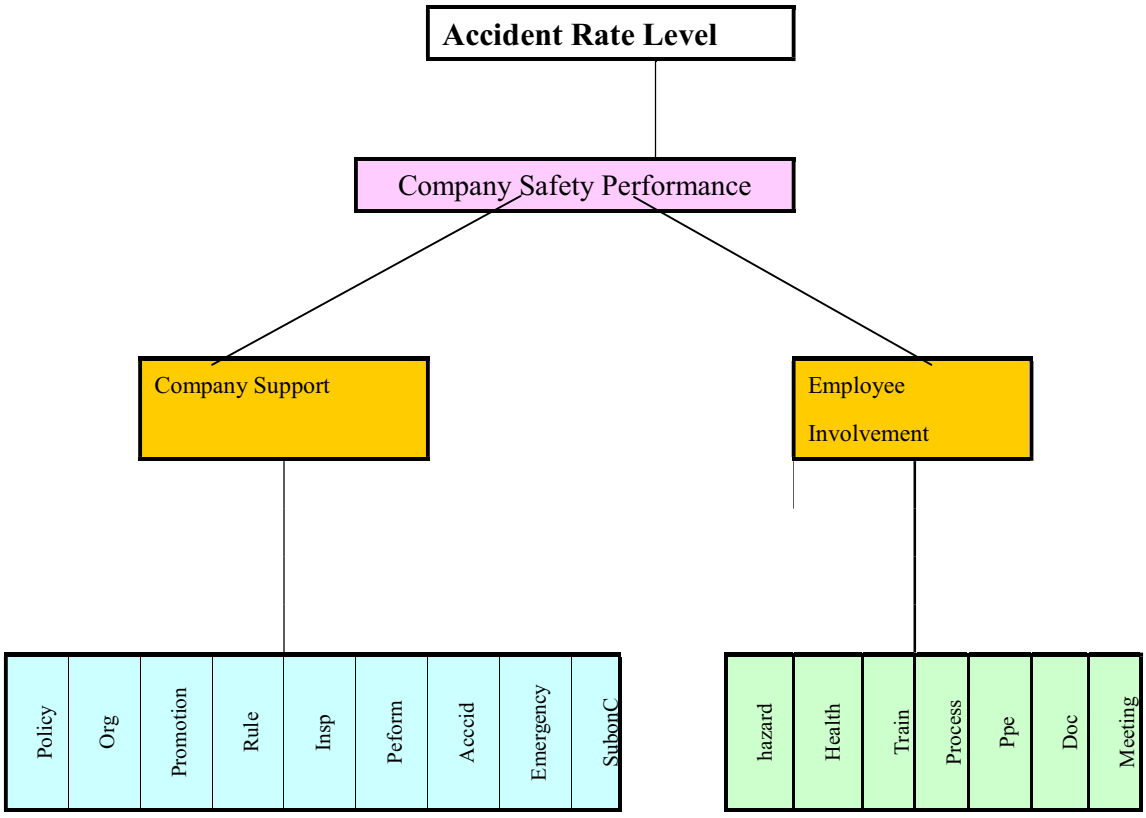
you are over 100 workers or HK$100 millions. What about the remaining four elements. Hereby, there are 16 elements discovered, then integrated from the aforesaid Asian countries. The ten a must elements in Hong Kong whether it is really the crucial elements fundamental, and sufficient or not? There is another deficit for an explanation that those 10 elements are suitable for all project nature. Or, are those LOSMS's elements can devise safety performance?

The Proposing LOSMS Performance Model (Figure 3):



Symbols representing LOSMS Elements

Safety Policy: Policy
Organization: Org
Training Program: Train
In-house and safety procedure: Rule
Inspection Program: Insp
Personal Protective Equipment Program: Ppe
Accident Investigation Program: Accid
Emergency Program: Emergency: Emergency
Subcontractor Evaluation and Control: Subcon
Safety Committee: Meeting
Pro-active Hazard Control: Hazard
Safety and Health Awareness: Health
Occupational Health Awareness Program: Promotion
Process Control: Process
Performance Evaluation Program (Audit): Perform
Documentary Control: Doc

Chapter 3-Research Methodology and Design

Grounding of Proposed Methodology

The literature review has produced the scenario that elements using by countries can be summed into 16 elements. As the Legislative Safety Audit System in Hong Kong has been conducted for almost ten years, and the audit system appeared to be undergoing like externalism, supposed to functionally diagnose the effectiveness of a company safety management system. There seems nothing can help a company safety performance until the system revised. It is necessary to have a clear view of each element that possess within the LOSMS, and the discovery of key elements, can surely help companies to have strategically better allocate and focus their efforts to improve their overall safety performance. With the discovery of sixteen elements (Figure 3A) covered under the Asian's legislative system (including Hong Kong Legislative Audit System), those elements will be shown as follows:-

Symbols representing LOSMS 16 Elements

1. Safety Policy: Policy
2. Organization: Org
3. Training Program: Train
4. In-house and safety procedure: Rule
5. Inspection Program: Insp
6. Personal Protective Equipment Program: Ppe
7. Accident Investigation Program: Accid
8. Emergency Program: Emergency
9. Subcontractor Evaluation and Control: Subcon
10. Safety Committee: Meeting
11. Pro-active Hazard Control: Hazard
12. Safety and Health Awareness: Health
13. Occupational Health Awareness Program: Promotion
14. Process Control: Process
15. Performance Evaluation Program (Audit): Perform
16. Documentary Control: Doc

Figure 3A

Conceptual Framework

The conceptual framework is based on the problems found on safety in Hong Kong. And, how the actual accident rate is contradicting the assumption of classical theory of safety management system. The literature review will mainly focus on understanding how our surrounding countries' legislative safety management system works, summarized them into elements. This chapter will explain the key factors, variables and providing conceptual overview. This conceptual overview assists us to research questions. It will leads to easy structure the research questionnaire and data collection for this study.

The Problem and Background

This study purpose is to extract out the critical elements within the legislative occupational safety management system, formulate the safety model that finally reduced accident rate, in Hong Kong. As our local Legislative Safety Management Regulation is effective on 1999 onwards, a safety practitioner, Lam Hei-choi (July, 2003) has declared that local construction is immature enough to face this respective regulation. Today, the Hong Kong Safety Management Regulation has been effective of more 18 years. Let us look over the safety performance of overall Hong Kong from 2006 to 2016 as below:

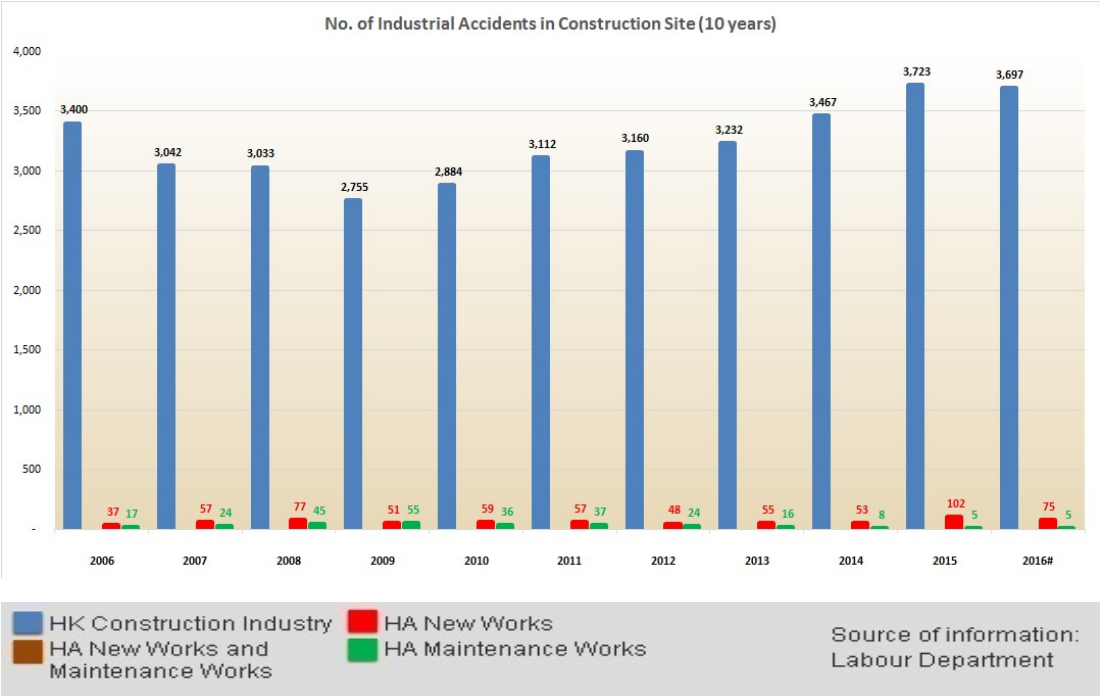
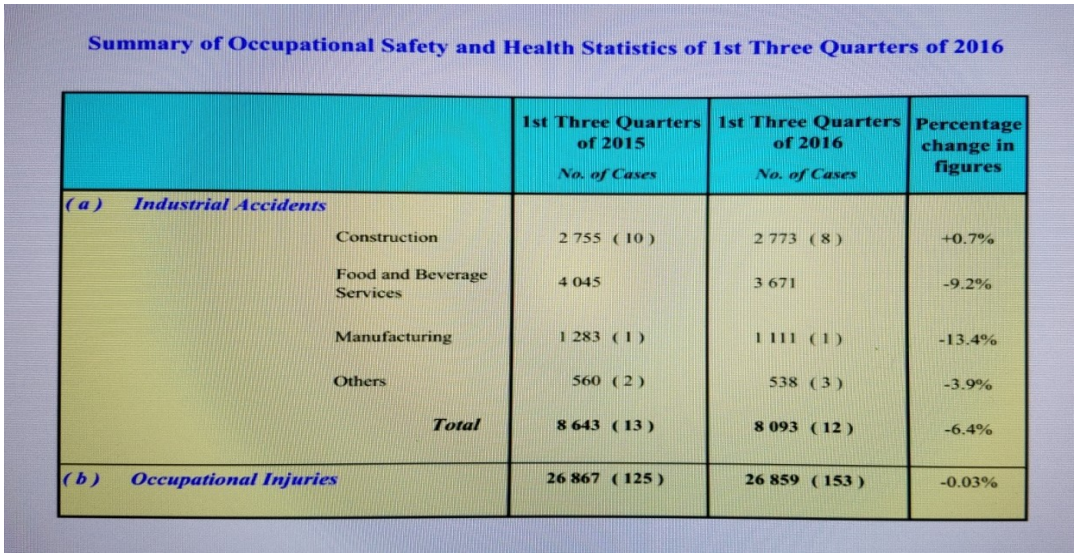


Figure A-01 Diagram source from Performance Statistics- Hong Kong Site Safety, Hong Kong Housing Authority and Housing Department (www.housingauthority.gov.hk).

Despite the safety management regulation has enforced the companies must systematically manage their own safety stuff. The above statistics chart has shown that the accident number give an ascending trend, from 2006 to 2016. We can take a closer look to the accident number from 2015 to 2016, summary from Labour Department as belows:



Summary of Occupational Safety and Health Statistics of 1st Three Quarters of 2016

		1st Three Quarters of 2015 *No. of Cases*	1st Three Quarters of 2016 *No. of Cases*	Percentage change in figures
(a) Industrial Accidents				
	Construction	2 755 (10)	2 773 (8)	+0.7%
	Food and Beverage Services	4 045	3 671	-9.2%
	Manufacturing	1 283 (1)	1 111 (1)	-13.4%
	Others	560 (2)	538 (3)	-3.9%
	Total	**8 643 (13)**	**8 093 (12)**	-6.4%
(b) Occupational Injuries		**26 867 (125)**	**26 859 (153)**	-0.03%

Figure A-02 Source from Labour Department

The summary also shows that the number of construction accidents has increased 0.7% from first three quarters of 2015 to 2016.

There is even a worse and unsafe condition when Hong Kong step into 2017, 13 fatal accidents are happened in Hong Kong Construction Sites. The most serious of all was fatal accidents arising in Hong Kong-Zhuhai-Macao Bridge Project; the casualties have fell into the sea with the collapsed working platform. There also aroused public crowded to Highway Department petitioning bad safety performance. The 2017 fatality summary is as right side:

From the above information, there is a need to have research to insight why we have sophisticated mandatory safety management

Date	Accident Nature
2-1-2017	Fall at Height
4-1-2017	Falling objects
6-1-2017	Head stuck by moving parts
21-1-2017	Body stuck by moving parts
7-2-2017	Fall at height
15-2-2017	Fall at height
19-2-2017	Legs stuck by moving parts
20-2-2017	Strike by fork lifting truck
21-2-2017	Buried by coal ash
8-3-2017	Fall at height
11-3-2017	Fall at height
29-3-2017	Collapse of Working Platform (2)

system and safety audit system, still high number of accident happening.

Conceptual Framework

With reference to the literature review in Chapter two, the paper has analysis 9 countries as follows:

1. Malaysia 2. Great Britain 3. China 4. Japan
5. Taiwan 6. Thailand 7. Singapore 8. Philippines
9. Hong Kong

There found a summary of 16 elements implanted in those countries' regulatory safety system as follows:

TableAZ03: the 16 elements of the Legislative Elements of LOSMS in Different Asian CountrieS

No	Legislative Elements	Hong Kong	Malaysia	England	China	Taiwan	Thailand	Japan	Singapore	Philippine	Popularity
1	Safety Policy	■	■	■	■	■	■				6/9
2	Organization	■	■	■	■	■	■	■	■		8/9
3	Training Program	■		■				■			3/9
4	In-house Rule and Safety Procedure	■			■	■				■	4/9
5	Inspection Program	■		■	■	■	■			■	6/9
6	Personal Protective Equipment	■									1/9
7	Accident Investigation Program	■			■		■			■	4/9
8	Emergency Program	■		■	■	■			■		5/9
9	Subcontractor Evaluation and Control	■		■							2/9
10	Safety Committee	■	■	■	■		■		■	■	7/9
11	Pro-active Hazard Control	■	■	■	■		■	■	■		6/9
12	Safety and Health Assurance	■		■	■			■			4/9
13	Occupational Health Promotion Program	■						■	■	■	4/9
14	Process Control		■	■	■			■	■	■	6/9
15	Performance Evaluation Program, Audit	■	■	■	■				■		5/9
16	Documentary Control			■	■			■			3/9
	Total Legislative Elements Usage	14	6	12	12	5	6	7	7	6	

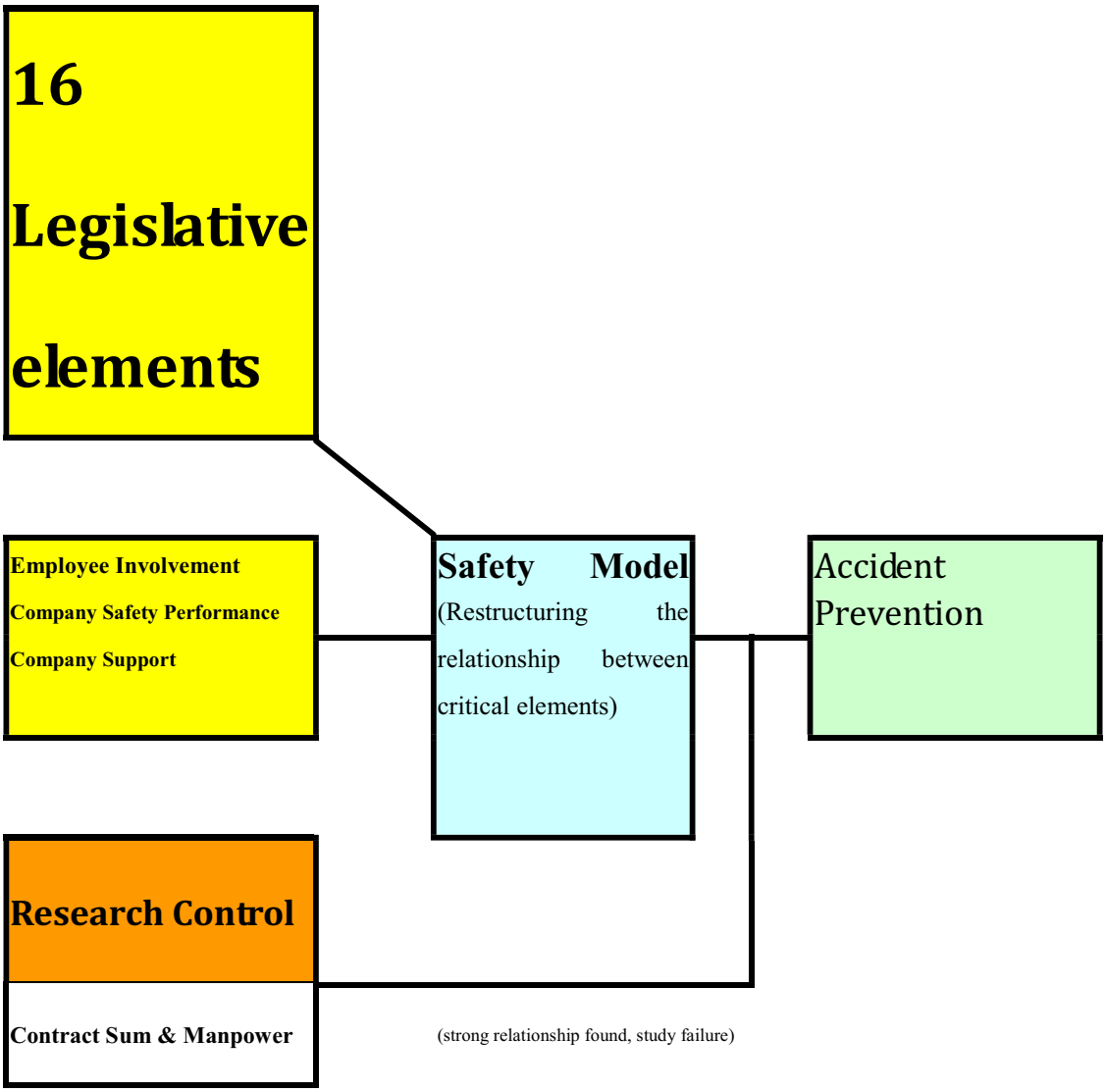
Variables in this research are pictured in Table T2. The variables for the proposing model constituted twenty-one independent variables (ordinal and scale) and one dependent variable with ordinal nature. The independent variables consisted of

LOSMS 16 elements (figure 1), employee involvement, and company safety performance, company support on safety, contract sum and manpower. There is only one dependent variable. That is accident rate level. The overall picture can be seen in Table T2.

Table T2: Summary of Dependent and Variables in the LOSMS

Independent Variables (n=21)	**Dependent Variables (n=1)**
1. 16 Elements (Table AZ03)	1. Accident Rate Level
2. Employee Involvement	
3. Company Safety Performance	
4. Company Support on Safety	
5. Contract Sum	
6. Manpower	

Figure 3-1: Conceptual Framework of this study



With 16 legislative elements, and additional of Employee Involvement, Company Safety Performance and Company Support as shown in Figure 3-1, those prescribed items will be sorted out those strong relationships items through this research. The next step is to establish the safety model through the help of statistical treatment. The resulted safety model will be the main theme to answer the Research Questions, and of giving new way to achieve Accident Prevention. The research itself also provides a control for this conceptual framework. If this research has discovered contract sum and manpower have strong relationship with accident rate, it is meaningless to seek for the effectiveness of the safety management system.

A flow chart will be written below, Figure 3-2 explaining clearly about "how to accomplish this research".

Figure 3-2 The flow chart of the research

Step 1	Problem Discovered.	Although SMS reg. conducted more 15yrs., high accident rate in recent years found
↓		
Step 2	Pilot Test	Initial interview by face to face interview with the local safety practitioners.
↓		
Step 3	Research Questions	Four research questions are established as accordance to Step 1 (Problem Discovered).
↓		
Step 4	Literature Review	To discover the elements from countries' safety regulation and mandatory safety management system.
↓		
Step 5	Research Methods	Setup the questionnaire based on the discovered elements from Step 4.
↓		
Step 6	Questionnaire Distribution	Referral Sampling Method.
↓		
Step 7	Data Processing & Statistical Treatment	Data Sourcing from Received Questionnaires will undergo SPSS19 statistical processing.
↓		
Step 8	Safety Model Construction	Relationship network build up between critical elements.
↓		
Step 9	Discussion & Conclusion	Research Questions Answer

Problem Discovered

As the accident number in Hong Kong is placing high in statistics Figure A-01 & A-02, there is a need to have an in depth analysis, about why our Hong Kong Safety Management Regulation undergoing more than 15 years. Still, the safety performance is being worried.

Pilot Test

Compeau and Higgins (1995) suggest a pre-test should be used to improvise the real problem and clarify the research approach, Table B of Appendix 1. A face to face interview with the local safety practitioners, there are feedbacks as follows:

1. Regulatory safety audit cannot assess an organization safety performance.
2. Safety practitioners admitted Job Hazard Evaluation is critical.
3. Safety culture should be crucial element in SMS (outside our research rim).
4. Wide variety on how many elements of SMS is the basic requirement. Some said that there may be element/s remain missing.

Research Questions

The thesis investigates what are the most influential/determining elements/factors that affect an organization's safety performance and what are their implications for organization's management and Hong Kong's safety regulation and policy? Moreover, some researchers' good safety performance must be under strong management support (Zubaidah Ismail, Samad Doostdar, Zakaria Harun, 2011). Zubaidah Ismail (2011) also declared Personal Factor interpret ting positive employee attitudes leading to involvement, would be critical issue. This research question will be included to testify its value and relationship with other critical elements.

Specifically, it seeks answers to the following questions:

1. Which element(s) is/are critical to Legislative Occupational Health and Safety Management System that can be formulated as safety performance indicator?
2. Does company safety performance affect the accident rate level?
3. Do company support and employee involvement affect organizational performance on safety aspect?

4. Is heavy use of the project's manpower and contract sum leading to high accident rate?

Research question 4 is the CONTROL of the research paper. If statistical analysis shows the strong relationship with manpower and contract sum, the whole assumption of this paper collapsed. In other words, the level accident rate and safety performance doom with the increasing manpower and contract sum. If so, it is not worth to have this research.

Literature Review

In order to provide the full view of the elements summary, Table AZ03, a study of local and surrounding countries Legislative Occupational Safety Management System would be a need. The referencing countries are Malaysia, Britain, China, Japan, Taiwan, Thailand, Singapore, Philippines and Hong Kong. With reference to those countries history and definition of Safety Management System, this research can easily extract out embedded elements that formulated the summary Table AZ03.

Research Method

Before discussing the establishment of questionnaire, and brief introduction of the founded 16 elements, Table AZ03 which structured the questionnaire framework as follows:-

1. Safety Policy	9. Subcontractor Evaluation and Control
2. Organization	10. Safety Committee
3. Training Program	11. Pro-active Hazard Control
4. In-house rule and safety procedure	12. Safety and Health Assurance
5. Inspection Program	13. Occupational Health Promotion
6. Personal Protective Equipment	14. Process Control
7. Accident Investigation Program	15. Performance Evaluation Program
8. Emergency Program	16. Documentary Control

With these 16 elements summary, the questionnaire was formulated with each element 4 questions. There are totally 64 questions (scale) and 7 other questions (ordinal), feedback in 5 point-Likert scale.

Questionnaire Administration

The questionnaire send to the target research population through email with short explanation of the study, and questionnaire is enclosed. For the population is professions, may be in low response rate, referral sampling method (snowball sampling) is applied. The target research population is local safety professions. Their backgrounds are as follows:-

1. Registered Safety Auditor: Person who must has 4 years experience in managing a company's safety management system, received training in recognized academy and access registration under Hong Kong Labor Department.
2. Registered Safety Officer: Person who must has 3 years project's safety management experience, received training in recognized academy and success registration under Hong Kong Labor Department.
3. Safety supervisor: Person who received training and granted certificate from recognized academy under Hong Kong Labor Department.
4. Safety Manager: Person who has item 2 qualification who manage a company's safety management system (who involve Formulation Company's direction).

Through email, we have 83 questionnaires sent out, 51 returned. The response rate is 61.4%. 1 response is deleted due to incomplete data.

Data Processing and Statistical Treatment

The computerized statistical analysis is using SPSS19. The data process is going through 5 stages to achieve safety model construction as following stage:-

1. Levene's Test (homogeneity analysis)
2. Principal Component Analysis
3. MANOVA Analysis
4. Multiple Regression Analysis
5. Chi-square Test

Levene's Test is the variance and homogeneity assessment. The questionnaire is setting at each element have 4 questions asking in different ways. So, the returning data has to be merged together before next step processing. The Levene's Test (Individual t-test) to assess its nature, and are egilible for aggregation. All the data has been assessed, and resulted as same nature for merging.

Principle Component Analysis is the process for easy screen out those which has strong relations merged variables, for consequential model construction.

MANOVA analysis is to examine that relationship between scale and ordinal data. In this study, this computer processing is to examine the relations between accident rate, and both company safety performance and company support. Company safety performance has significant influence to accident rate.

Correlations and Multiple Regression is used to discover the relationships between the scale variables for the easy re-structure the safety model. This processing will be undergoing several times.

Chi-square Test is used to investigate the co-relationships of accident rate level between contract sum and manpower.

Safety Model Construction

After SPSS19 processing, the safety model is constructed as below:

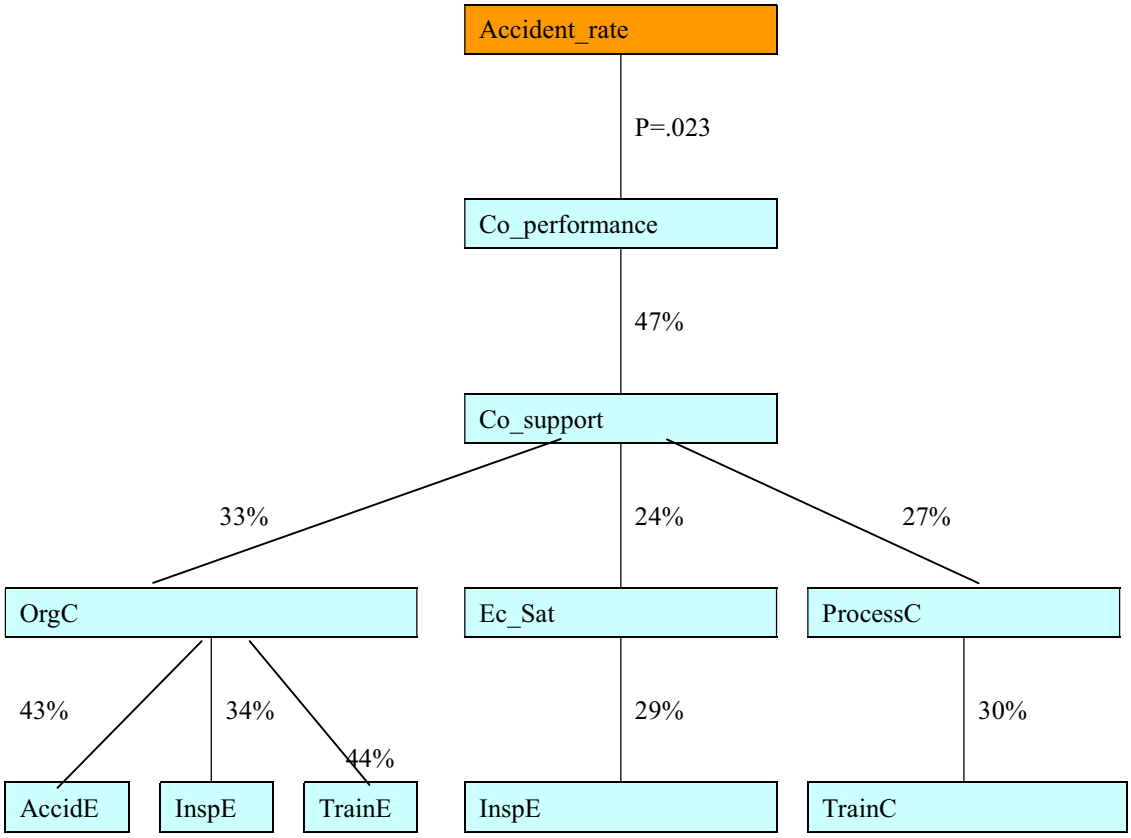


Diagram 6: The Rebuilt of the Fundamental SM Model elaborated from the Initiated LOSMS (16 Elements)

There is detailed interpretation of the elements in back page Chapter 5-Discussions.

Discussion and Conclusion

With reference to the above safety model, the study has the result and answer as follows:

1. Company safety performance has strong relationship with accident rate.
2. Company safety performance has strong relationship with company support. Company support has direction relationship with employee involvement.
3. The most influencing elements are Safety Organization, Process Control Program, Training, Inspection, Accident Prevention; The legislative safety management regulation has contented the overall the influencing elements, just missing process control program.
4. There is no relationship between accident rate with manpower and contract sum which has satisfied the control criteria of the study.

Research Questions

1. Is a company safety performance influencing the accident rate level?
2. Do company support and employee involvement affect organizational performance on safety aspect?
3. Which element(s) is/are critical to Legislative Occupational Health and Safety Management System that can be formulated as safety performance indicator?
4. Is the magnificent of the project's manpower or contract sum leading to high accident rate?

Analysis Methodology

Snowball or chain referral sampling method will be used to pursue that local professional group. The target respondents are mainly safety practitioners (safety manager, safety officer, safety supervisor and auditor). They come mainly from Construction Company. This data collecting method is especially suitable for the researchers or interviewers who possess the particular past, occupations and similar professionals (Biernacki & Waldorf, 1981). In order to accomplish the research objective, questionnaires, will be conducted to test this hypothesized conceptual model. In the consequently, the questionnaires itself can assess (through SPSS19) any discrepancies in returned responses. Hoping to prove Proposing LOHSMS Performance Model (figure 3) existed, the result of solely pertained accident rate,

LOHSMS indicators and safety performance attributes are contented in this paper.

The conceptual model was erected on the assumption, of under how many fundamental critical elements supporting, can improve safety performance. The statistical technique of Levene's test has been used to assess the suitability of the proposed grouping of same attributes. Then, the merged data will be further differentiated by principal component analysis (PCA) in order to look for the most interactions and co relationship among the elements for easy model development. Multiple regressions will also help to model construction. The one-way multivariate analysis of variances (one-way MANOVA) is helping to discover the relationship between accident rate level and other two indicators (Company Support and Employee Involvement). Multiple Regression Analysis is used to look into the relationships of the remaining indicators for easy model formulation. Finally, there is Chi-square test to assess the association between the accident rate, construction sum and manpower. The whole package of the statistics evidences will be enclosed under Data Control Log. And, Flow chart of data analysis will be shown for easy understanding. A brief data analysis is shown in sequence as follows:

1. Levene's test (Individual T Test)	Stage 1
2. Principal Component Analysis	Stage 2
3. MANOVA Analysis	Stage 3
4. Multiple Regression Analysis	Stage 4
5. Chi-square Test	Stage 5

Figure 2

Table T1: Summary of Data Sources, Types and Measures Applied by Research Question

Question type	Data Source	Response Type	Data Type	Data Control Log
1	Questionnaire	Likert Scale	Ordinal, Scale	Stage 3, 5
2	Questionnaire	Likert Scale	Scale	Stage 1, 2, 4

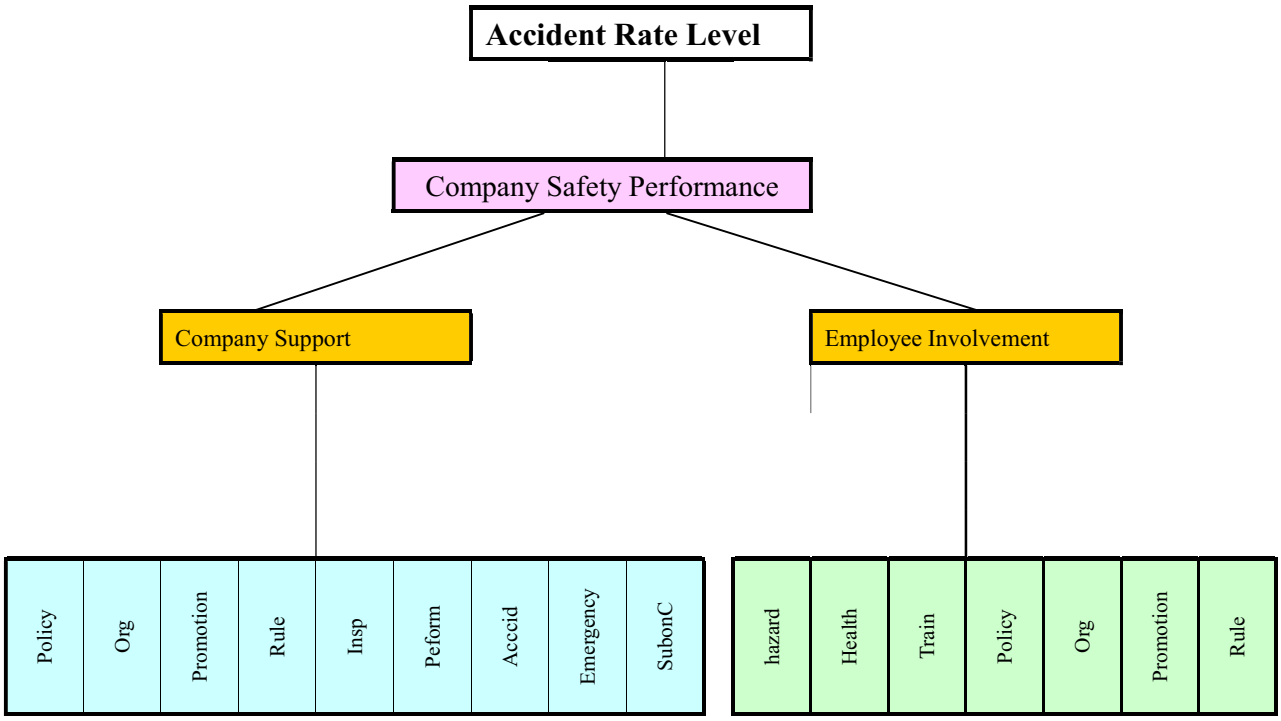
Questionnaire survey and data collection

The questionnaire sheet cover 64 attributes which is asking about the 16 elements in different facets, shown in figure 1. Each element consist of four statements under two approaches (management support and employee involvement). It is designed to arouse respondents' opinions on different attributes of the 16 elements and safety

performance, interrelated by 5 point-Likert scale. There is an 83 numbers of questionnaires are sent out and 51 returned, a response rate of 61.4 per cent. There is only one out of all response that is deemed as unusable due to data incompleteness. The questionnaire survey content several attributes, around these 16 elements affecting safety performance. Each element would be differentiated into four statements under two approaches (management support and employee involvement). The questionnaire itself is using five-point Likert-type scale, point 1 representing 'strongly not agree' and point 5 is 'strongly agree' respectively. There also another part of the questionnaire is collecting demographical information about the contract sum and organizational manpower. Respondents' personal information will be provided under their free will; it is just optional. This demographical information is including following information, like their job title and duties for easy understanding their backgrounds. Secondly, fundamental safety indicators, used to compare with 16 LOSMS 16 elements, are including safety performance, accident rate level, construction level, contract sum, manpower, compare to 16 elements.

The questionnaires are distributing under the method of snowball sampling or referral sampling. The retained 50 responses are then analyzed by SPSS version 19, to calculate their mean, standard deviation, skewness and kurtosis. There will be a better understanding of each element for constructing the model, as enclosed in Data Control log. Moreover, there is no trace of neither outlying nor extreme skewed cases. That has gained the confidence of the questionnaire items to measure the respective construct.

The Proposing LOSMS Performance Model (Figure 3):



Prior the major research conducted, informal pilot study is conducted to those chosen professional through face to face meeting separately. This gives room for the participants to give constructive feedback on the survey and help to erase researcher's bias. Once, the pilot survey is to be reviewed as per the safety practitioner's feedback, enclosed in the Appendix 1. The survey will be conducted through chain referral sample population. The population will be contacted through email explaining the research purpose. The purpose is to integrate the information of actual situation the safety professional observed from their projects. Then, follow-up email contacts are issued to invigorate the response rate. To the end of the survey, every respondent will receive a thanking letter enclosed with a copy of study results if he/she wishes.

That information of the survey will be gathered and disposed through statistical software package for detailed analysis. The information will be undergone the descriptive statistics and data relationship analysis, as mentioned in figure 2.

Population and Sample

The sample population is mainly come from safety professional; they are basically registered safety officers, registered safety auditors, licensed safety supervisors. The sample size as a result is 50. As safety professional in Hong Kong must be registered and licensed before they could enter the job markets. It is sparse in population, never speak a lot in public, dependent to social networks, and snowball method is

appropriate for rolling through personal network contact. Just sit tide and let the chain reaction happened in its own direction (Birenacki & Waldorf, 1981). Although there may be a chance to provide biased sample, the method has still widely been used by sociologists. Furthermore, those collected data will be frequently checked its variance adequacy during SPSS19 process.

Variables and Measures

Variables in this research are pictured in Table T2. The variables for the proposing model constituted twenty-one independent variables (ordinal and scale) and one dependent variable with ordinal nature. The independent variables consisted of LOSMS 16 elements (figure 1), employee involvement, and company safety performance, company support on safety, contract sum and manpower. There is only one dependent variable. That is accident rate level. The overall picture can be seen in Table T2.

Table T2: Summary of Dependent and Variables in the LOSMS

Independent Variables (n=21)	Dependent Variables (n=1)
1. 16 Elements (Figure 1)	1. Accident Rate Level
2. Employee Involvement	
3. Company Safety Performance	
4. Company Support on Safety	
5. Contract Sum	
6. Manpower	

Data Control Log

The data analysis process will always begin with descriptive statistics by summarizing those independent variables, in order to create the actual scenario through collected data. Survey results are calculated by scale and ordinal. The analysis is divided into 5 stages as explained in Figure 2. Within the Data Control Log, there you find detailed technical calculations provided. Coverage will be placed on top of technical calculation to explain overall result of the stage. There will be a flow chart explained to give full vision of each stage.

As the research data of the LOSMS 16 elements attributed 64 data, which is differentiated into 4 questions (within the research questionnaire) in each LOSMS element, asking in two aspects (company support and employee involvement). They

need to merge together into 32 data, by one element possess 2 data representing 2 aspects. This is stage 1 by using individual T-test. Those 32 data will go through Principle Component Analysis (PCA) to discover significant variables, stage 2. Since, Accident Rate Level is in Ordinal nature, MANOVA analysis is used to find out the relationship between Accident Rate Level and other indicators. The model construction is established in stage 4 by Multiple Regression Analysis. Stage 5 is Chi-square test for anglicizing contract sum and manpower associated with accident rate level. The details will content in Chapter 4.

Stage 1

Data Controlling Log-Variables Merging

(Variance and homogeneity assessment prior the merging process)

General

Since the data field included 64 variables questioning about the 16 elements of Legislative Safety Management System, in both aspects of company support and employee's involvement. Those 64 variables will be examined its variances and homogeneity if they are in the same nature, and are eligible for aggregate together. Thus, descriptive statistics of the variables would be contented in the data analysis in subsequent pages for in depth observation, including mean, variances, and histogram that shown its normal distribution. Individual t-test (Levene's test) will be conducted to potential variables would be used to reduce into 32 variables. The first merging variables would be explained details its properties in essay below. The remaining will be summarized in table 1.

Merging Log

The Policy E1 group (N=50) is associated with LSMS elements that M=3.62 (SD=.90), while the Policy E2 group (N=50) is having M=3.18 (SD=.98). Testing the hypothesis that Policy E1 and E2have no statistically significantly difference between two variables for aggregate intention, an independent t-test was performed. As there can be seen in the enclosed histograms; Policy E1 and E2 are both in normal distribution for the purpose of conducting T-test (i.e., skew<12.01 and Kurtosis<10.91; Schmider, Ziegler, Manny, Beyer, & Buhmer, 2010). Additionally, the assumption of homogeneity, of variances are tested and satisfied through Levene's test, F (13) =1.78, P=.21. Thus, the independent sample t-test has proved without statistically significantly different effect, t (13) =-.79, P=.45.

The Policy E1 and E2 are associated without any difference between two groups that hypothesis cannot be rejected. And, the remaining variables are having same approach as shown in Table T1.

Table T1: summary of t-test result

Variables	Levene's Test		t	sig (2-tails)	Hypothesis
	F	P(sig)			Rejected or no
Policy E1 & E2	1.78	.20	-.79	.45	no
Policy C1 & C2	2.20	.14	.42	.14	no
OrgE1 & E2	2.20	.14	1.90	.06	no
OrgC1 & C2	.18	.68	1.76	.08	no
AccidE1 & E2	.51	.48	1.07	.29	no
AccidC1 & C2	3.12	.08	-.12	.91	no
InspE1 & E2	3.01	.09	.57	.57	no
InspC1 & C2	.75	.39	4.00	.07	no
SubconE1 & E2	.98	-.33	-2.8	.78	no
SubconC1 & C2	.00	.99	-1.84	.07	no
ProcessE1 & E2	3.86	.05	-.36	.72	no
ProcessC1 & C2	.05	.82	-.86	.39	no
TrainE1 & E2	.23	.63	.56	.58	no
TrainC1 & C2	.36	.55	-.98	.05	no
MeetingE1 & E2	1.18	.28	1.1	.28	no
MeetingC1 & C2	.18	.67	-.11	.91	no
PromotionE1 & E2	1.22	.27	1.43	.16	no
PromotionC1 & C2	.72	.68	1.28	.20	no
HazardE1 & E2	.18	.67	.20	.84	no
HazardC1 & C2	.05	.82	.20	.84	no
PpeE1 & E2	1.16	.29	3.23	.23	no
PpeC1 & C2	.14	.71	-1.70	.09	no
RuleE1 & E2	.01	.93	1.17	.24	no
RuleC1 & C2	2.06	.16	.73	.47	no
HealthE1 & E2	7.85	.01	.61	.44	no
HealthC1 & C2	3.3	.07	-1.32	.19	no
PerformE1 & E2	.64	.43	.21	.83	no
PerformC1 & C2	.15	.70	.99	.33	no
DocE1 & E2	1.84	.18	2.59	.11	no
DocC1 & C2	.13	.72	1.13	.26	no
EmergencyE1 & E2	.32	.57	1.6	.11	no
EmergencyC1 & C2	1.50	.22	-.89	.38	no

The full details of the variables merging for insight and reference can be seen in Appendix 3.

References:-

1. Cohen, J. (1992). A Power Primer, Psychological Bulletin,112, 155-159.
2. Schmider, E., Ziegler, M., Danay, E., Beyer, L., &Buher, M.(2010). Is it really robust? Reinvestingating the robustness of ANOVA against violations of the normal distribution assumption. Methodology: European Journal of Research Methods for the Behavioral and Social Sciences, 6, 147-151.

Stage 2

Data Controlling Log-Influencing Component Extraction

(Usage of the Principle Component Analysis Method)

Merged Variable Screening

After the merging process through Individual Sample t-test, the database has been merged up 64 variables into 32 variables. The amount of data for Critical Component Analysis was satisfied with the data size of 1600, with 50 cases per variable.

Component Extraction Log

Firstly, the factorability of 32 variables is examined. The amount of well-recognized criteria for testing the correlation is implied. During the initial period (see PCA_PageB1 to PageB5), there is no KMO and Bartlett's Test result provided. Unfortunately, the determinant level=.000 that shown below the diagonals of the anti-image correlation matrix. However, the communalities are all above .59. It further explained to us that the questionnaires are easily understood by the target population. The undermined variables are well be manipulated with substantial feedback information. The initial results of chapeau analyzing 32 merged variables cannot discover any successful development, not a positive definite in the correlation matrix.

Principles Components Analysis (PCA) are undergoing by reducing its irrelevant variables again and again. Until the final 9 variables are discovered (see PCA2, Page1-5), the first eigen values above 1 have indicated the first component explained 48% of the variances. The second component explained 16% of the variances. There is the 'level off' of eigen value on the scree plot after two components discovered. The subsequent variables have lacked its sufficiency of fundamental loadings. There are weaknesses of interpreting the other components. Those variables of insufficient of cross-loading below 0.3 are eliminated. Finally, there are 9 variables remained out of 32, with the Kaiser-Meyer-Olkin measure of sampling adequacy is 0.78, above the suggesting value of 0.6. The Bartlett's test of sphericity is significant ($x^2(36) = 203.72$, $P<.5$). The determinant of correlation matrix is 0.24 which is larger than

0.01. The diagonals of correlation matrix are all over 0.3 supporting the item's inclusion of factor analysis.

The Table T2 established a summary of the variables' relationship loading and communalities, which is based on PCA with oblimin rotation for 9 variables (N=50) as shown below:

Table T2: Summary of principle variables' correlation and communalities

Principle Variables	Co_performance	Co_support	Ec_Ssat	Communality
AccidE	.42	.32	.27	.46
TrainE	.47	.50	.41	.78
TrainC	.44	.42	.37	.62
Co_performance	1.00	.47	.49	.46
Co_support	.47	1.00	.64	.79
Ec_Ssat	.49	.64	1.00	.67
OrgC	.31	.65	.39	.53
ProcessC	.38	.63	.47	.65
InspE	.12	.01	-.09	.80

Those 9 variables have already been assessed by Independent sample t-test in stage 1. They are all in normal distribution. Their descriptive statistics is displayed in Table T3:

Table T3: Descriptive statistics for the 9 variables (N=50)

Principle Variables	**Mean**	**Std. Deviation**
AccidE	3.96	.60
TrainE	3.27	.77
TrainC	3.33	.84
Co_performance	3.22	.76
Co_support	3.12	.90
Ec_Ssat	3.20	.80
OrgC	3.37	.77
ProcessC	3.22	.82
InspE	3.77	.76

As the result, PCA has indicated the remaining 9 variables to establish the forthcoming model construction. These variables are moderately internal consistent. Although the oblimin rotation was used, those other 23 variables with small correlations, within each of the composite loading, are eliminated.

```
FACTOR
  /VARIABLES PolicyE PolicyC OrgE OrgC AccidE AccidC InspE InspC
SubconE SubconC ProcessE ProcessC TrainE TrainC MeetingE MeetingC
PromotionE PromotionC HazardE HazardC PpeE PpeC HealthE HealthC
EmergencyE EmergencyC RuleE RuleC PerformE PerformC DocE


DocC Co_support Co_performance EC_Ssat
  /MISSING LISTWISE
  /ANALYSIS PolicyE PolicyC OrgE OrgC AccidE AccidC InspE InspC SubconE
SubconC ProcessE ProcessC TrainE TrainC MeetingE MeetingC PromotionE
PromotionC HazardE HazardC PpeE PpeC HealthE HealthC EmergencyE
EmergencyC RuleE RuleC PerformE PerformC DocE DocC


Co_support Co_performance EC_Ssat
  /PRINT INITIAL CORRELATION KMO REPR AIC EXTRACTION ROTATION
  /FORMAT SORT
  /PLOT EIGEN ROTATION
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PC
  /CRITERIA ITERATE(25)
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  /SAVE REG(ALL)
  /METHOD=CORRELATION.
```

Principal Component Initial Analysis with 32 Variables

Factor Analysis

Notes

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	FAC3_3	Component score 3
	FAC4_3	Component score 4
	FAC5_3	Component score 5
	FAC6_3	Component score 6

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Correlation Matrix[a]

		PolicyE	PolicyC	OrgE	OrgC	AccidE	AccidC	InspE
Correlation	PolicyE	1.000	.698	.420	.464	.073	.264	.078
	PolicyC	.698	1.000	.637	.647	.264	.480	.010
	OrgE	.420	.637	1.000	.602	.642	.662	.385
	OrgC	.464	.647	.602	1.000	.461	.518	.000
	AccidE	.073	.264	.642	.461	1.000	.666	.347
	AccidC	.264	.480	.662	.518	.666	1.000	.268
	InspE	.078	.010	.385	.000	.347	.268	1.000
	InspC	.264	.480	.662	.518	.666	1.000	.268
	SubconE	.344	.484	.417	.510	.279	.413	.214
	SubconC	.483	.771	.593	.650	.480	.643	.009
	ProcessE	.292	.455	.563	.357	.522	.358	.393
	ProcessC	.359	.577	.600	.397	.432	.444	.265
	TrainE	.261	.456	.479	.448	.494	.420	.493
	TrainC	.240	.371	.346	.273	.337	.385	.337
	MeetingE	.358	.548	.460	.405	.345	.406	.198
	MeetingC	.421	.656	.621	.514	.519	.562	.230
	PromotionE	.303	.536	.549	.442	.398	.460	.064
	PromotionC	.378	.590	.485	.450	.418	.555	.045
	HazardE	.414	.716	.540	.632	.418	.555	.157
	HazardC	.373	.638	.514	.538	.479	.522	.205
	PpeE	-.132	.277	.314	.273	.476	.444	.142
	PpeC	.375	.651	.539	.481	.294	.417	.194
	HealthE	.353	.608	.552	.397	.358	.500	-.044
	HealthC	.264	.493	.356	.411	.348	.386	-.258
	EmergencyE	.095	.409	.509	.379	.476	.532	.252
	EmergencyC	.233	.550	.510	.375	.395	.491	.230
	RuleE	.300	.553	.544	.505	.365	.403	.321
	RuleC	.375	.651	.539	.481	.294	.417	.194
	PerformE	.382	.616	.607	.455	.538	.528	.268
	PerformC	.335	.549	.517	.435	.452	.441	.081
	DocE	.138	.331	.307	.241	.394	.220	.375
	DocC	.160	.305	.214	.203	.328	.161	.273
	Co_support	.414	.682	.555	.646	.329	.508	.011
	Co_performance	.189	.454	.478	.311	.417	.474	.125
	EC_Ssat	.175	.488	.365	.388	.267	.445	-.090

a. This matrix is not positive definite.

b. Determinant =.000

Correlation Matrix[a]

		InspC	SubconE	SubconC	ProcessE	ProcessC	TrainE	TrainC
Correlation	PolicyE	.264	.344	.483	.292	.359	.261	.240
	PolicyC	.480	.484	.771	.455	.577	.456	.371
	OrgE	.662	.417	.593	.563	.600	.479	.346
	OrgC	.518	.510	.650	.357	.397	.448	.273
	AccidE	.666	.279	.480	.522	.432	.494	.337
	AccidC	1.000	.413	.643	.358	.444	.420	.385
	InspE	.268	.214	.009	.393	.265	.493	.337
	InspC	1.000	.413	.643	.358	.444	.420	.385
	SubconE	.413	1.000	.639	.469	.478	.444	.443
	SubconC	.643	.639	1.000	.529	.625	.483	.539
	ProcessE	.358	.469	.529	1.000	.659	.551	.460
	ProcessC	.444	.478	.625	.659	1.000	.626	.649
	TrainE	.420	.444	.483	.551	.626	1.000	.685
	TrainC	.385	.443	.539	.460	.649	.685	1.000
	MeetingE	.406	.394	.696	.504	.591	.582	.609
	MeetingC	.562	.479	.769	.497	.709	.579	.573
	PromotionE	.460	.648	.706	.493	.550	.423	.430
	PromotionC	.555	.545	.730	.451	.567	.578	.710
	HazardE	.555	.657	.776	.525	.590	.664	.533
	HazardC	.522	.625	.768	.600	.682	.669	.555
	PpeE	.444	.317	.443	.275	.310	.212	.259
	PpeC	.417	.579	.626	.545	.674	.470	.500
	HealthE	.500	.282	.646	.321	.559	.475	.463
	HealthC	.386	.349	.566	.294	.462	.346	.361
	EmergencyE	.532	.488	.612	.472	.514	.531	.427
	EmergencyC	.491	.544	.655	.518	.598	.499	.422
	RuleE	.403	.523	.559	.553	.694	.579	.472
	RuleC	.417	.579	.626	.545	.674	.470	.500
	PerformE	.528	.479	.637	.487	.695	.572	.561
	PerformC	.441	.435	.582	.354	.632	.424	.492
	DocE	.220	.445	.460	.535	.552	.590	.493
	DocC	.161	.507	.392	.475	.575	.529	.387
	Co_support	.508	.627	.741	.485	.634	.499	.420
	Co_performance	.474	.356	.540	.332	.379	.469	.440
	EC_Ssat	.445	.449	.630	.218	.474	.419	.366

Correlation Matrix[a]

		MeetingE	MeetingC	PromotionE	PromotionC	HazardE	HazardC	PpeE
Correlation	PolicyE	.358	.421	.303	.378	.414	.373	-.132
	PolicyC	.548	.656	.536	.590	.716	.638	.277
	OrgE	.460	.621	.549	.485	.540	.514	.314
	OrgC	.405	.514	.442	.450	.632	.538	.273
	AccidE	.345	.519	.398	.418	.418	.479	.476
	AccidC	.406	.562	.460	.555	.555	.522	.444
	InspE	.198	.230	.064	.045	.157	.205	.142
	InspC	.406	.562	.460	.555	.555	.522	.444
	SubconE	.394	.479	.648	.545	.657	.625	.317
	SubconC	.696	.769	.706	.730	.776	.768	.443
	ProcessE	.504	.497	.493	.451	.525	.600	.275
	ProcessC	.591	.709	.550	.567	.590	.682	.310
	TrainE	.582	.579	.423	.578	.664	.669	.212
	TrainC	.609	.573	.430	.710	.533	.555	.259
	MeetingE	1.000	.715	.467	.661	.693	.718	.292
	MeetingC	.715	1.000	.603	.626	.706	.709	.439
	PromotionE	.467	.603	1.000	.686	.662	.705	.329
	PromotionC	.661	.626	.686	1.000	.753	.741	.309
	HazardE	.693	.706	.662	.753	1.000	.882	.439
	HazardC	.718	.709	.705	.741	.882	1.000	.534
	PpeE	.292	.439	.329	.309	.439	.534	1.000
	PpeC	.594	.643	.621	.580	.692	.684	.439
	HealthE	.617	.627	.645	.716	.696	.661	.296
	HealthC	.377	.427	.611	.670	.620	.627	.324
	EmergencyE	.627	.540	.450	.584	.668	.638	.407
	EmergencyC	.666	.664	.491	.562	.679	.678	.413
	RuleE	.521	.568	.528	.485	.705	.703	.519
	RuleC	.594	.643	.621	.580	.692	.684	.439
	PerformE	.688	.674	.538	.656	.700	.761	.457
	PerformC	.501	.592	.628	.590	.596	.623	.278
	DocE	.592	.466	.449	.431	.615	.681	.294
	DocC	.487	.438	.471	.422	.580	.662	.234
	Co_support	.571	.629	.582	.661	.761	.672	.433
	Co_performance	.581	.514	.501	.606	.644	.578	.312
	EC_Ssat	.431	.594	.557	.545	.569	.566	.408

Correlation Matrix[a]

		PpeC	HealthE	HealthC	EmergencyE	EmergencyC	RuleE	RuleC
Correlation	PolicyE	.375	.353	.264	.095	.233	.300	.375
	PolicyC	.651	.608	.493	.409	.550	.553	.651
	OrgE	.539	.552	.356	.509	.510	.544	.539
	OrgC	.481	.397	.411	.379	.375	.505	.481
	AccidE	.294	.358	.348	.476	.395	.365	.294
	AccidC	.417	.500	.386	.532	.491	.403	.417
	InspE	.194	-.044	-.258	.252	.230	.321	.194
	InspC	.417	.500	.386	.532	.491	.403	.417
	SubconE	.579	.282	.349	.488	.544	.523	.579
	SubconC	.626	.646	.566	.612	.655	.559	.626
	ProcessE	.545	.321	.294	.472	.518	.553	.545
	ProcessC	.674	.559	.462	.514	.598	.694	.674
	TrainE	.470	.475	.346	.531	.499	.579	.470
	TrainC	.500	.463	.361	.427	.422	.472	.500
	MeetingE	.594	.617	.377	.627	.666	.521	.594
	MeetingC	.643	.627	.427	.540	.664	.568	.643
	PromotionE	.621	.645	.611	.450	.491	.528	.621
	PromotionC	.580	.716	.670	.584	.562	.485	.580
	HazardE	.692	.696	.620	.668	.679	.705	.692
	HazardC	.684	.661	.627	.638	.678	.703	.684
	PpeE	.439	.296	.324	.407	.413	.519	.439
	PpeC	1.000	.411	.435	.476	.544	.822	1.000
	HealthE	.411	1.000	.700	.520	.492	.444	.411
	HealthC	.435	.700	1.000	.411	.348	.414	.435
	EmergencyE	.476	.520	.411	1.000	.804	.512	.476
	EmergencyC	.544	.492	.348	.804	1.000	.550	.544
	RuleE	.822	.444	.414	.512	.550	1.000	.822
	RuleC	1.000	.411	.435	.476	.544	.822	1.000
	PerformE	.632	.706	.579	.692	.672	.703	.632
	PerformC	.610	.673	.597	.423	.422	.547	.610
	DocE	.458	.378	.268	.485	.561	.655	.458
	DocC	.509	.321	.257	.437	.576	.561	.509
	Co_support	.629	.571	.580	.545	.628	.614	.629
	Co_performance	.538	.548	.485	.549	.421	.347	.538
	EC_Ssat	.498	.528	.492	.557	.515	.432	.498

Correlation Matrix[a]

		PerformE	PerformC	DocE	DocC	Co_support	Co_performance	EC_Ssat
Correlation	PolicyE	.382	.335	.138	.160	.414	.189	.175
	PolicyC	.616	.549	.331	.305	.682	.454	.488
	OrgE	.607	.517	.307	.214	.555	.478	.365
	OrgC	.455	.435	.241	.203	.646	.311	.388
	AccidE	.538	.452	.394	.328	.329	.417	.267
	AccidC	.528	.441	.220	.161	.508	.474	.445
	InspE	.268	.081	.375	.273	.011	.125	-.090
	InspC	.528	.441	.220	.161	.508	.474	.445
	SubconE	.479	.435	.445	.507	.627	.356	.449
	SubconC	.637	.582	.460	.392	.741	.540	.630
	ProcessE	.487	.354	.535	.475	.485	.332	.218
	ProcessC	.695	.632	.552	.575	.634	.379	.474
	TrainE	.572	.424	.590	.529	.499	.469	.419
	TrainC	.561	.492	.493	.387	.420	.440	.366
	MeetingE	.688	.501	.592	.487	.571	.581	.431
	MeetingC	.674	.592	.466	.438	.629	.514	.594
	PromotionE	.538	.628	.449	.471	.582	.501	.557
	PromotionC	.656	.590	.431	.422	.661	.606	.545
	HazardE	.700	.596	.615	.580	.761	.644	.569
	HazardC	.761	.623	.681	.662	.672	.578	.566
	PpeE	.457	.278	.294	.234	.433	.312	.408
	PpeC	.632	.610	.458	.509	.629	.538	.498
	HealthE	.706	.673	.378	.321	.571	.548	.528
	HealthC	.579	.597	.268	.257	.580	.485	.492
	EmergencyE	.692	.423	.485	.437	.545	.549	.557
	EmergencyC	.672	.422	.561	.576	.628	.421	.515
	RuleE	.703	.547	.655	.561	.614	.347	.432
	RuleC	.632	.610	.458	.509	.629	.538	.498
	PerformE	1.000	.812	.651	.580	.549	.547	.509
	PerformC	.812	1.000	.509	.529	.448	.564	.408
	DocE	.651	.509	1.000	.846	.345	.356	.253
	DocC	.580	.529	.846	1.000	.363	.341	.285
	Co_support	.549	.448	.345	.363	1.000	.468	.643
	Co_performance	.547	.564	.356	.341	.468	1.000	.489
	EC_Ssat	.509	.408	.253	.285	.643	.489	1.000

Communalities

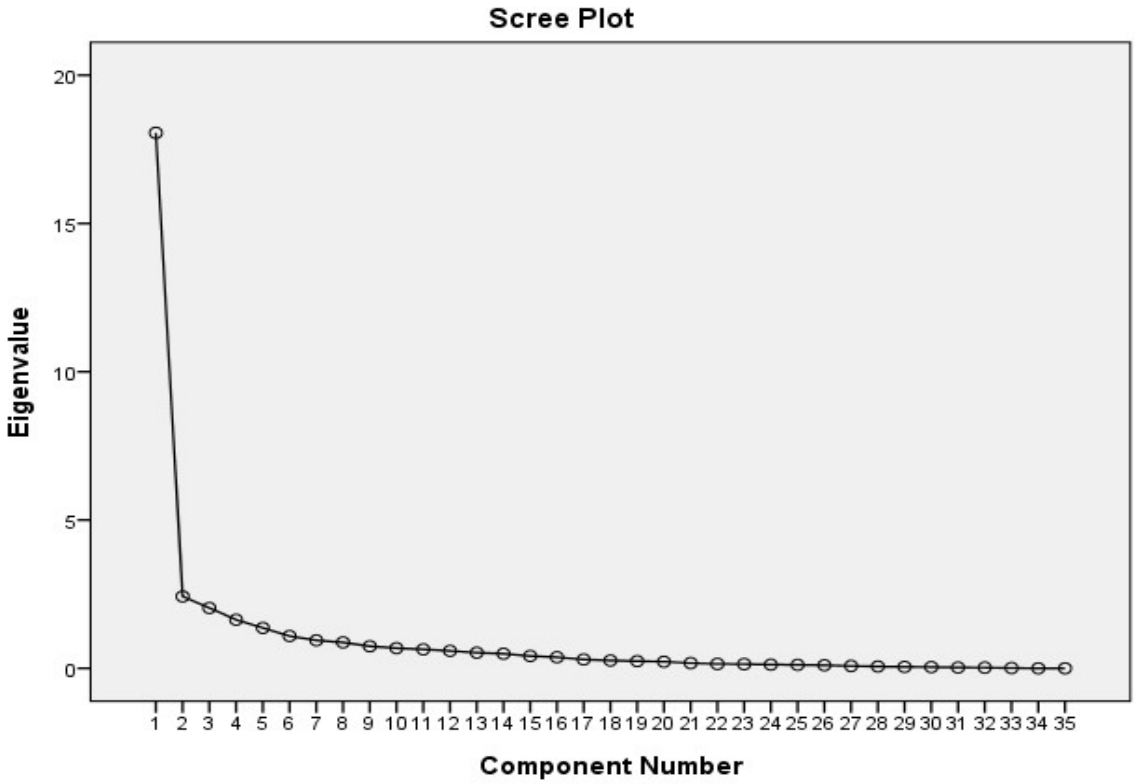
	Initial	Extraction
PolicyE	1.000	.818
PolicyC	1.000	.825
OrgE	1.000	.798
OrgC	1.000	.647
AccidE	1.000	.784
AccidC	1.000	.873
InspE	1.000	.800
InspC	1.000	.873
SubconE	1.000	.611
SubconC	1.000	.842
ProcessE	1.000	.602
ProcessC	1.000	.706
TrainE	1.000	.713
TrainC	1.000	.594
MeetingE	1.000	.724
MeetingC	1.000	.702
PromotionE	1.000	.641
PromotionC	1.000	.784
HazardE	1.000	.841
HazardC	1.000	.843
PpeE	1.000	.743
PpeC	1.000	.859
HealthE	1.000	.823
HealthC	1.000	.766
EmergencyE	1.000	.760
EmergencyC	1.000	.761
RuleE	1.000	.836
RuleC	1.000	.859
PerformE	1.000	.800
PerformC	1.000	.826
DocE	1.000	.796
DocC	1.000	.757
Co_support	1.000	.789
Co_performance	1.000	.543
EC_Ssat	1.000	.661

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.057	51.590	51.590	18.057	51.590	51.590	5.639	16.113	16.113
2	2.424	6.925	58.515	2.424	6.925	58.515	5.139	14.683	30.796
3	2.035	5.815	64.330	2.035	5.815	64.330	4.471	12.773	43.570
4	1.637	4.676	69.006	1.637	4.676	69.006	4.246	12.132	55.702
5	1.362	3.892	72.898	1.362	3.892	72.898	4.225	12.072	67.774
6	1.087	3.106	76.004	1.087	3.106	76.004	2.881	8.231	76.004
7	.942	2.691	78.695						
8	.875	2.501	81.196						
9	.743	2.124	83.320						
10	.681	1.946	85.266						
11	.638	1.824	87.090						
12	.588	1.679	88.769						
13	.528	1.510	90.279						
14	.491	1.402	91.681						
15	.414	1.184	92.865						
16	.374	1.068	93.933						
17	.296	.847	94.780						
18	.264	.755	95.535						
19	.243	.694	96.229						
20	.223	.638	96.866						
21	.175	.499	97.366						
22	.147	.421	97.787						
23	.141	.404	98.191						
24	.123	.350	98.541						
25	.116	.332	98.873						
26	.104	.296	99.168						
27	.078	.224	99.393						
28	.063	.180	99.572						
29	.049	.141	99.713						
30	.042	.121	99.835						
31	.026	.075	99.910						
32	.022	.063	99.973						
33	.009	.027	100.000						
34	.000	.000	100.000						
35	.000	.000	100.000						

Extraction Method: Principal Component Analysis.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Component Number

Component Matrix[a]

	Component					
	1	2	3	4	5	6
HazardC	.898	.078	-.122	-.115	-.034	-.026
HazardE	.896	-.047	-.125	-.044	-.033	-.129
SubconC	.864	-.256	-.013	.040	-.034	-.163
PerformE	.850	.102	-.014	-.125	.132	.182
MeetingC	.829	-.035	.050	.052	.054	-.068
PromotionC	.811	-.173	-.095	-.169	.224	-.093
RuleC	.795	.076	-.223	.199	-.304	.200
PpeC	.795	.076	-.223	.199	-.304	.200
ProcessC	.795	.190	-.085	.115	.076	.111
Co_support	.789	-.245	-.104	.090	-.207	-.210
RuleE	.775	.253	-.124	.149	-.300	.210
MeetingE	.768	.117	-.119	-.073	.208	-.240
EmergencyC	.759	.148	.028	-.117	-.126	-.364
PolicyC	.759	-.306	-.158	.358	.035	-.039
PromotionE	.756	-.142	-.144	-.071	-.043	.145
PerformC	.736	-.050	-.142	-.103	.204	.458
HealthE	.733	-.300	-.082	-.245	.345	.097
EmergencyE	.728	.100	.171	-.290	-.065	-.319
OrgE	.721	-.098	.386	.303	.066	.153
TrainE	.711	.327	.085	.035	.258	-.157
SubconE	.679	.053	-.113	.153	-.265	-.202
InspC	.676	-.247	.595	.003	-.007	.002
AccidC	.676	-.247	.595	.003	-.007	.002
Co_performance	.662	-.107	.041	-.261	.145	.044
TrainC	.660	.229	-.035	-.062	.309	-.077
ProcessE	.656	.333	.083	.232	.000	.005
EC_Ssat	.647	-.285	-.081	-.260	-.205	-.210
DocE	.643	.570	-.176	-.145	.069	.029
OrgC	.639	-.314	.102	.340	-.114	-.036
HealthC	.635	-.402	-.206	-.300	.102	.242
DocC	.606	.530	-.298	-.136	-.016	.037
InspE	.255	.669	.453	.265	.104	-.022
AccidE	.590	.088	.602	-.109	.058	.228
PolicyE	.448	-.258	-.209	.640	.306	-.064
PpeE	.507	.014	.255	-.311	-.549	.153

Extraction Method: Principal Component Analysis.

a. 6 components extracted.

Reproduced Correlations

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
DocE	.785	.219	.152	.319	-.001	-.078
DocC	.710	.219	.173	.394	-.116	-.075
TrainE	.700	.192	.254	.073	.271	.208
InspE	.668	-.382	-.150	.055	.427	.018
TrainC	.612	.342	.207	.048	.164	.175
ProcessE	.562	.031	.145	.350	.290	.239
MeetingE	.561	.363	.445	.094	.116	.239
ProcessC	.537	.330	.170	.401	.220	.269
HazardC	.478	.447	.442	.399	.201	.140
HealthC	-.005	.794	.238	.232	.125	.096
HealthE	.221	.776	.264	.032	.237	.214
PerformC	.327	.708	-.050	.377	.223	.156
Promotion C	.338	.605	.435	.100	.211	.246
Co_perfor	.271	.535	.295	.108	.287	.037
PerformE	.504	.535	.198	.332	.312	.114
Promotion E	.212	.520	.294	.411	.190	.183
EC_Ssat	.033	.399	.647	.239	.154	.037
Emergency C	.471	.143	.645	.222	.217	.071
Emergency E	.431	.233	.624	.104	.337	-.075
Co_suppor t	.126	.287	.613	.391	.203	.348
SubconC	.205	.410	.561	.286	.319	.365
HazardE	.390	.425	.529	.351	.202	.254
SubconE	.290	.066	.496	.446	.120	.253
MeetingC	.382	.351	.388	.269	.350	.296
RuleC	.303	.260	.244	.745	.134	.259
PpeC	.303	.260	.244	.745	.134	.259
RuleE	.431	.179	.194	.725	.190	.137
PpeE	.024	.143	.356	.525	.424	-.374
AccidC	.087	.238	.320	.099	.821	.151
InspC	.087	.238	.320	.099	.821	.151
AccidE	.311	.225	.041	.138	.780	-.086
OrgE	.239	.201	.102	.280	.675	.396
PolicyE	.119	.163	.047	.112	.043	.872
PolicyC	.127	.348	.336	.356	.197	.640
OrgC	.000	.172	.325	.339	.388	.497

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kai

		PolicyE	PolicyC	OrgE	OrgC	AccidE	AccidC	InspE	InspC	SuboonE	SubconC	ProcessE	ProcessC	TrainE	TrainC	MeetingE	MeetingC	Promotion E	Promotion C	HazardE	HazardC	PpeE	PpeC	HealthE	HealthC	Emergenc yE	Emergenc yC	RuleE	RuleC	PerformE	PerformC	DocE	DocC	Co_suppor t	Co_perfor mance	EC_Ssat
Reproduced Correlation	PolicyE	.818[a]	.694	.472	.531	.050	.242	.050	.242	.344	.482	.339	.414	.328	.303	.371	.424	.338	.394	.410	.326	-.206	.405	.365	.255	.080	.206	.298	.405	.307	.340	.104	.103	.446	.190	.165
	PolicyC	.694	.825[a]	.621	.684	.279	.495	.017	.495	.570	.756	.466	.598	.454	.427	.556	.655	.608	.634	.702	.636	.203	.668	.581	.524	.401	.494	.565	.668	.569	.548	.291	.294	.724	.439	.499
	OrgE	.472	.621	.798[a]	.621	.655	.743	.378	.743	.439	.629	.544	.579	.517	.430	.451	.630	.501	.515	.568	.552	.356	.551	.490	.370	.441	.444	.544	.551	.597	.533	.305	.234	.535	.441	.339
	OrgC	.531	.684	.621	.647[a]	.359	.572	.079	.572	.495	.655	.402	.466	.349	.293	.402	.560	.489	.483	.568	.503	.297	.557	.428	.389	.372	.429	.481	.557	.446	.397	.156	.145	.633	.354	.438
	AccidE	.050	.279	.655	.359	.784[a]	.735	.454	.735	.259	.436	.442	.452	.475	.396	.357	.498	.385	.416	.423	.467	.490	.347	.426	.308	.496	.399	.419	.347	.565	.471	.350	.247	.311	.453	.276
	AccidC	.242	.495	.743	.572	.735	.873[a]	.277	.873	.381	.640	.412	.440	.449	.367	.418	.599	.461	.532	.543	.515	.494	.389	.518	.405	.568	.493	.391	.389	.540	.424	.188	.102	.534	.497	.460
	InspE	.050	.017	.378	.079	.454	.277	.800[a]	.277	.174	.054	.489	.328	.479	.323	.228	.232	.006	.029	.129	.193	.111	.169	-.081	-.274	.253	.269	.314	.169	.256	.074	.434	.336	-.003	.061	-.148
	InspC	.242	.495	.743	.572	.735	.873	.277	.873[a]	.381	.640	.412	.440	.449	.367	.418	.599	.461	.532	.543	.515	.494	.389	.518	.405	.568	.493	.391	.389	.540	.424	.188	.102	.534	.497	.460
	SuboonE	.344	.570	.439	.495	.259	.381	.174	.381	.611[a]	.623	.488	.534	.459	.388	.523	.563	.494	.486	.648	.625	.383	.640	.343	.312	.518	.609	.614	.640	.494	.351	.440	.449	.646	.352	.491
	SubconC	.482	.756	.629	.655	.436	.640	.054	.640	.623	.842[a]	.489	.623	.548	.512	.665	.737	.667	.747	.809	.759	.413	.656	.674	.599	.644	.677	.589	.656	.670	.565	.399	.381	.791	.577	.664
	ProcessE	.339	.466	.544	.402	.442	.412	.489	.412	.488	.489	.602[a]	.605	.590	.491	.515	.548	.421	.427	.551	.579	.287	.575	.318	.197	.456	.521	.618	.575	.563	.433	.563	.518	.448	.342	.262
	ProcessC	.414	.598	.579	.466	.452	.440	.328	.440	.534	.623	.605	.706[a]	.627	.578	.623	.651	.591	.607	.692	.721	.324	.687	.542	.446	.510	.565	.692	.687	.712	.642	.626	.595	.561	.489	.398
	TrainE	.328	.454	.517	.349	.475	.449	.479	.449	.459	.548	.590	.627	.713[a]	.631	.663	.609	.443	.579	.622	.646	.210	.468	.482	.280	.589	.611	.518	.468	.638	.472	.637	.565	.455	.461	.331
	TrainC	.303	.427	.430	.293	.396	.367	.323	.367	.388	.512	.491	.578	.631	.594[a]	.625	.556	.451	.586	.587	.613	.167	.427	.533	.366	.520	.530	.455	.427	.619	.513	.589	.532	.415	.469	.333
	MeetingE	.371	.556	.451	.402	.357	.418	.228	.418	.523	.665	.515	.623	.663	.625	.724[a]	.651	.543	.695	.725	.721	.233	.520	.604	.450	.635	.667	.516	.520	.659	.516	.599	.561	.591	.530	.500
	MeetingC	.424	.655	.630	.560	.498	.599	.232	.599	.563	.737	.548	.651	.609	.556	.651	.702[a]	.609	.684	.744	.730	.377	.626	.614	.504	.612	.637	.605	.626	.689	.579	.499	.459	.666	.547	.533
	PromotionE	.338	.608	.501	.489	.385	.461	.006	.461	.494	.667	.421	.591	.443	.451	.543	.609	.641[a]	.641	.688	.692	.412	.651	.626	.619	.489	.510	.601	.651	.660	.649	.442	.442	.619	.529	.539
	PromotionC	.394	.634	.515	.483	.416	.532	.029	.532	.486	.747	.427	.607	.579	.586	.695	.684	.641	.784[a]	.759	.741	.300	.532	.764	.655	.621	.612	.485	.532	.707	.640	.477	.444	.650	.624	.599
	HazardE	.410	.702	.568	.568	.423	.543	.129	.543	.648	.809	.551	.692	.622	.587	.725	.744	.688	.759	.841[a]	.826	.434	.712	.669	.592	.683	.726	.675	.712	.737	.618	.572	.557	.762	.595	.649
	HazardC	.326	.636	.552	.503	.467	.515	.193	.515	.625	.759	.579	.721	.646	.613	.721	.730	.692	.741	.826	.843[a]	.476	.730	.659	.588	.685	.717	.719	.730	.779	.667	.657	.638	.705	.606	.612
	PpeE	-.206	.203	.356	.297	.490	.494	.111	.494	.383	.413	.287	.324	.210	.167	.233	.377	.412	.300	.434	.476	.743[a]	.483	.248	.337	.491	.444	.515	.483	.423	.326	.301	.296	.424	.353	.465
	PpeC	.405	.668	.551	.557	.347	.389	.169	.389	.640	.656	.575	.687	.468	.427	.520	.626	.651	.532	.712	.730	.483	.859[a]	.444	.478	.447	.550	.826	.859	.658	.622	.549	.573	.671	.422	.480
	HealthE	.365	.581	.490	.428	.426	.518	-.081	.518	.343	.674	.318	.542	.482	.533	.604	.614	.626	.764	.669	.659	.248	.444	.823[a]	.735	.508	.460	.383	.444	.688	.706	.377	.342	.547	.633	.539
	HealthC	.255	.524	.370	.389	.308	.405	-.274	.405	.312	.599	.197	.446	.280	.366	.450	.504	.619	.655	.592	.588	.337	.478	.735	.766[a]	.390	.350	.391	.478	.596	.679	.272	.281	.522	.558	.549
	EmergencyE	.080	.401	.441	.372	.496	.568	.253	.568	.518	.644	.456	.510	.589	.520	.635	.612	.489	.621	.683	.685	.491	.447	.508	.390	.760[a]	.730	.478	.447	.596	.377	.523	.473	.587	.531	.585
	EmergencyC	.206	.494	.444	.429	.399	.493	.269	.493	.609	.677	.521	.565	.611	.530	.667	.637	.510	.612	.726	.717	.444	.550	.460	.350	.730	.761[a]	.566	.550	.591	.366	.565	.535	.652	.484	.579
	RuleE	.298	.565	.544	.481	.419	.391	.314	.391	.614	.589	.618	.692	.518	.455	.516	.605	.601	.485	.675	.719	.515	.826	.383	.391	.478	.566	.838[a]	.826	.667	.595	.628	.633	.594	.408	.419
	RuleC	.405	.668	.551	.557	.347	.389	.169	.389	.640	.656	.575	.687	.468	.427	.520	.626	.651	.532	.712	.730	.483	.859	.444	.478	.447	.550	.826	.859[a]	.658	.622	.549	.573	.671	.422	.480
	PerformE	.307	.569	.597	.446	.565	.540	.256	.540	.494	.670	.563	.712	.638	.619	.659	.689	.660	.707	.737	.779	.423	.658	.688	.596	.596	.591	.667	.658	.800[a]	.746	.640	.596	.571	.611	.490
	PerformC	.340	.548	.533	.397	.471	.424	.074	.424	.351	.565	.433	.642	.472	.513	.516	.579	.649	.640	.618	.667	.326	.622	.706	.679	.377	.366	.595	.622	.746	.826[a]	.512	.490	.460	.563	.391
	DocE	.104	.291	.305	.156	.350	.188	.434	.188	.440	.399	.563	.626	.637	.589	.599	.499	.442	.477	.572	.657	.301	.549	.377	.272	.523	.565	.628	.549	.640	.512	.796[a]	.764	.353	.407	.285
	DocC	.103	.294	.234	.145	.247	.102	.336	.102	.449	.381	.518	.595	.565	.532	.561	.459	.442	.444	.557	.638	.296	.573	.342	.281	.473	.535	.633	.573	.596	.490	.764	.757[a]	.363	.368	.296
	Co_support	.446	.724	.535	.633	.311	.534	-.003	.534	.646	.791	.448	.561	.455	.415	.591	.666	.619	.650	.762	.705	.424	.671	.547	.522	.587	.652	.594	.671	.571	.460	.353	.363	.789[a]	.482	.653
	Co_performance	.190	.439	.441	.354	.453	.497	.061	.497	.352	.577	.342	.489	.461	.469	.530	.547	.529	.624	.595	.606	.353	.422	.633	.558	.531	.484	.408	.422	.611	.563	.407	.368	.482	.543[a]	.485
	EC_Ssat	.165	.499	.339	.438	.276	.460	-.148	.460	.491	.664	.262	.398	.331	.333	.500	.533	.539	.599	.649	.612	.465	.480	.539	.549	.585	.579	.419	.480	.490	.391	.285	.296	.653	.485	.661[a]
Residual[b]	PolicyE		.004	-.052	-.067	.023	.022	.028	.022	.000	.001	-.047	-.055	-.067	-.063	-.013	-.004	-.035	-.016	.004	.047	.074	-.030	-.012	.009	.016	.027	.002	-.030	.076	-.004	.033	.057	-.033	-.002	.010
	PolicyC	.004		.017	-.037	-.015	-.015	-.006	-.015	-.087	.016	-.010	-.021	.002	-.056	-.008	.001	-.071	-.044	.014	.003	.074	-.017	.026	-.030	.008	.056	-.012	-.017	.047	.000	.040	.011	-.042	.016	-.011
	OrgE	-.052	.017		-.019	-.012	-.081	.007	-.081	-.022	-.035	.019	.022	-.038	-.084	.008	-.009	.048	-.030	-.028	-.038	-.042	-.012	.062	-.014	.069	.066	.000	-.012	.010	-.016	.002	-.020	.021	.037	.026
	OrgC	-.067	-.037	-.019		.102	-.054	-.078	-.054	.015	-.005	-.046	-.069	.100	-.020	.003	-.047	-.047	-.034	.064	.034	-.024	-.076	-.031	.022	.007	-.054	.024	-.076	.008	.037	.085	.058	.014	-.044	-.050
	AccidE	.023	-.015	-.012	.102		-.069	-.107	-.069	.020	.044	.080	-.020	.020	-.059	-.012	.020	.014	.002	-.005	.011	-.014	-.054	-.067	.040	-.020	-.004	-.054	-.054	-.026	-.020	.044	.081	.018	-.035	-.009
	AccidC	.022	-.015	-.081	-.054	-.069		-.009	.127	.032	.002	-.053	.004	-.029	.018	-.012	-.038	-.001	.023	.012	.007	-.050	.028	-.018	-.018	-.036	-.002	.013	.028	-.012	.017	.031	.059	-.026	-.023	-.015
	InspE	.028	-.006	.007	-.078	-.107	-.009		-.009	.039	-.045	-.096	-.062	.014	.014	-.030	-.002	.058	.016	.029	.013	.031	.025	.037	.017	-.002	-.040	.007	.025	.012	.007	-.059	-.063	.014	.063	.058
	InspC	.022	-.015	-.081	-.054	-.069	.127	-.009		.032	.002	-.053	.004	-.029	.018	-.012	-.038	-.001	.023	.012	.007	-.050	.028	-.018	-.018	-.036	-.002	.013	.028	-.012	.017	.031	.059	-.026	-.023	-.015
	SuboonE	.000	-.087	-.022	.015	.020	.032	.039	.032		.017	-.019	-.056	-.015	.055	-.129	-.084	.154	.059	.009	.000	-.067	-.061	.038	-.029	-.065	-.091	-.061	-.015	.084	.005	.058	-.019	.004	-.041
	SubconC	.001	.016	-.035	-.005	.044	.002	-.045	.002	.017		.039	.002	-.065	.028	.032	.033	.039	-.017	-.033	.009	.031	-.030	-.028	-.034	-.033	-.021	-.029	-.030	-.033	.017	.061	.010	-.050	-.037	-.035
	ProcessE	-.047	-.010	.019	-.046	.080	-.053	-.096	-.053	-.019	.039		.055	-.039	-.031	-.011	-.051	.072	.024	-.027	.021	-.012	-.031	.003	.097	.015	-.003	-.065	-.031	-.075	-.079	-.028	-.042	.038	-.010	-.043
	ProcessC	-.055	-.021	.022	-.069	-.020	.004	-.062	.004	-.056	.002	.055		.000	.071	-.032	.058	-.041	-.040	-.102	-.039	-.014	-.013	.018	.016	.004	.033	.002	-.013	-.017	-.010	-.074	-.020	.073	-.109	.076
	TrainE	-.067	.002	-.038	.100	.020	-.029	.014	-.029	-.015	-.065	-.039	.000		.054	-.082	-.030	-.020	.000	.042	.024	.002	.002	-.007	.065	-.057	-.113	.061	.002	-.066	-.048	-.047	-.035	.044	.008	.088
	TrainC	-.063	-.056	-.084	-.020	-.059	.018	.014	.018	.055	.028	-.031	.071	.054		-.015	.017	-.022	.124	-.055	-.058	.092	.073	-.069	-.005	-.093	-.108	.017	.073	-.059	-.021	-.096	-.145	.005	-.029	.032
	MeetingE	-.013	-.008	.008	.003	-.012	-.012	-.030	-.012	-.129	.032	-.011	-.032	-.082	-.015		.064	-.076	-.034	-.032	-.003	.059	.074	.013	-.073	-.008	-.001	.006	.074	.028	-.015	-.007	-.074	-.020	.051	-.070
	MeetingC	-.004	.001	-.009	-.047	.020	-.038	-.002	-.038	-.084	.033	-.051	.058	-.030	.017	.064		-.007	-.057	-.038	-.022	.062	.018	.013	-.077	-.072	.027	-.037	.018	-.016	.013	-.033	-.020	-.036	-.032	.061
	PromotionE	-.035	-.071	.048	-.047	.014	-.001	.058	-.001	.154	.039	.072	-.041	-.020	-.022	-.076	-.007		.046	-.027	.013	-.083	-.030	.019	-.008	-.039	-.019	-.073	-.030	-.122	-.021	.006	.029	-.037	-.028	.018
	PromotionC	-.016	-.044	-.030	-.034	.002	.023	.016	.023	.059	-.017	.024	-.040	.000	.124	-.034	-.057	.046		-.006	.000	.009	.047	-.048	.015	-.037	-.051	.000	.047	-.051	-.050	-.046	-.022	.011	-.019	-.054
	HazardE	.004	.014	-.028	.064	-.005	.012	.029	.012	.009	-.033	-.027	-.102	.042	-.055	-.032	-.038	-.027	-.006		.056	.006	-.020	.027	.028	-.015	-.046	.030	-.020	-.036	-.022	.044	.022	-.001	.050	-.079
	HazardC	.047	.003	-.038	.034	.011	.007	.013	.007	.000	.009	.021	-.039	.024	-.058	-.003	-.022	.013	.000	.056		.058	-.045	.001	.039	-.047	-.039	-.016	-.045	-.018	-.044	.024	.024	-.033	-.027	-.045
	PpeE	.074	.074	-.042	-.024	-.014	-.050	.031	-.050	-.067	.031	-.012	-.014	.002	.092	.059	.062	-.083	.009	.006	.058		-.044	.048	-.014	-.085	-.031	.003	-.044	.034	-.048	-.007	-.062	.010	-.041	-.057
	PpeC	-.030	-.017	-.012	-.076	-.054	.028	.025	.028	-.061	-.030	-.031	-.013	.002	.073	.074	.018	-.030	.047	-.020	-.045	-.044		-.033	-.042	.029	-.007	-.003	.141	-.026	-.012	-.092	-.064	-.042	.116	.018
	HealthE	-.012	.026	.062	-.031	-.067	-.018	.037	-.018	-.061	-.028	.003	.018	-.007	-.069	.013	.013	.019	-.048	.027	.001	.048	-.033		-.035	.012	.033	.061	-.033	.018	-.033	.001	-.021	.024	-.085	-.011
	HealthC	.009	-.030	-.014	.022	.040	-.018	.017	-.018	.038	-.034	.097	.016	.065	-.005	-.073	-.077	-.008	.015	.028	.039	-.014	-.042	-.035		.021	-.003	.023	-.042	-.018	-.082	-.004	-.024	.058	-.073	-.056
	EmergencyE	.016	.008	.069	.007	-.020	-.036	-.002	-.036	-.029	-.033	.015	.004	-.057	-.093	-.008	-.072	-.039	-.037	-.015	-.047	-.085	.029	.012	.021		.074	.034	.029	.096	.046	-.039	-.036	-.042	.018	-.028
	EmergencyC	.027	.056	.066	-.054	-.004	-.002	-.040	-.002	-.065	-.021	-.003	.033	-.113	-.108	-.001	.027	-.019	-.051	-.046	-.039	-.031	-.007	.033	-.003	.074		-.016	-.007	.081	.056	-.004	.041	-.024	-.063	-.064
	RuleE	.002	-.012	.000	.024	-.054	.013	.007	.013	-.091	-.029	-.065	.002	.061	.017	.006	-.037	-.073	.000	.030	-.016	.003	-.003	.061	.023	.034	-.016		-.003	.037	-.048	.027	-.072	.019	-.061	.013
	RuleC	-.030	-.017	-.012	-.076	-.054	.028	.025	.028	-.061	-.030	-.031	-.013	.002	.073	.074	.018	-.030	.047	-.020	-.045	-.044	.141	-.033	-.042	.029	-.007	-.003		-.026	-.012	-.092	-.064	-.042	.116	.018
	PerformE	.076	.047	.010	.008	-.026	-.012	.012	-.012	-.015	-.033	-.075	-.017	-.066	-.059	.028	-.016	-.122	-.051	-.036	-.018	.034	-.026	.018	-.018	.096	.081	.037	-.026		.066	.011	-.015	-.022	-.064	.020
	PerformC	-.004	.000	-.016	.037	-.020	.017	.007	.017	.084	.017	-.079	-.010	-.048	-.021	-.015	.013	-.021	-.050	-.022	-.044	-.048	-.012	-.033	-.082	.046	.056	-.048	-.012	.066		-.003	.040	-.012	.001	.018
	DocE	.033	.040	.002	.085	.044	.031	-.059	.031	.005	.061	-.028	-.074	-.047	-.096	-.007	-.033	.006	-.046	.044	.024	-.007	-.092	.001	-.004	-.039	-.004	.027	-.092	.011	-.003		.083	-.008	-.051	-.032
	DocC	.057	.011	-.020	.058	.081	.059	-.063	.059	.058	.010	-.042	-.020	-.035	-.145	-.074	-.020	.029	-.022	.022	.024	-.062	-.064	-.021	-.024	-.036	.041	-.072	-.064	-.015	.040	.083		.000	-.027	-.011
	Co_support	-.033	-.042	.021	.014	.018	-.026	.014	-.026	-.019	-.050	.038	.073	.044	.005	-.020	-.036	-.037	.011	-.001	-.033	.010	-.042	.024	.058	-.042	-.024	.019	-.042	-.022	-.012	-.008	.000		-.014	-.010
	Co_performance	-.002	.016	.037	-.044	-.035	-.023	.063	-.023	.004	-.037	-.010	-.109	.008	-.029	.051	-.032	-.028	-.019	.050	-.027	-.041	.116	-.085	-.073	.018	-.063	-.061	.116	-.064	.001	-.051	-.027	-.014		.005
	EC_Ssat	.010	-.011	.026	-.050	-.009	-.015	.058	-.015	-.041	-.035	-.043	.076	.088	.032	-.070	.061	.018	-.054	-.079	-.045	-.057	.018	-.011	-.056	-.028	-.064	.013	.018	.020	.018	-.032	-.011	-.010	.005	

Extraction Method: Principal Component Analysis.

a. Reproduced communalitiesb. Residuals are computed between observed and reproduced correlations. There are 157 (26.0%) nonredundant residuals with absolute values greater than 0.05.

```
FACTOR
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ProcessC InspE
  /MISSING LISTWISE
  /ANALYSIS AccidE TrainE TrainC Co_performance Co_support EC_Ssat OrgC
ProcessC InspE
  /PRINT UNIVARIATE INITIAL CORRELATION SIG DET KMO EXTRACTION ROTATION
  /FORMAT SORT
  /PLOT EIGEN
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Principal Component Final Analysis with Nine Variables Remained

Factor Analysis

Notes

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Descriptive Statistics

	Mean	Std. Deviation	Analysis N
AccidE	3.9600	.60474	50
TrainE	3.2700	.77070	50
TrainC	3.3300	.84280	50
Co_performance	3.22	.764	50
Co_support	3.12	.895	50
EC_Ssat	3.20	.808	50
OrgC	3.3700	.76805	50
ProcessC	3.2200	.81541	50
InspE	3.7700	.75734	50

Correlation Matrix[a]

		AccidE	TrainE	TrainC	Co_performance	Co_support	EC_Ssat	OrgC	ProcessC	InspE
Correlation	AccidE	1.000	.494	.337	.417	.329	.267	.461	.432	.347
	TrainE	.494	1.000	.685	.469	.499	.419	.448	.626	.493
	TrainC	.337	.685	1.000	.440	.420	.366	.273	.649	.337
	Co_performance	.417	.469	.440	1.000	.468	.489	.311	.379	.125
	Co_support	.329	.499	.420	.468	1.000	.643	.646	.634	.011
	EC_Ssat	.267	.419	.366	.489	.643	1.000	.388	.474	-.090
	OrgC	.461	.448	.273	.311	.646	.388	1.000	.397	.000
	ProcessC	.432	.626	.649	.379	.634	.474	.397	1.000	.265
	InspE	.347	.493	.337	.125	.011	-.090	.000	.265	1.000
Sig. (1-tailed)	AccidE		.000	.008	.001	.010	.030	.000	.001	.007
	TrainE	.000		.000	.000	.000	.001	.001	.000	.000
	TrainC	.008	.000		.001	.001	.005	.028	.000	.008
	Co_performance	.001	.000	.001		.000	.000	.014	.003	.194
	Co_support	.010	.000	.001	.000		.000	.000	.000	.469
	EC_Ssat	.030	.001	.005	.000	.000		.003	.000	.267
	OrgC	.000	.001	.028	.014	.000	.003		.002	.500
	ProcessC	.001	.000	.000	.003	.000	.000	.002		.031
	InspE	.007	.000	.008	.194	.469	.267	.500	.031	

(a) Determinant=.011

KMO and Bartlett's Test

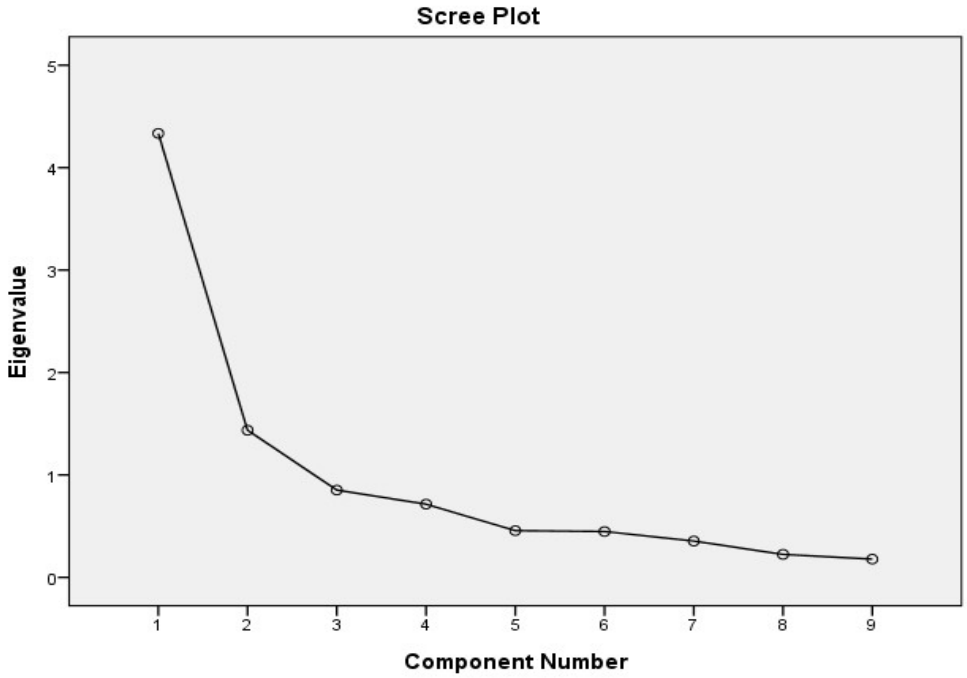
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.784
Bartlett's Test of Sphericity	Appro年Chi-Square	203.721
	df	36
	Sig.	.000

Communalities

	Initial	E年traction
AccidE	1.000	.460
TrainE	1.000	.786
TrainC	1.000	.621
Co_performance	1.000	.456
Co_support	1.000	.787
EC_Ssat	1.000	.670
OrgC	1.000	.533
ProcessC	1.000	.654
InspE	1.000	.804

Total Variance Explained

	Initial Eigenvalues			E年traction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Componen t	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.335	48.163	48.163	4.335	48.163	48.163	3.133	34.816	34.816
2	1.437	15.965	64.128	1.437	15.965	64.128	2.638	29.312	64.128
3	.852	9.470	73.598						
4	.715	7.942	81.540						
5	.456	5.068	86.608						
6	.448	4.978	91.586						
7	.355	3.940	95.527						
8	.225	2.495	98.022						
9	.178	1.978	100.000						



Component Matrix[a]

	Component	
	1	2
TrainE	.830	.311
ProcessC	.807	.059
Co_support	.783	-.416
TrainC	.739	.274
Co_performance	.667	-.107
EC_Ssat	.667	-.475
OrgC	.648	-.336
AccidE	.641	.221
InspE	.338	.831

Rotated Component Matrix[a]

	Component	
	1	2
Co_support	.867	.186
EC_Ssat	.816	.066
OrgC	.712	.161
Co_performance	.579	.348
ProcessC	.579	.565
InspE	-.276	.853
TrainE	.435	.773
TrainC	.389	.685
AccidE	.348	.582

Component Transformation Matrix

Component	1	2
1	.765	.644
2	-.644	.765

Stage 3

Data Controlling Log-MANOVA Analysis

[The relationships of accident rate level with Company Performance (Co_performance) and Company Support (Co_support)]

General

Since, the Accident rate, using in the research questionnaires, is ordinal nature. MANOVA is going to examine the relationship between the accident rate level and both Co_performance and Co_support. The Levene's test for homogeneity of variance is not significant. As a result, the multivariate testing found with the significant effect on company safety performance to accident rate level, see diagram 1. Contrary to our estimation, there no trace of relationship between accident rate and Company support on safety aspect.

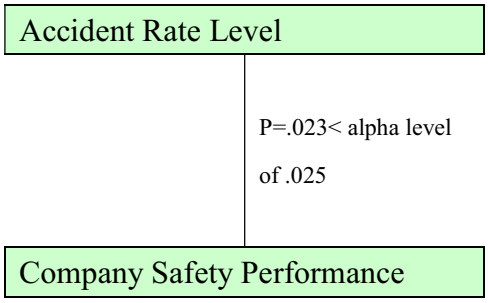
Multivariate Analysis of Variance Log

There was no difference between accident rate levels of evaluation when considered jointly on both Co_support and Co_performance, Wilk's $\cap$=.715, p=.055, F(8,88)=2,

Partial η^2=.15.

Separate ANOVA is conducted for the dependent variable (accident rate level) with each ANOVA evaluated as an alpha level of .025. There is a significant relationship between accident rate level and Co_performance, $F(4, 45)=3.15$, $p=.023$, Partial $\eta^2=.22$. There is no significant relationship between accident rate level on Co_support, $F(4, 45)=1.07$, $p=.38$, Partial $\eta^2=.09$.

diagram 1



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  /EMMEANS=TABLES(Accident_rate)
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General Linear Model

[Usage of MANOVA to analysis the relation between Accident Rate and Company Safety Performance]

Notes

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Between-Subjects Factors

		Value Label	N
Accident_rate	1	Low	14
	2	2	9
	3	3	18
	4	4	7
	5	High	2

Descriptive Statistics

	Accident_rate	Mean	Std. Deviation	N
Co_support	Low	3.36	.842	14
	2	2.67	1.000	9
	3	3.06	.938	18
	4	3.43	.535	7
	High	3.00	1.414	2
	Total	3.12	.895	50
Co_performance	Low	3.36	.842	14
	2	2.89	.782	9
	3	3.00	.594	18
	4	3.57	.535	7
	High	4.50	.707	2
	Total	3.22	.764	50

Box's Test of Equality of Covariance Matrices[a]

Box's M	12.207
F	1.222
df1	9
df2	5182.270
Sig.	.276

Multivariate Tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.942	360.454[a]	2.000	44.000	.000	.942
	Wilks' Lambda	.058	360.454[a]	2.000	44.000	.000	.942
	Hotelling's Trace	16.384	360.454[a]	2.000	44.000	.000	.942
	Roy's Largest Root	16.384	360.454[a]	2.000	44.000	.000	.942
Accident_rate	Pillai's Trace	.302	1.999	8.000	90.000	.055	.151
	Wilks' Lambda	.715	2.005[a]	8.000	88.000	.055	.154
	Hotelling's Trace	.374	2.010	8.000	86.000	.055	.157
	Roy's Largest Root	.292	3.283[b]	4.000	45.000	.019	.226

Levene's Test of Equality of Error Variances[a]

	F	df1	df2	Sig.
Co_support	.608	4	45	.659
Co_performance	1.502	4	45	.218

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Co_support	3.407[a]	4	.852	1.068	.383	.087
	Co_performance	6.263[b]	4	1.566	3.157	.023	.219
Intercept	Co_support	272.996	1	272.996	342.452	.000	.884
	Co_performance	340.421	1	340.421	686.410	.000	.938
Accident_rate	Co_support	3.407	4	.852	1.068	.383	.087
	Co_performance	6.263	4	1.566	3.157	.023	.219
Error	Co_support	35.873	45	.797			
	Co_performance	22.317	45	.496			
Total	Co_support	526.000	50				
	Co_performance	547.000	50				
Corrected Total	Co_support	39.280	49				
	Co_performance	28.580	49				

Estimated Marginal Means

Accident_rate

Dependent Variable	Accident_rate	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Co_support	Low	3.357	.239	2.877	3.838
	2	2.667	.298	2.067	3.266
	3	3.056	.210	2.632	3.479
	4	3.429	.337	2.749	4.108
	High	3.000	.631	1.728	4.272
Co_performance	Low	3.357	.188	2.978	3.736
	2	2.889	.235	2.416	3.362
	3	3.000	.166	2.666	3.334
	4	3.571	.266	3.035	4.108
	High	4.500	.498	3.497	5.503

Stage 4

Data Controlling Log-Multiple Regression Analysis

[The relationships of Company Safety Performance with Company Support (Co_support) and various predictors]

General

The stage 4 analyses have taken place by using correlationship and multiple regressions for restructuring the model. The Company Safety Performance, as dependant variable, using in the research questionnaires, is measure in scale. Regression is going to examine the relationship between Co_performance, Co_support and various indicators. Through the Regression 1 to 5 enclosed, a restructured Model 10 Element from LSMS (16 elements) is constituted, Diagram 1 to 6. The LSMS elements will be undergone through 5 individual regressions in order to reach the model restructure purpose.

Multiple Regression Log

Regression 1 has displayed the examination result between Co_performance and Co_support. Table T4 has indicated the Co_support scores result, with positively and significantly correlated to the criterion. The multiple regression model with the variable (Co_support) constituted $R = .22$, $F(1,28) = 13.46$, $p < .01$. Diagram 2 has depicted the scenario of Co_performance and Co_support.

Diagram 2

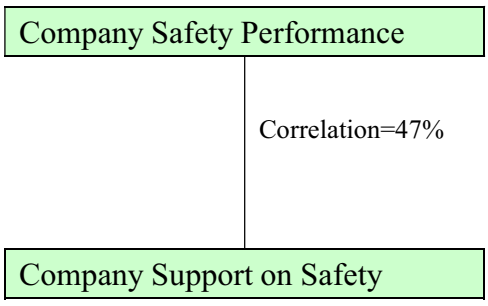

Table T4, Co_support has contented the significant positive regression weight, with the meaning that Co_support is influencing a company's safety performance.

Variable/s	Mean	Std	Correlation (Part)	Multiple Regression Weights	
				b	
Co_performance	3.22	.76			
Co_support	3.12	.90	.47**	.34**	.47

Table T4 Summary statistics and results from the regression 1 analysis

*p<.05 **p<.01 ***p<.001

Regression 2 has displayed the examination results between Co_support and various predictors. Table T5 has indicated the Co_support scores result, with positively and significantly correlated to both OrgC and ProcessC. The multiple regression model with the variable (co_support) constituted R =.68, F(7, 42)=12.82, p<.001.

Diagram 3

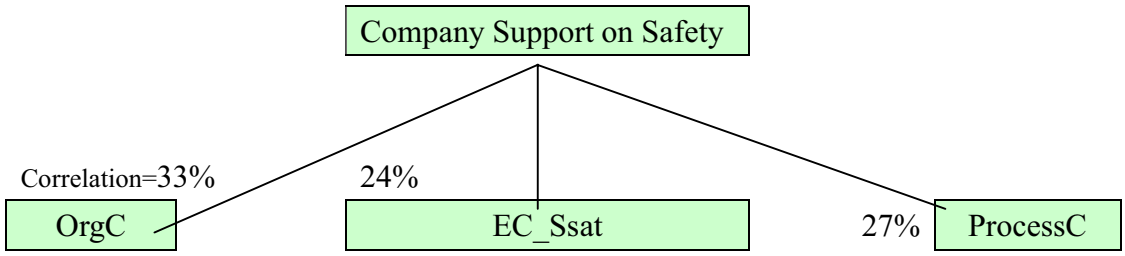

Table T5, Co_support has contented the significant positive regression weight, with the meaning that Co_support is influencing OrgC, EC_Ssat and ProcessC.

Variable/s	Mean	Std	Correlation (Part)	Multiple Regression Weights	
				b	
Co_support	3.12	.90			
OrgC	3.37	.77	.33**	.47**	.42
AccidE	3.96	.60	-.08	-.16	-.1
InspE	3.77	.76	-.02	-.03	-.02
ProcessC	3.22	.82	.24**	.40**	.36
TrainE	3.27	.77	.01	.03	.03
TrainC	3.33	.84	-.02	-.03	-.03
EC_Ssat	3.20	.81	.27**	.37**	.34

Table T5 Summary statistics and results from the regression 2 analysis

*p<.05 **p<.01 ***p<.001

Regression 3 has displayed the examination results between OrgC and various predictors. Table T6 has indicated the OrgC scores result, with positively and significantly correlated to both AccidE and TrainE. The multiple regression model with the variable (co_support) constituted R =.38, F(5, 44)=5.30, p<.01.

Diagram 4

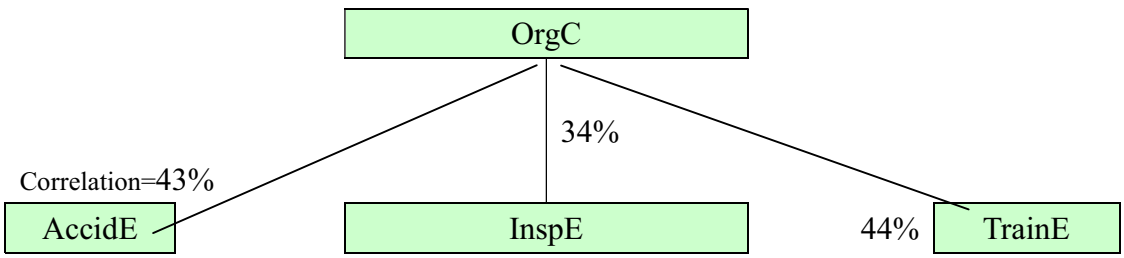

Table T6, OrgC has contented the significant positive regression weight, with the meaning that OrgC is influencing by AccidE and TrainE.

Variable/s	Mean	Std	Correlation (Part)	Multiple Regression Weights	
				b	
OrgC	3.37	.77			
AccidE	3.96	.60	.29*	.43*	.34
InspE	3.77	.76	.-.28*	-.34*	-.33
ProcessC	3.22	.82	.10	.14	.14
TrainE	3.27	.77	.27*	.44*	.44
TrainC	3.33	.84	-.08	-.11	-.12

Table T6 Summary statistics and results from the regression 3 analysis

*p<.05 **p<.01 ***p<.001

Regression 4 has displayed the examination results between Ec_Ssat and various predictors. Table T7 has indicated the Ec_Ssat scores result, with significantly correlated to InspE. The multiple regression model with the variable (Ec_Ssat) constituted R =.37, F(6, 43)=4.13, p<.01.

Diagram 5

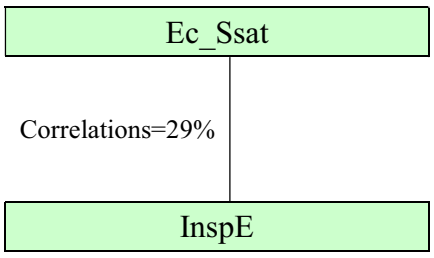

Table T7, Ec_Ssat has contented the significant regression weight, with the meaning that Ec_Ssat is influencing by InspE.

Variable/s	Mean	Std	Correlation (Part)	Multiple Regression Weights	
				b	
Ec_Ssat	3.20	.81			
OrgC	3.37	.77	.08	.10	.10
AccidE	3.96	.60	.04	.07	.05
InspE	3.77	.76	-.29*	-.38*	-.36
ProcessC	3.22	.82	.19	.28	.28
TrainE	3.27	.77	.19	.34	.32
TrainC	3.33	.84	.03	.04	.04

Table T7 Summary statistics and results from the regression 4 analysis

*p<.05 **p<.01 ***p<.001

Regression 5 has displayed the examination results between Process and various predictors. Table T8 has indicated the ProcessC scores result, with significantly correlated to TrainC. The multiple regression model with the variable (Ec_Ssat) constituted R =.51, F(4, 45)=11.65, p<.001.

Diagram 5

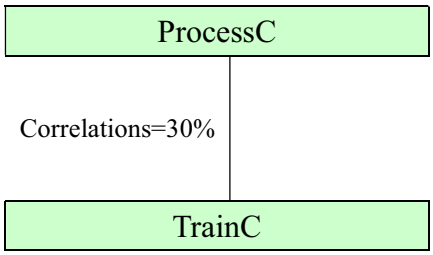

Table T8, ProcessC has contented the positive significant regression weight, with the meaning that ProcessC is influencing by TrainC.

Variable/s	Mean	Std	Correlation (Part)	Multiple Regression Weights	
				b	
ProcessC	3.22	.82			
AccidE	3.96	.60	.15	.10	.10
InspE	3.77	.76	-.07	.07	.05
TrainE	3.27	.77	.168	-.38	-.36
TrainC	3.33	.84	.30**	.28**	.28

Table T8 Summary statistics and results from the regression 5 analysis

*p<.05 **p<.01 ***p<.001

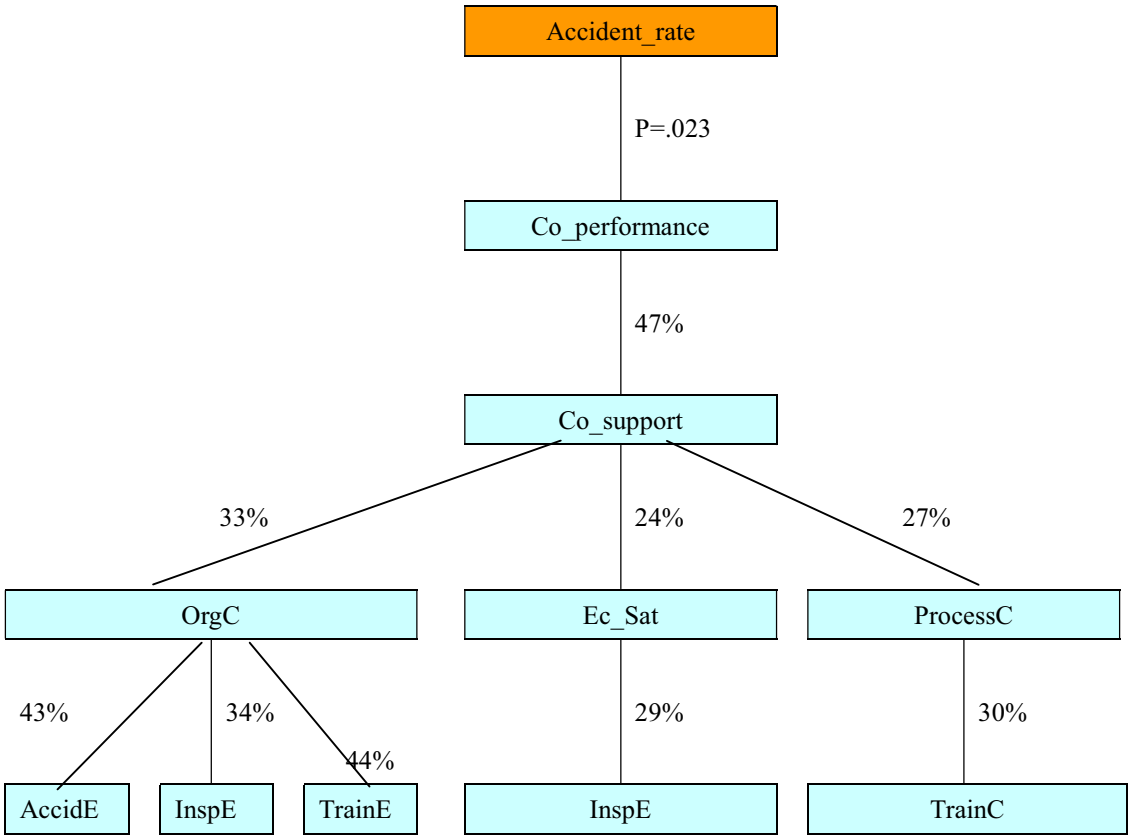

Diagram 6: The Rebuilt of the Model 10 Elements from the Initiated LSMS (16 Elements)

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Co_performance
  /METHOD=ENTER Co_support
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(3).
```

Regression 1

(Analysis the relation between the Company Safety Performance and Company Safety Support)

Notes

Output Created		19　12月2015日 下午03時33分03秒
Comments		
Input	Data	C:\Users\user\Documents\lsms research_merge1_PCA_10element.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	50
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Synta年		REGRESSION /DESCRIPTIVES MEAN STDDEV CORR SIG N /MISSING LISTWISE /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL ZPP /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT Co_performance /METHOD=ENTER Co_support /SCATTERPLOT=(*ZRESID ,*ZPRED) /RESIDUALS NORMPROB(ZRESID) /CASEWISE PLOT(ZRESID) OUTLIERS(3).
Resources	Processor Time	00 00:00:00.469
	Elapsed Time	00 00:00:00.375
	Memory Required	1796 bytes
	Additional Memory Required for Residual Plots	568 bytes

[DataSet1] C:\Users\user\Documents\lsms research_merge1_PCA_10element.sav

Descriptive Statistics

	Mean	Std. Deviation	N
Co_performance	3.22	.764	50
Co_support	3.12	.895	50

Correlations

		Co_performance	Co_support
Pearson Correlation	Co_performance	1.000	.468
	Co_support	.468	1.000
Sig. (1-tailed)	Co_performance	.	.000
	Co_support	.000	.
N	Co_performance	50	50
	Co_support	50	50

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Co_support[a]	.	Enter

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.468[a]	.219	.203	.682

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.259	1	6.259	13.460	.001[a]
	Residual	22.321	48	.465		
	Total	28.580	49			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.975	.353		5.595	.000	1.265	2.684					
	Co_support	.399	.109	.468	3.669	.001	.180	.618	.468	.468	.468	1.000	1.000

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Co_support
1	1	1.962	1.000	.02	.02
	2	.038	7.179	.98	.98

Casewise Diagnostics[a]

Case Number	Std. Residual	Co_performance	Predicted Value	Residual
47	3.266	5	2.77	2.227

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.37	3.97	3.22	.357	50
Residual	-1.970	2.227	.000	.675	50
Std. Predicted Value	-2.368	2.100	.000	1.000	50
Std. Residual	-2.890	3.266	.000	.990	50