Erlangga, 2012.
- [11] R. I. Putera and S. Harini, "Pengaruh Keselamatan Dan Kesehatan Kerja (K3) Terhadap Jumlah Penyakit Kerja Dan Jumlah Kecelakaan Kerja Karyawan Pada PT. Hanei Indonesia," *J. Visionida*, vol. 3, no. 1, pp. 42–53, 2017.
- [12] A. P. Mangkunegara, *Human Resources Performance Evaluation*. Bandung: Refika Aditama, 2014.
- [13] R. W. Mondy, *Human resource management*, 12th eds. New Jersey, USA: Prentice Hall., 2012.
- [14] R. L. Mathis and J. H. Jackson, *Human Resource Management*, 13th Eds. USA: South-Western: Cengage Learning, 2010.
- [15] N. B. Wirawan, "Exploration of Employee Awareness of K3 (Occupational Health and Safety) at PT. PG Kebon Agung Malang," [Thesis]. University of Muhammadiyah Malang, 2015.
- [16] A. W. Tunggal, *Fraud Auditing And Forensic Accounting*. Jakarta: Harvarindo, 2012.
- [17] A. Sutedi, *Good Corporate Governance*. Jakarta: Sinar Grafika, 2012.
- [18] Sedarmayanti, *Good Governance: Good Governance & Good Corporate Governance: Good Corporate Governance*. Bandung: Mandar Maju, 2012.
- [19] Hery, *Portrait of the Internal Audit Profession (In Private & State-Owned Companies Leading)*. Bandung: Alfabeta, 2010.
- [20] R. W. Mondy and R. M. Noe, *Human Resource Management*. New York: Prentice Hall Inc., 2010.
- [21] R. R. Moeller, *COSO Enterprise Risk Management: Establishing Effective Governance, Risk, and Compliance Processes*. New Jersey: John Wiley & Sons, Inc, 2011.
- [22] I. Lanin, "Standar Baru Manajemen Risiko ISO 31000:2018," 2020. [Online]. Available: <https://ibfgi.com/risk-management-31000/>. 12 April 2020.
- [23] I. Lanin, "Manajemen Risiko dengan ISO 31000:2018," 2020. [Online]. Available: <https://ivanlanin.wordpress.com/2020/01/08/manajemen-risiko-dengan-iso-310002018/>. 8 Januari 2020.
- [24] L. J. Susilo and V. R. Kaho, *Manajemen Risiko Berbasis ISO 31000*. Jakarta: Penerbit PPM, 2010.
- [25] Kasidi, *Risk management*. Bogor: Penerbit Ghalia Indonesia, 2010.
- [26] T. Suprpto, *Introduction to Communication Theory and Management*. Yogyakarta: MedPress, 2009.
- [27] E. Balka, M. Doyle-Waters, D. Lecznarowicz, and J. M. FitzGerald, "Technology, Governance and Patient Safety: Systems Issues in Technology and Patient Safety," *Int. J. Med. Inform.*, vol. 76, pp. S35–S47, 2007.
- [28] M. P. Ling, W. C. Lin, C. C. Liu, Y. S. Huang, M. J. Chueh, and T. S. Shih, "Risk management strategy to increase the safety of workers in the nanomaterials industry," *J. Hazard. Mater.*, vol. 229–230, pp. 83–93., 2012, doi: 10.1016/j.jhazmat.2012.05.073.
- [29] N. M. Rahmania, Suprpto, and A. R. Perdanakusuma, "Penilaian Kapabilitas Manajemen Risiko Teknologi Informasi Menggunakan Kerangka Cobit 5 (Studi Kasus: Daerah Operasional (Daop) Xx)," *J. Pengemb. Teknol. Inf. dan Ilmu Komput. e-ISSN*, vol. 2548, p. 964X, 2018.
- [30] N. Badriyah, R. N. Sari, and Y. M. Basri, "The effect of corporate governance and firm characteristics on firm performance and risk management as an intervening variable," *Procedia Econ. Financ.*, vol. 31, pp. 868-875., 2015, doi: 10.1016/S2212-5671(15)01184-3.
- [31] D. N. Syah, R. Hasbullah, and S. Solehudin, "Pengaruh Good Corporate Governance terhadap Kinerja Karyawan PT. Pupuk Kujang Cikampek," *J. Bisnis, Manaj. dan Perbank.*, vol. 4, no. 1, pp. 22–38, 2018.
- [32] E. H. Halim, G. Mustika, R. N. Sari, R. Anugerah, and Z. (2017). Mohd-Sanus, "Corporate governance practices and financial performance: The mediating effect of risk management committee at manufacturing firms," *J. Int. Stud.*, vol. 10, no. 4, pp. 272–289, 2017.
- [33] B. Fernández-Muñiz, J. M. Montes-Peón, and C. J. Vázquez-Ordás, "Safety leadership, risk management and safety performance in Spanish firms," *Saf. Sci.*, vol. 70, pp. 295-307., 2014, doi: 10.1016/j.ssci.2014.07.010.