

# Determining Leadership Managerial Performance Using 360 Degrees Feedback Questionnaire and Path Analysis (Case Study: A Mining Company)

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## ABSTRACT

Work Accidents are being critical nowadays, as the number of industry increases and following by the number of work accidents also increases. This company has been struggling in hard year as number of severity rate reached the highest since the last six years. Any programs and campaign to control the hazard is being done, but still the number of severity rate is increasing at the end of 2014. According to Domino Theory (Heinrich, 1980), the root cause lies on bad management, then this research come to solve the issue by measuring the effectiveness of management through leadership managerial roles in assessing the managerial skills, trying to solve the problems from management perspective. This research conducts for managerial level at section head level up in 15 jobsites around Indonesia. The assessment for management adopts 360 degrees method as appraisal performance. This method engages four perspectives; their-selves, superior, peer and subordinate. After conduct the questionnaire, the leadership managerial roles toward the managerial skills performance is mapped using path analysis. According to ideal model from 360 degrees perspectives, the leadership managerial roles highly correlated towards managerial skill performance as much as 0,8297 or 83%, where human skills and conceptual skills are directly affect leadership, meanwhile technical skills indirectly influence leadership through human skills. The ideal model of leadership managerial roles required the managerial skills performances according to the coefficient path shows,  $LD=0,57HS+0,14CS+0,04\epsilon 1$ .

**Keywords:** Leadership Managerial, Managerial Skills, 360 Degrees Method, Summated Likert Ratings, Path Analysis

## ABSTRAK

*Di perusahaan ini, seiring dengan pertumbuhan industri, menghadapi masalah dimana tingkat kecelakaan kerja yang terjadi juga terus meningkat. Walaupun program dan kampanye untuk mengendalikan bahaya terus dilakukan, namun tingkat severity tetap meningkat pada akhir tahun 2014. Menurut Teori Domino (Heinrich, 1980), akar penyebabnya terletak pada manajemen yang buruk. Penelitian bertujuan untuk mengukur efektivitas manajemen melalui peran kepemimpinan manajerial dalam menilai keterampilan manajerial dan pemecahan masalah dari perspektif manajemen. Penelitian ini dilakukan untuk tingkat manajerial pada tingkat kepala bagian di 15 tempat kerja di seluruh Indonesia. Penilaian untuk manajemen mengadopsi metode 360 derajat sebagai kinerja penilaian. Metode ini melibatkan empat perspektif; diri mereka, atasan, rekan kerja dan bawahan. Setelah melakukan kuesioner, peran manajerial kepemimpinan terhadap kinerja manajerial dipetakan dengan menggunakan path analysis. Menurut model ideal dari perspektif 360 derajat, peran kepemimpinan manajerial sangat berkorelasi dengan kinerja manajerial sebanyak 0,8297 atau 83%, di mana kemampuan manusia dan keterampilan konseptual secara langsung mempengaruhi kepemimpinan, sedangkan keterampilan teknis secara tidak langsung mempengaruhi kepemimpinan melalui keterampilan manusia. Model ideal peran kepemimpinan manajerial mensyaratkan kinerja manajerial sesuai dengan jalur jalur koefisien,  $LD = 0,57HS + 0,14CS + 0,04\epsilon 1$ .*

**Kata kunci:** Kepemimpinan manajerial, keterampilan manajerial, metode 360 derajat, Summated Likert Ratings, Path Analysis

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## 1. Introduction

The number of work's accidents are increasing by years, according to ILO researched on G20 country's members, ILO estimates about 2.3 million fatalities which is 350,000 caused by occupational accidents and close to 2 million by work-related diseases, there were also over 313 million non-fatal occupational accidents with official statement that at least four days absence from work (ILO Report for August 2014 World Congress

on Safety and Health at Work). International Labor Organization stated that Indonesia is on the 52nd place from the 53 country with the worst management of occupational health and safety. Mining is one of the biggest industries in Indonesia that also participated and has to concern about the number of accidents. All parties have to involve in maintaining and reducing the numbers of fatal in working area. The government also supports and implements the policy of occupational health and safety in working area through UU NOMOR 1 TAHUN 1970 which regulates about all the rights and responsibilities of workers and labors are protected by law and guaranteed by the company concerned.

This company also has specifically regulates for occupational safety and health in workplace; head office and jobsites. The regulation specifically identifies and organizes all activities that potentially harmful and even hazardous for workers. Even the regulation develops and maintains periodically in order to be properly implemented following the changes into the current condition. The management of occupational safety and health is independently being the authority of Safety, Health and Environment (SHE) Division in this company. All policies, regulations, statistics reports, training and campaigns about SHE are the main duty and responsibility of SHE division. This company has to arrange 15 sites which positively active around Indonesia. A lot of programs were implemented in order to maintain, reduce and solve several critical issues about SHE in jobsites area.

Refer to Domino theory by Heinrich (1980), all accidents caused by the initial basic of accident which is management involvement. The bad management will lead to the chaos workplace and messy activities. Root back to the initial causes, there might be found unidentified causes on management. Even several new programs and trainings are held in order to improve and maintain all the workers at jobsite to be more

careful and being critical to any hazardous workplace and unsafe behaviors and conditions, but still have not solved the problems yet due to the number of severity rate is reach the highest at the last 6 years which attained at level 261.74 (year-to-date November 2014).

According to the recent issues, yet the company has never done any assessment towards management at jobsites. Therefore, this research tries to implementing evaluation method in managerial level at jobsites using 360 degrees method as feedback questionnaires. According to Lepsinger (2009), 360 degrees method is a performance appraisal process which includes compilation of several perspectives about attitude, knowledge, and the ability of employee that has been reviewed by superior, peer, subordinates, customers and their-selves. The main purpose of 360 degrees method is focusing on evaluating the managerial performances, especially in any occupational health and safety activities which is assessing middle up managerial level from several perspectives. According to 360 degrees questionnaire's result, the path analysis will help in measuring the ideal leadership managerial performances through the managerial skills performances. Therefore, the best fit model will be drawn, the direct and indirect variables will be determined as the number of coefficient of each variable in approaching the ideal managerial roles in jobsites required.

Referring to the <http://www.whatishumanresource.com/360-degrees-performance-appraisal/>, there are some advantages and disadvantages of this 360 degrees performance evaluation. For the advantages, among the others are:

- Offer a more comprehensive view towards the performance of employees.
- Improve credibility of performance appraisal.
- Such colleague's feedback will help strengthen self-development.
- The mix of ideas can give a more accurate assessment.
- Opinions gathered from lots of staff are sure to be more persuasive.
- Not only manager should make assessments on its staff performance but other colleagues should do, too.
- People who undervalue themselves are often motivated by feedback from others.
- If more staff takes part in the process of performance appraisal, the organizational culture of the company will become more honest.

For disadvantages, among the others are:

- Taking a lot of time, and being complex in administration
- Extension of exchange feedback can cause troubles and tensions to several staff.
- There is requirement for training and important effort in order to achieve efficient working.
- It will be very hard to figure out the results.
- Feedback can be useless if it is not carefully and smoothly dealt.
- Can impose an environment of suspicion if the information is not openly and honestly managed

## 2. Methods

This research aims to measure the leadership managerial performance in managerial level on 15 jobsites around Indonesia. In determining the variables, questionnaire is used as the media in analyzing and capturing the appraisal performance at managerial level. There are several methods used in attaining the objectives, start from construct the questionnaire, testing the goodness fit of questionnaire, summated Likert rating and path analysis.

### 2.1 Construct Questionnaire

According to Anastasi & Urbina (2007), the validity of this questionnaire is established by the several expertise in concerned research. The questionnaire was established through several discussions by sorting and selecting the statements in questionnaire until the statements are proper and valid. Selecting and sorting data is conducted by SHE People Development Department, the questionnaire were proposed by researcher and supported by officer/ SHE Officer in Head Office, then being screened and sorting by Section Head and validated by Department Head and SHE Division Head.

#### (1) Leadership Managerial (LD)

Covey (1989) describes the leadership and management as the activity of exploring the resources of forest, a good leader will decide and consider any information and knowledge about making decision in which section area required to be explored first. Then right after, the management skills are implemented. Any manager will decide and consider which methods, equipment and tools are most effective in supporting the forest exploration. Meanwhile, Thoha (2006) stated that leadership is connected by influence which it aims to organization's objectives and or self-benefit or common things that are not well-through refer to the organization's objectives. Even though, management and leadership have different definition and characteristics with one another in its application, both of them cannot be separated which means the management also has the roles in performing leadership roles.

Leadership managerial consists of two item questionnaire, each questionnaire describes well the implementation of managerial skills in performing the leadership roles, where to review the KPI, the subjects must be engaged with the subordinates and peer even the superior in measuring performance to achieve KPI goals, meanwhile in constructing the plan using conceptual skills and technical skills used in referring the action plan based on PSMS. Meanwhile, leading incident investigation team is using the conceptual skills by measuring the causal effect based on specific accident also using the technical skills in referring the accident according to PSMS, government policy and several literature to solve the problems and make corrective action in order to avoid the similar accidents occur. The human skills also while the communication have to be built well between the company and government also the victim or personal in maintaining the good relationship and delivering any report according to the accidents.

#### (2) Human Skills (HS)

Refer to Hoffman (2002), people who have social skill will leave better impression and improve the appearance, can create the positive feeling inside compared to people who does not have that skill. Human skill is interpersonal skill that closely related to communication function. Luthan and Davis (1996) stated that human skills are the ability to interact with other effectively, ability to support individually in any level of organization. Human skill is about the ability to communicate with others, moreover influence the subordinates even peer, as human skills constructed by 5 items of questionnaire. Human skill is being determined as the activities that need to engage a lot of people inside, such as ensure that each subordinates are received proper training. The communication between the leader and subordinates is highly describes in this activity due to the need of training is based on the personal needs of the subordinate in facilitating them to improve the skills and ability in workplace. Also a leader should personally contact the subordinates about any issues even non-SHE issues, and also can influence others to involve in any programs and campaign specifically about SHE.

#### (3) Conceptual Skills (CS)

Conceptual skill is not only about mental capacity to analyze and diagnose the complex situation, but also cognitive skill which include such as analytical skill, logic think, arranging concepts and giving inductive consideration (Dessler, 2004). The conceptual skills consist of 5 items of questionnaire and all of questionnaire represent the conceptual skills performance by the leader or the subject of this research. In performing the Plant Task Observation, the analytical skills are required and also the inspection even following up the inspection by monitoring which the conceptual skills in analyzing and logical thinking implemented in this items of questionnaire.

#### (4) Technical Skills (TS)

According to managerial skills required for leader, Yuki (2010) stated that technical skills are knowledge about method, process, procedures and technic to do specific activity and the ability to properly utilize relevant tools and equipment with the task or duty. Yuki added that technical skills include the knowledge about methods, processes, procedures and also technics to properly doing certain task/duty of an organization. It consists of 6 items which all of the represent the conceptual skills, where the conceptual skills attend to measure the performance are proper refer to the method, procedure and technic use in the concerned company. The subjects can acknowledge the appropriate JSA, ensure the housekeeping properly based on the standard of ISO, even the subject can being the healthy life model referring through the healthy life guidance as the standard objectives of SHE division. Even though involves in the execution of drilling ion workplace based on the regulation and standard operation also absorbing the incident learning and executing corrective actions according to the standard and right methods and procedure.

**Table 1. Questionnaire for each variable constructed**

Dimension	Item	Question
Leadership	Q1	I/He/She always reviews SHE Key Performance Indicator (KPI) in concerned jobsite/department monthly and give feedback to the proper department
	Q7	I/He/She leads the incident investigation team refer to PSMS
Human Skills	Q3	I/He/She has to ensure each subordinate under concerned authority to receive appropriate training
	Q9	I/He/She monitors the fields job according to SHE implementation at lower level (subordinates) periodically
	Q12	I/He/She personally contact each subordinate under concerned authority even non-SHE issues periodically
	Q14	I/He/She socializes the earned lesson of any incident both internal and external for a concerned subordinates in order to avoid the accident's recurrences
	Q16	I/He/She involves in any SHE improvement program under concerned authority through SS/QCC/QCP/ value Core
Conceptual Skills	Q2	I/He/She do (es) the Plant Task Observation (PTO) even over PTO periodically
	Q6	I/He/She implements firm regulation which is appropriate with employee's disciplinary guidance towards any SHE violation
	Q8	I/He/She gives feedback towards any PTO's result and monitor the corrective applied
	Q13	I/He/She plans inspection and or over inspection periodically
	Q17	I/He/She monitors the result of follow-up inspection and or green card
Technical Skills	Q4	I/He/She evaluates JSA that jas been done by subordinates and gives feedback
	Q5	I/He/She ensures the housekeeping in concerned workplace is properly maintained
	Q10	I/He/She involves in reviewing the risk register in concerned workplace periodically and use it as basis of safety program
	Q11	I/He/She being a healthy life model towards the subordinates
	Q15	I/He/She involves in any execution of emergency drill in workplace
	Q18	I/He/She understands/ conscientious of incident trends in concerned workplace and do the corrective action

### 2.1.1 Measurement

The measurement of this research is using Likert Ratings. Commonly, several researches using odd number of Likert ratings in appraising the questionnaire. Instead, this research choosing the even number in order to avoid the bias or neutral condition where the respondent is purposely have to choose between the negative or positive statement.

**Table 2. Likert rating modified**

Meanings	Never	Rarely	Sometimes	Always
Likert Scale	1	2	3	4

### 2.1.2 Sample size

The questionnaire is spread all around 15 jobsites in Indonesia under the company's authority. The putative target must be around 558 which consist of Dept. head and Sect. head, according to limitation time of research, the data were sorted into random sampling. The number of sample used is define according to Slovin formula (Ridwan, 2005):

$$n = \frac{N}{N(d)^2+1} \quad (1)$$

The sample has to be stratified according to heterogenic and to define the representative sample, the sample distribution of jobsites and levels refer to this formula (Sugiyono, 2008) :

$$n_2 = \frac{n}{N} \times N_1 \quad (2)$$

To achieve favorable result then the stratified sampling size were implemented in order to have the favorable sample size and quite represent for each site and each level in measuring this questionnaire.

## 2.2 Testing Goodness of Questionnaire

The testing of good questionnaire is applied before the questionnaires are distributed. It must be conducted in order to assure the goodness of questionnaire in measuring the leadership managerial performance through managerial skills in 18 items of questionnaire. This research executes the pre-test questionnaire towards 30 non-respondents in Head Office to conduct validity test, reliability test and confirmatory factor analysis (CFA). All the pre-test are executed using SPSS 19.0.

## 2.3 Summated Likert Ratings

According to Simamora (2002), Likert scale also known as Summated Rating Scale. This scale is commonly implemented because give much opportunity to respondent in express their feelings into statements. There are several steps in calculating Summated Likert scale:

- a. Measure clearly the attitude towards measured topic
- b. Measure clearly, sub variable/compiled dimension, cognitive, affective and conative ( behavior tendency)
- c. Compiled the statements/questions or any item which is used as measurement dimension tools that arrange measurable attitude towards indicators.
- d. Any item will be given responses as closed questionnaire
- e. To any responses, the answers will be given scores according to concerned criterion: if item is positive then the biggest value will be put into "strongly agree" response, meanwhile if the item is negative then the biggest value will be put into "strongly disagree".
- f. To measure the position of each respondent according to the variable, estimate the maximum score and minimum score that possibly will be assessed by respondents:

$$\text{Max Range} = \text{Maximum Score} \times \text{Number of Respondents} \quad (3)$$

$$\text{Min Range} = \text{Minimum Score} \times \text{Number of Respondents} \quad (4)$$

$$\text{Median} = (\text{Max Range} + \text{Min Range}) : 2 \quad (5)$$

## 2.4 Path Analysis

According to Sanusi (2011) stated that Path analysis is the causality relation that shows both direct and indirect among variables in path analysis, such as: the relation among variables must be linear and additive, all residual variables have no correlation each other, the relation pattern among variables is recursive and the scale measurement at least interval data. It can be assumed that Sanusi refers to do classic assumption test beforehand the data being analyzed using path analysis. There are 4 assumptions required to be satisfied; normality test, multicollinearity, autocorrelation and homoscedastic. If the data has been passed the statistical test by classic assumption test, then model regression linear would have *BLUE* characteristic which means Best Linear Unbiased Estimator. The data is already valid and can be executed to the next step.

Robert D. Retherford (1993) stated that path analysis is a method to analyze the causal effect relationship of concerned multiple linear regression if independent variables influence dependent variable both direct and indirect. Path analysis is the immediate development in multiple linear regression form that aims to give estimation of importance magnitude and significance relationship of hypothetical causal effect of a set variables (Paul Webley, 1997). There are several steps to calculate the coefficient path refer to Oktariani (2006):

- a. After developing the path diagram has been cleared that the structural equilibrium is compiled according to the hypothetical relationship, then the variables roles will be affirmatively grouped into exogenous variable and endogenous variable.

b. Since the path analysis data should be correlated or covariance, then the correlation among variables required to be defined by calculating the matrix correlation among concerned variables based on the formula given, the result is matrix correlation R

$$R = \begin{bmatrix} \mathbf{1} & r_{X_1X_2} & \dots & r_{X_1X_j} \\ & \mathbf{1} & \dots & r_{X_iX_j} \\ & & \ddots & \vdots \\ & & & \mathbf{1} \end{bmatrix} \quad (6)$$

c. Identifying subtract and the equilibrium of coefficient path concerned. For example, if there is k numbers of exogenous variable and one endogenous variable  $Y_u$  then the equation will be:

$$Y_u = p_{x_u x_1} X_1 + p_{x_u x_2} X_2 + \dots + p_{x_u x_j} X_k + e \quad (7)$$

d. Matrix correlation among exogenous variables are calculated which is R1 that arranging concerned structures, then must define the inverse of this matrix. Matrix correlation among exogenous variables are calculated to measure the magnitude of exogenous variables effect toward the endogenous variable.

$$R = \begin{matrix} & X_1 & X_2 & \dots & X_k \\ \begin{bmatrix} 1 & r_{x_1x_2} & \dots & r_{x_1x_k} \\ & 1 & \dots & r_{x_2x_k} \\ & & \ddots & \vdots \\ & & & 1 \end{bmatrix} & & & & \end{matrix} \quad (8)$$

e. All the coefficient path calculation refers to this equation  $p_{x_u x_j}$ ,  $i = 1, 2, \dots, k$ . By multiply the invers matrix (R-1) with the variable u-th in matrix R the equation will be:

$$\begin{bmatrix} p_{x_u x_1} \\ p_{x_u x_2} \\ \vdots \\ p_{x_u x_z} \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & \dots & c_{1k} \\ & c_{22} & \dots & c_{2k} \\ & & \ddots & \vdots \\ & & & c_{kk} \end{bmatrix} \begin{bmatrix} r_{x_u x_1} \\ r_{x_u x_2} \\ \vdots \\ r_{x_u x_z} \end{bmatrix} \quad (9)$$

f. Calculating the determination coefficient of total  $R^2_{(x_u(x_1, \dots, x_k))}$  which is the coefficient that determine the magnitude of variables effect towards  $X_u$  variable.

$$R^2_{x_u(x_1, x_2, \dots, x_j)} = [p_{x_u x_1} \quad p_{x_u x_2} \quad \dots \quad p_{x_u x_z}] \quad (10)$$

g. Calculating  $p_{x_u \epsilon}$

This research will use AMOS 22 in measuring the path analysis. There are several assumptions of Goodness Fit of Index that must satisfied to have the best fit model. Augusty (2006) stated that there several index of model fitness and cut off value rendering the fitness test of the model is it acceptable or unacceptable, such as:

- $\chi^2$  - Chi Square statistic, where the model is considered as good or satisfied if the value of Chi-Square is small. The smaller Chi-Square value, the better the model is accepted refer to the probability and cut off value as much as  $p > 0,05$  or  $p > 0,10$
- RMSEA (The Root Mean Square Error of Approximation) that considering expected goodness of fit if the estimation model is in population. RMSEA value must be less than or equal with 0,08 which is index to be accepted as close fit model refer to degrees of freedom.
- Goodness of Fit Index (GFI) is the non-statistical measurement of the range value between the poor fit (0) until perfect fit (1,0). The highest rate of this index shows the better fit.
- Adjusted Goodness of Fit Index (AGFI), where recommended accepted level is if AGFI has an equal or greater value than 0,90.
- CMIN/DF is the The Minimum Sample Discrepancy Function that has been divided by Degree of Freedom (df). In other words, it is a Chi-Square,  $\chi^2$  that has been divided by df and known as relative Chi-Square. If the value of relative  $\chi^2$  is less than 2,0 or 3,0 then there is indication of acceptable fit between the model and data
- TLI (Tucker Lewis Index), is incremental index that compared a research model towards base line model, where the recommended value as control to be accepted in the model is  $\geq 0,95$  and the value that closer to 1 shows a very good fit.
- CFI (Comparative Fit Index) is approaching 1 is indicating that fit leve is the highest, since the recommendation of CFI is  $\geq 0,95$ .

Trimming methods is implemented as if there insignificant path coefficient of exogenous variable through repairing the structural path analysis model by omit those variables from the model (Ridwan & Engkos, 2012). So, trimming model occurs as if the path coefficient has insignificant variable while tested altogether even has been hypothesized. Trimming method is performed by recalculate the coefficient path analysis by omit the insignificant variable exogenous.

## 2.5 Detail Framework

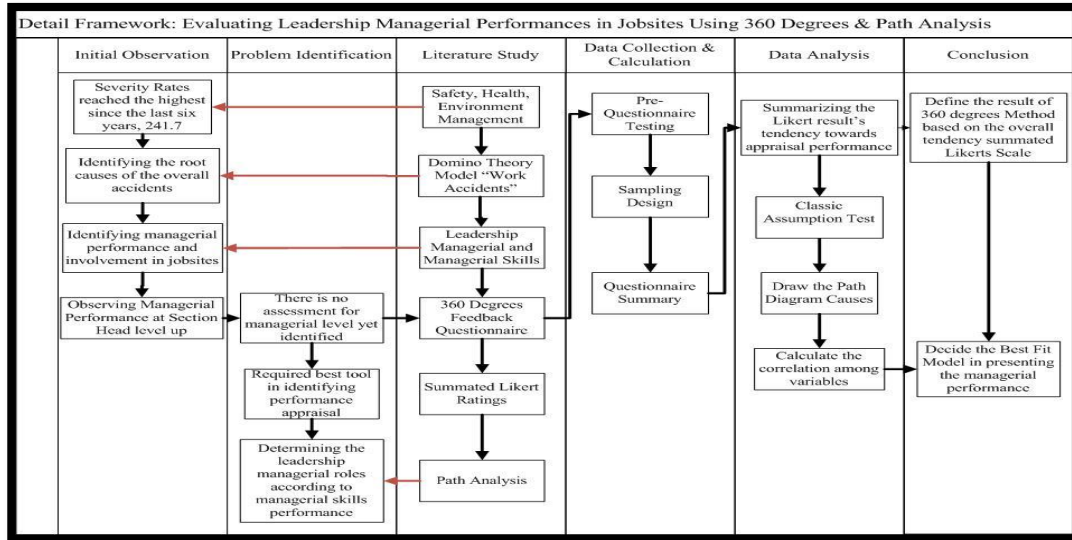



Figure 1. Detail framework of this research

## 3. Result and Discussion

Figure 2 shows an example of responded questionnaire. The result of this research is the summary of whole questionnaire result. The questionnaire was distributed towards the sample size that has been stratified into proportionate number for each sites and each managerial level, the sample size will be shown as Table 3.



**Lembar Umpan Balik SHE Assessment for Management 2014**

**Tujuan:**  
Lembar Umpan Balik SHE Assessment for Management 2014 ini bertujuan untuk memberikan informasi terhadap penerapan K3LH oleh Orang yang Dinilai efektif serta mendukung penerapan K3LH di area kerjanya.

**Penjelasan & Instruksi:**  
Lembar Umpan Balik ini terdiri dari 18 pernyataan terkait penerapan K3LH. Anda diminta untuk menilai yang paling sesuai dengan kegiatan yang anda lakukan, dengan cara **melingkari** salah satu angka dari enam skala yang ada. Berikut penjelasannya:

Skala	Deskripsi
1	Tidak Pernah /Sangat Jarang
2	Jarang
3	Sering
4	Sangat sering/Selalu

Setelah mengisi Lembar Umpan Balik & Form Soal, mohon dapat dikirimkan ke PIC SHE masing-masing Site untuk kemudian akan dikirimkan kembali ke SHE Division Head Office.

**Kerahasiaan:**  
Penilaian Anda pada Lembar Umpan Balik ini akan dijaga kerahasiaannya. Penilaian pribadi anda hanya dapat ditunjukkan kepada orang lain atas ijin anda.

Terima Kasih,  
Safety Health & Environment

Nama : **ANDEI PRHATAMTO**  
NRP : **6102073**  
Jabatan : **SHE**  
Site : **PAMA - BMTB**  
Nama Orang yang Dinilai : **Diri Sendiri**  
Hubungan Dengan Orang yang Dinilai : **Diri Sendiri**

1.	Saya melakukan review terhadap KPI K3LH di Site/Dept saya setiap bulan sekali dan memberikan feedback kepada pihak-pihak yang terkait	1	2	3	4
2.	Saya melakukan PTO berikut over PTO secara rutin	1	2	3	4
3.	Saya memastikan bahwa setiap bawahan saya sudah mendapatkan <i>training</i> SHE	1	2	3	4
4.	Saya melakukan evaluasi terhadap JSA yang dilakukan oleh bawahan saya dan memberikan <i>feedback</i>	1	2	3	4
5.	Saya memastikan <i>housekeeping</i> di area kerja saya terjaga dengan baik	1	2	3	4
6.	Saya menerapkan sanksi yang tegas sesuai garis pedoman disiplin karyawan yang berlaku terhadap setiap pelanggaran K3LH	1	2	3	4
7.	Saya memimpin tim investigasi insiden sesuai dengan kategori insiden yang telah diatur di PSMS	1	2	3	4
8.	Saya memberikan feedback terhadap hasil PTO serta memonitor perubahannya	1	2	3	4
9.	Saya secara rutin melakukan mentoring lapangan terkait implementasi K3LH kepada bawahan saya	1	2	3	4
10.	Saya terlibat dalam melakukan review terhadap <i>risk register</i> (HIRA) di area saya secara rutin dan menjadikannya dasar untuk <i>safety program</i> di area saya	1	2	3	4
11.	Saya memberikan contoh hidup sehat kepada bawahan saya	1	2	3	4
12.	Saya melakukan <i>personal contact</i> secara rutin/berkala ke setiap bawahan saya dan bukan hanya ada masalah terkait K3LH yang dilakukan oleh bawahan saya	1	2	3	4
13.	Saya melakukan inspeksi terencana dan atau <i>over</i> inspeksi secara rutin	1	2	3	4
14.	Saya mensosialisasikan <i>lesson learned</i> dari kejadian insiden di internal maupun external kepada bawahan saya agar kejadian serupa tidak terulang kembali	1	2	3	4
15.	Saya turut terlibat dalam pelaksanaan <i>emergency drill</i> yang ada di area saya	1	2	3	4
16.	Saya terlibat dalam program <i>improvement</i> K3LH di area saya, melalui QCC/QCP/SS/Nilai Inti	1	2	3	4
17.	Saya memonitor hasil <i>follow-up</i> inspeksi dan atau <i>green card</i>	1	2	3	4
18.	Saya memahami/mencermati <i>trend</i> insiden di area saya dan melakukan usaha perbaikan	1	2	3	4

-Terima Kasih-

Figure 2. Sample of 360 Degrees Method of Feedback Questionnaire



**Table 3. Sampling Distribution in 15 Jobsites per level**

Percentage				
DH		=189/558	= 0,3387	= 34%
SH		=369/558	=0,6613	= 66%
Jobsites	DH		SH	
	P	A	P	A
ABKL	7	34%x7 = 3	15	66% x 15 = 6
ADRO	26	34%x26 = 11	55	66% x 55 = 24
ARIA	7	34% x 7 = 3	9	66% x 9 = 4
ASMI	12	34% x 12= 5	12	66% x 12 = 5
BAYA	21	34% x 21 = 9	34	66% x 34 = 15
BCSK	7	34% x 7 = 3	12	66% x 12 = 5
BEKB	7	34% x 7 = 3	10	66% x 10 = 4
BPOP	7	34% x 7 = 3	7	66% x 7 = 3
INDO	21	34% x 21 = 9	52	66% x 52 = 22
KCMB	8	34% x 8 = 3	10	66% x 10 = 4
KIDE	17	34% x 17 = 7	44	66% x 44 = 19
KPCS	18	34% x 18 = 8	42	66% x 42 = 18
MTBU	8	34% x 8 = 3	24	66% x 24 = 10
TCMM	14	34% x 14 =6	28	66% x 28 = 12
TOPB	9	34% x 9 = 4	15	66% x 15 = 6
<b>Total</b>	<b>189</b>	<b>81</b>	<b>369</b>	<b>159</b>

So, there are about 240 subjects and 720 assessors, which means each subject has to be assessed by three assessors and their-selves since this research using 360 degrees which the performance appraisal is assessed by the superior, peer and subordinates. There are several beneficial of 360 degrees method, such as information from employees is more accurate and comprehensive, organization being more smooth and more efficient (Gerhart & Park, 2005), gain trust, teamwork, and communication between participant of assessment and management of participant and employee empowerment (Nowack, 2005), fairness assessment, potential to develop and objectives decision, certifiable and trusted (Bernadine & Russell, 1993).

### 3.1 Pre-questionnaire Testing

There are several pre-questionnaire testing are applied in this research, using validity test, reliability test and confirmatory factor analysis (CFA). Table 4 shows validity and reliability test result.

**Table 4. Validity and Reliability Test**

Statement	Total Correlation	r table	Cronbach's Alpha value	Valid/Omit
Q1	0.722	0.361	0,859	valid
Q2	0.841	0.361	0,903	valid
Q3	0.400	0.361	0,744	valid
Q4	0.700	0.361	0,823	valid
Q5	0.488	0.361	0,727	valid
Q6	0.772	0.361	0,896	valid
Q7	0.602	0.361	0,793	valid
Q8	0.860	0.361	0,945	valid
Q9	0.841	0.361	0,874	valid
Q10	0.509	0.361	0,751	valid
Q11	0.709	0.361	0,798	valid
Q12	0.509	0.361	0,707	valid
Q13	0.802	0.361	0,932	valid
Q14	0.860	0.361	0,945	valid
Q15	0.802	0.361	0,888	valid

**Table 4. Validity and Reliability Test (continued)**

Statement	Total Correlation	r table	Cronbach's Alpha value	Valid/Omit
Q16	0.700	0.361	0,823	valid
Q17	0.408	0.361	0,795	valid
Q18	0.926	0.361	0,945	valid

Based on the result above, the total correlation shows the validity test result that must be more than equal 0,361. Each item has been tested using SPSS 19, then the result shows all of the items are passed the assumption of validity test, meanwhile the Cronbach's Alpha shows the reliability of the item that shows more than 0,7. Kaplan and Saccuzo (1982) recommended the Cronbach alpha value is between 0,7 - 0,8 for basic research and about 0,95 for applied research. According to reliability statistic of validity test also shows the good number of Cronbach's Alpha as much as 0.965 which means accepted to be implemented and distributed to the purposed subject.

The value of KMO shows the fitness of the data to be tested using this test, according to the result above, it shows that Leadership has the lowest KMO, 0,5 since the number of question constructed is only 2 question, but it does not mean the question is not valid, through communalities, the question already succeed in projecting the results as much as 0,878 which is 87% and anti-image supported that if the MSA (Measures of Sampling Adequacy) is more than equal 0,5 then the data can be predicted and further analyzed. Meanwhile, all the statements in questionnaire above shows the good value of communalities which is above 60% then has been strengthen supported by anti-image value which means that the MSA value is more than equal 0,5 then data can be predicted and further analyzed.

### 3.2 Summary of Questionnaire

Klopfer (1980) stated that researcher is proposing alternative that might be assuming the respondent is truly in the middle of nowhere (null position). The purpose subject of this questionnaire is 240 respondents, meanwhile each subject has to be assessed by four perspectives then the number of respondents also multiplied by 4 being 960 respondents. All respondents 100% have been giving back the questionnaire which being approached personally by coercive and persuasive way. The rating is consist of four likert rating from 1 to 4 which represent the frequency of the concerned subject in performing managerial roles, The questionnaire was constructed by 18 items which represent the leadership managerial and managerial skills; conceptual skills, human skills, and technical skills.

**Table 5. Summary of Questionnaire**

QUESTION		NEVER	RARELY	SOMETIME	ALWAYS
Q1	SUM	3	50	579	328
	%	0,31%	5,21%	60,31%	34,17%
Q2	SUM	3	46	552	359
	%	0,31%	4,79%	57,50%	37,40%
Q3	SUM	11	122	548	279
	%	1,15%	12,71%	57,08%	29,06%
Q4	SUM	9	165	623	163
	%	0,94%	17,19%	64,90%	16,98%
Q5	SUM	8	214	686	52
	%	0,83%	22,29%	71,46%	5,42%
Q6	SUM	5	92	576	287
	%	0,52%	9,58%	60,00%	29,90%
Q7	SUM	2	62	598	298
	%	0,21%	6,46%	62,29%	31,04%
Q8	SUM	11	120	627	202
	%	1,15%	12,50%	65,31%	21,04%
Q9	SUM	6	112	566	276
	%	0,63%	11,67%	58,96%	28,75%
Q10	SUM	17	258	605	80
	%	1,77%	26,88%	63,02%	8,33%
Q11	SUM	4	184	754	18
	%	0,42%	19,17%	78,54%	1,88%

**Table 5. Summary of Questionnaire (Continued)**

QUESTION		NEVER	RARELY	SOMETIME	ALWAYS
Q12	SUM	29	240	521	170
	%	3,02%	25,00%	54,27%	17,71%
Q13	SUM	3	54	585	318
	%	0,31%	5,63%	60,94%	33,13%
Q14	SUM	11	125	557	267
	%	1,15%	13,02%	58,02%	27,81%
Q15	SUM	12	236	568	144
	%	1,25%	24,58%	59,17%	15,00%
Q16	SUM	3	99	590	268
	%	0,31%	10,31%	61,46%	27,92%
Q17	SUM	10	107	590	253
	%	1,04%	11,15%	61,46%	26,35%
Q18	SUM	4	137	638	181
	%	0,42%	14,27%	66,46%	18,85%

### 3.3 Summated Likert Rating

Summated Likert rating will show the whole tendency in appraising the subjects. The summated Likert only summarized the rating score for each variable that consist of several items constructed. The range is divided into two section area, negative and positive which mean that the position of summated Likert score will be draw into this figure, then the following result will addressed as positive or negative to the statement, then the null position can be avoided in order to omit the bias statement in this research. The following result can be analyzed in Table 6 below:

**Table 6. Summated Likert ratings**

VARIABLE	ASSESSOR				SUMMATED LIKERT SCALE			NOTES
	DS	AT	RK	BW	MIN	MED	MAX	
LEADERSHIP (Q1,Q7)	1662	1532	1518	1552	480	1440	1920	All assessors has positive tendency, as the score $\geq$ Median
HUMAN SKILLS (Q3,Q9,Q14,Q12,Q16)	3789	3745	3629	3679	1200	3600	4800	All assessors has positive tendency, as the score $\geq$ Median
CONCEPTUAL SKILLS (Q2,Q6,Q8,Q13,Q17)	4030	3812	3737	3757	1200	3600	4800	All assessors has positive tendency, as the score $\geq$ Median
TECHNICAL SKILLS (Q4,Q5,Q10,Q11,Q15,Q18)	4243	4136	4108	4129	1440	3840	4800	All assessors has positive tendency, as the score $\geq$ Median

In fact, the gap between the subject and assessors defines that the judgment will be better and fairly assessed from different perspectives. The purpose of 360 degrees method applied in this feedback questionnaire are giving another perspectives in appraising the subject for introspection and also establishing an ideal perspectives in forming the leadership through path analysis considered on these summary of questionnaire results.

### 3.4 Path Analysis

Before drawing the path diagram, the data must be tested and satisfy the classic assumption. The data has been calculated using SPSS 19 for normality test, multicollinearity, homoscedastic, and

autocorrelation. After that, drawing the path diagram according to theoretical supported knowledge. Hence the path diagram initially drawn and calculated using AMOS 22.

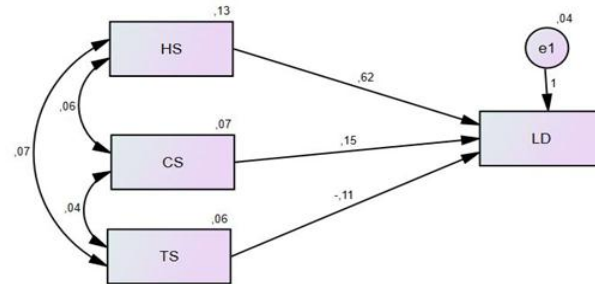


Figure 3. Path Model I

Technical skills show negative correlation towards leadership, then the model must be trimmed as the goodness fit of index shows unfavorable results.

Table 7. Goodness fit of Index Path Model I

Goodness of Fit Index	Cut off Value	Model I	Decision
X2-Chi Square	Possibly small	0,000	Inconclusive
Significance Probability	$\geq 0,05$	cannot computed	Inconclusive
RMSEA	$\leq 0,08$	0,0598	Model fit
GFI	$\geq 0,90$	-	Inconclusive
AGFI	$\geq 0,90$	-	Inconclusive
CMIN/DF	$\leq 2,00$	0,000	Inconclusive
TLI	$\geq 0,90$	0,000	Inconclusive
CFI	$\geq 0,95$	1,000	Inconclusive

After being trimmed, there are three proposed path model by redesign the initial model without directly correlated technical skills toward leadership managerial.

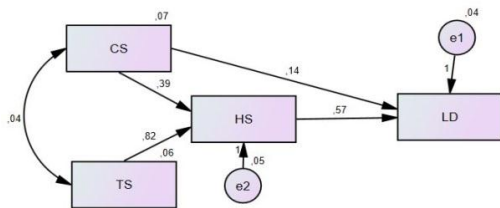


Figure 4. Path Model II

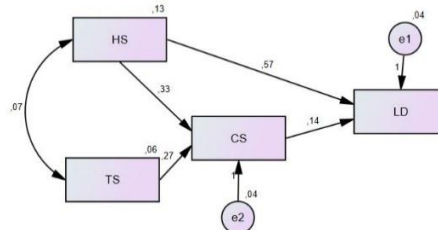


Figure 5. Path Model III

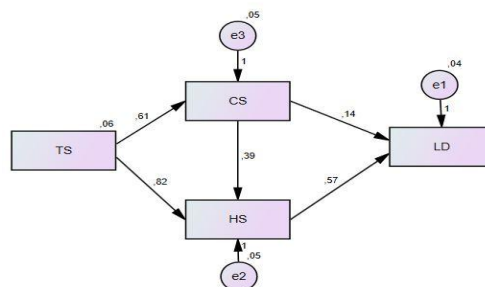


Figure 6. Path Model IV

According to redesign path model above, the decision cannot be chosen subjectively. First, the goodness of fit index must be satisfied the assumption. Meanwhile, all of the path model has the same results of goodness fit of index since the number of degrees freedom of distinct parameter and sample moments are same which is 1 and hereby table 8 will explain:

**Table 8. Goodness fit of Index Path Model II, III and IV**

Goodness of Fit Index	Cut off Value	Model II	Decision
X2-Chi Square	Possibly small	1,796	Model fit
Significance Probability	$\geq 0,05$	0,18	Model fit
RMSEA	$\leq 0,08$	0,059	Model fit
GFI	$\geq 0,90$	0,996	Model fit
AGFI	$\geq 0,90$	0,961	Model fit
CMIN/DF	$\leq 2,00$	1,796	Model fit
TLI	$\geq 0,90$	0,990	Model fit
CFI	$\geq 0,95$	0,998	Model fit

Meanwhile to decide the best fit model among path model II, III and IV, beside through the goodness fit of index, the most appropriate steps through coefficient path and the magnitude of correlation of the path model figure out in Table 9.

**Table 9. Total Correlation Path Model II**

Correlation	Path Model II		Total
Direct Effects	CS-LD	0,14	0,14
Indirect Effects	CS-HS-LD	$0,39 \times 0,57$	0,2223
	TS-HS-LD	$0,82 \times 0,57$	0,4674
<b>Total correlation</b>			<b>0,8297</b>

Path model II in Table 10 shows strong correlation about 0,8297 or about 82,97% as influence variables.

**Table 10. Total Correlation Path Model III**

Correlation	Path Model III		Total
Direct Effects	HS-LD	0,57	0,57
Indirect Effects	HS-CS-LD	$0,33 \times 0,14$	0,0462
	TS-CS-LD	$0,27 \times 0,14$	0,0378
<b>Total correlation</b>			<b>0,654</b>

The correlation of path model III has influence as much as 0,654 or 65,4%. Table 11 shows

**Table 11. Total Correlation Path Model IV**

Correlation	Path Model IV		Total
Direct Effects	NONE	0	0
Indirect Effects	TS-CS-LD	$0,61 \times 0,14$	0,0854
	TS-HS-LD	$0,82 \times 0,57$	0,4674
	TS-HS-CS-LD	$0,61 \times 0,39 \times 0,57$	0,1356
<b>Total correlation</b>			<b>0,6884</b>

The correlation value of path model IV shows bit higher than path model III but still lower than path model II, as much as 0,6884 or 68,84% influencing the leadership managerial performance.

### 3.5 Best Fit Model

According to Sugiyono (2008), there is a guidance in interpreting the coefficient correlation that shows above 0,8 until 1,00 is very strong correlation. Since it is only path model II (See Table 9) that has the correlation value more than equal 0,800 then the best fit model is path model II (See Fig. 3). It shows that technical skill is influence the leadership managerial performance through human skills as intervening variable, meanwhile conceptual skill can directly influence leadership managerial performance with coefficient path as follow:

$$LD = 0,14CS + 0,57HS + 0,04\varepsilon_1, \text{ where } HS = 0,39CS + 0,82TS + 0,05\varepsilon_2$$

Meanwhile the residual or unknown variable that might affect the leadership managerial roles as much as  $\rho_{\varepsilon_1} = \sqrt{\rho_{\varepsilon_1}} = \sqrt{0,04} = 0,2$  or about 20% unknown variables affect leadership managerial roles aside managerial skills.

#### 4. Conclusion

According to the research conducted, the attaining objectives are: (1) Based on summated Likert ratings, most all the assessors have been given a positive judgment and appraisal towards the concerned subject. Even, this is a good result, though the gap between the subject and assessors is quite distinct, as the assessor's judgment is closer to median rather than the subject's appraisal. It leads that most of the subjects are having different perspective in assessing their-selves compared with the assessor's appraisal and judgment. (2) After applied the path analysis, the result shows that technical skills are affected the leadership through intervening variable which is human skills, meanwhile conceptual skills both indirectly and directly affect the leadership managerial roles, as the correlation of the best fit model shows the greater value of them all.

The recommendation for further research is defining specifically by latent factors that engage the independent variables in determining the value of independent variables toward dependent variable using SEM (Structural Equation Modelling). Due to the limitation of time and opportunity given by the company, the specific latent variables cannot be defined properly. Latent variable will give more specific causes and better construct of causal effect in defining the managerial skills, moreover the managerial skill might be better to be correlated directly to define the causal effect of path analysis in determining the rate of incident whether using path analysis or SEM. Moreover, 360 degrees feedback questionnaire will be best implemented by assessing more than one assessor for each level. According to the number of peer and subordinates, it will be best of the number of assessors for level peer and subordinates are proportionated due to the numbers of peers and subordinates in the concerned level of the subject's assessed, it aims to reduce the bias in assessing the concerned subject.

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